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Dentsu International
EU Secondary Repository & Router: List of Specifications v2.0.2

This document details the list of specifications of the EU Secondary Repository and Router.

Summary of changes

Date	Ver	Done by	Comment
17.01.2019	0.1	Dentsu Aegis Network	Internal Draft
05.02.2019	0.2	Dentsu Aegis Network	First Draft shared with stakeholders
21.02.2019	1.0	Dentsu Aegis Network	First release
08.03.2019	1.1	Dentsu Aegis Network	Minor changes
28.03.2019	1.2	Dentsu Aegis Network	Minor changes
16.09.2019	1.3	Dentsu Aegis Network	Addition of the GS1 EPCIS, EDI interface. Improvement of the Validation and address field split.
16.10.2019	1.4	Dentsu Aegis Network	Additional sequence validation
17.10.2019	1.4.1	Dentsu Aegis Network	Update of the Message Time Long. Update the definition of the Arrival validation in order to remove the FID control. Update the VAL_EVT_24H definition to a warning.
20.12.2019	1.4.2	Dentsu Aegis Network	Update Routing from distributors and wholesalers. Remove the Recall for IRU and IRA message as described in the implementing regulation. Update sequence validation.
31.10.2020	1.4.3	Dentsu Aegis Network	Update of the country codes in preparation for Brexit. Consolidation of optional features into the main documents
15.04.2021	1.4.4 DRAFT	Dentsu Aegis Network	Clerical changes: • Moving the definition of the technical and the business validation from the list of specification to the Data Dictionary
21.05.2021	1.4.4 DRAFT2	Dentsu Aegis Network	
15.06.2021	1.4.4	Dentsu Aegis Network	
07.07.2022	1.4.5 DRAFT	Dentsu Aegis Network	Deactivation Unit level unique identifier format
08.09.2022	1.4.5	Dentsu Aegis Network	Publication
17.05.2023	1.4.6	Dentsu International	Publication
21.08.2023	2.0 Draft	Dentsu International	Publication
21.09.2023	2.0	Dentsu International	Publication. See list of changes as a separate document.

26.09.2023	2.0	Dentsu International	Corrigendum of point 4.7 and automatic deregistration rules for mobile machine parts.
31.10.2023	2.0	Dentsu International	Corrigendum to remove EUD's aUI limit
29.02.2024	2.0.1	Dentsu International	All the 2.0.1 changes highlighted in yellow in the document. Minor corrections on IRU and IRA flows. No technical impact, enhancement of the description. Point 5.6 has been renamed from Competent Authorities API to Query API. Point 5.6.4 has been removed as now it became redundant.
27.11.2024	2.0.2	Dentsu International	Addition of section 9. Migration of primary Repositories. No technical impact.

Distribution

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Table of Contents

1 Introduction

1.1 Traceability system overview

On 3rd April 2014, the European Parliament and the Council adopted the Tobacco Products Directive 2014/40/EU (TPD). Article 15 of the TPD aims to address illicit trade in tobacco products by introducing a system of traceability in the Union.

Under this Traceability system, all Unit packets of tobacco products produced in, destined for, or placed on the EU market need to display a Unique Identifier (UI). The operational and transactional movements of the tobacco products must be recorded throughout the supply chain, from the Manufacturer to the last level before the first retail outlet. Information recorded is stored by independent data storage providers (Primary and Secondary Repositories), and the data is made available for regulatory purposes to the competent authorities of the Member States and to the Commission.

This Traceability system will contribute to reducing the circulation of tobacco products not compliant with the TPD and other tobacco control legislation. It will also reduce artificially cheap supplies of illegal tobacco products that affect the uptake and general prevalence of smoking. In this regard, it addresses the obligations of the European Union (EU) under the Framework Convention for Tobacco Control (FCTC). In the end, the Traceability system will play an important role in protecting public health, state budgets and Economic operators.

1.2 Scope and objectives

The production and publishing of a List of specifications and a Common Data Dictionary is required as an obligatory task for the providers of the Secondary repository in Article 28 of the amendment to the Implementing Regulation (EU) 2018/574 of 01/03/2023.

The purpose of this document is to inform the Traceability system stakeholders of the list of specifications required to allow the data exchanges with the Secondary repository. It also includes the technical descriptions of data entities.

The document is structured as follows:
- **Section 2 – Definitions.** The description of the key concepts as defined in EU Regulation.
- **Section 3 – Repository system overview.** A general description of the Repository system, including key design principles, role of the components, overview of the main processes and data flows, and overview of the system architecture.
- **Section 4 – Processes description**. A detailed description of each process and its related data flows and messages, including requests of codes, report on operational events, reports on transactional events and recalls.
- **Section 5 – Interfaces**. Description of the Traceability System interfaces between its different components.

- **Section 6 – Unique Identifiers.** Description of the decoding requirements to allow authorized third parties to decode the codes.
- **Section 7 – Router**. Brief description of the component in charge of routing information from ID Issuers and Supply Chain to related Manufacturer's Primary repositories.
- **Section 8 – Sign-up Process**. Brief description of the sign-up process used to connect the ID Issuer, Economic Operators and Primary repository to the Secondary repository.

Note: for the detailed and technical description of data base entities and flows, operational and transactional method, security edge case, router definition, error messages, registration process, message validation and overall connection diagram, see the Data Dictionary document.

1.3 Conventions

1.3.1 Message naming convention

The messages are described by a 3 or 4 alphanumeric characters code. The message type reference of the Annex II of the Commission Implementing Regulation (EU) 2018/574 will be indicated between brackets.

Example: REO (1.1)

1.3.2 Message and codes sample

```
{
   "Errors": null
}
```

2 Definitions

The following definitions are described in Article 2 of the Tobacco Products Directive 2014/40/EU and in Article 2 and 3 of the Commission Implementing Regulation (EU) 2018/574. They are listed in alphabetical order.

Aggregated packaging is any packaging containing more than one Unit packet of tobacco products assembled in a facility.

Anti-tampering device is a device that allows for the recording of the verification process following the application of each unit level unique identifier by means of a video or log file, which once recorded cannot be further altered by an economic operator.

Common data dictionary is a set of information describing the contents, format and structure of a database and the relationship between its elements, used to control access to and manipulation of the databases common for all primary and secondary repositories.

Data carrier is a means of representing data in machine readable form.

Disaggregation of aggregated packaging is the disassembly of aggregated packaging of tobacco products in a facility.

Economic operators are any natural or legal person who is involved in the trade of tobacco products, including for export, from the manufacturer to the last economic operator before the first retail outlet. This includes, but is not limited to, manufacturers, importers, wholesalers and distributors, as well as transport companies or providers of courier services.

Export is the shipment from the Union to a third country.

Facility is any location, building, office or vending machine where tobacco products are manufactured, stored, logistically or financially handled or placed on the market.

First retail outlet is the Facility where tobacco products are placed on the market for the first time, including vending machines used for the sale of tobacco products.

ID Issuer is an entity appointed by each Member State, responsible for generating and issuing Unique identifier (UI) for Unit packet and Aggregated packaging of tobacco products.

Importer of tobacco or related products is the owner of, or a person having the right of disposal over, tobacco or related products that have been brought into the territory of the Union.

IT service provider is a service provider that is tasked by an economic operator with transmitting information on product movements and transactional information to the repositories system.

Machine is the assemblies of machinery that are used for the manufacture of tobacco products and are integral to the manufacturing process.

Machine part is any identifiable fixed or mobile part of a machine provided that such a part constitutes a complete module. A mobile part may be used for one or more machines simultaneously or interchangeably.

Manufacturer is any natural or legal person who manufactures a product or has a product designed or manufactured, and markets that product under their name or trademark.

Offline flat-files are the electronic files established and maintained by each ID Issuer that contains data in a plain text format allowing for the extraction of the information encoded in the Unique identifier (UI) (excluding the time stamp) used at the Unit packet and Aggregated packaging levels without accessing the Repository prefix system.

Primary repository is a repository storing traceability data relating exclusively to the products of a given Manufacturer or Importer.

Registry refers to the record established and maintained by each ID Issuer of all the Identifier codes generated for Economic operators, Operators of first retail outlets, Facilities and Machines, along with the corresponding information.

Repositories system is the system consisting of the Primary repositories, the Secondary repository, and the Router.

Retail outlet is any outlet where tobacco products are placed on the market, including by a natural person.

Router is a device established within the Secondary repository that transfers data between different components of the Repositories system.

Secondary repository is a repository containing a copy of all traceability data stored in the Primary repositories.

Time stamp means the date and time of occurrence of a particular event recorded in UTC time in a prescribed format.

Trans-loading is any transfer of tobacco products from one vehicle to another during which tobacco products do not enter and exit a Facility.

Unique identifier (UI) is the alphanumeric code enabling the identification of a Unit packet or an Aggregated packaging of tobacco product.

Unit packet is the smallest individual packaging of a tobacco or related product that is placed in the market.

Vending van is a vehicle used for the delivery of tobacco products to multiple retail outlets in quantities that have not been predetermined in advance of the delivery.

Working day is every day of work in the Member State for which the ID issuer is competent.

3 Repositories system overview

3.1 Key design principles

The Repositories system is made up of the following sub-systems: Primary repositories, Secondary repository, and Router. The sub-systems must be fully interoperable with one another, regardless of the service provider.

The European Commission Implementing Regulation (EU) 2018/574 provided the following key design principles:

- Whenever data are received by the Primary repositories on the basis of a reporting activity, or for any other permitted reason, it must immediately forwarded to the Secondary repository.

- Economic operators other than Manufacturers and Importers must send the information recorded to the Router, which in turn must transfer it to the Primary repository serving the Manufacturer or Importer whose tobacco products are concerned. A copy of those data must be immediately transferred to the Secondary repository.

- ID issuers must ensure that an up-to-date copy of all offline flat-files, registries and related explanatory notes are electronically provided via the Router to the Secondary repository.

3.2 Roles of the Repositories system components

The following diagram represents the overall system interconnection.
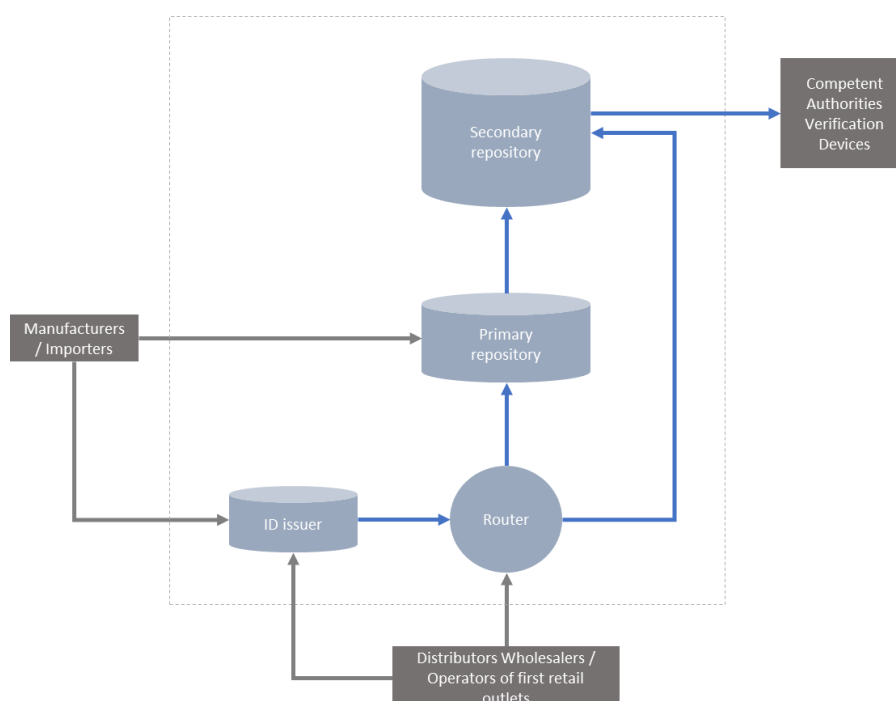
Figure 1 Overall system interconnection

3.2.1 The Primary repositories

The Primary repositories are repositories contracted by each Manufacturer and Importer. Primary repositories store product movements and transactional data related to the tobacco products' Unit packets and Aggregated packaging of their corresponding Manufacturers and Importers. When the reports come from Distributors and Wholesalers, the data is sent via the Router.

3.2.2 The Router

The Router dispatches traceability data from the Wholesalers, Distributors, Transport companies or Providers of courier services to the Primary repository related to the Manufacturer or Importer of the dispatched tobacco products. The Router also transmits the Unique Identifiers generated by the ID Issuers to the relevant Primary repository or to the Secondary Repository if the UIs were requested by an Economic operator other than a Manufacturer or Importer. Finally, the Router transmits the offline flat-files and registries from the ID issuers to the Secondary repository.

3.2.3 The Secondary repository

The Secondary repository is a "copy" of the Primary repositories for all traceability data. All data will first be centralized in the Primary repositories and then sent to the Secondary repository, with the exception of:
- the requests for aggregated level UIs by Distributors and Wholesalers;
- the reports on application of aggregated level UIs by Distributors and Wholesalers;
- the transfer by ID issuers of offline flat-files, registries and algorithms to the Secondary repository.

Those are directly transmitted via the Router to the Secondary repository.

Furthermore, the Secondary repository contains the EU Wide Register.
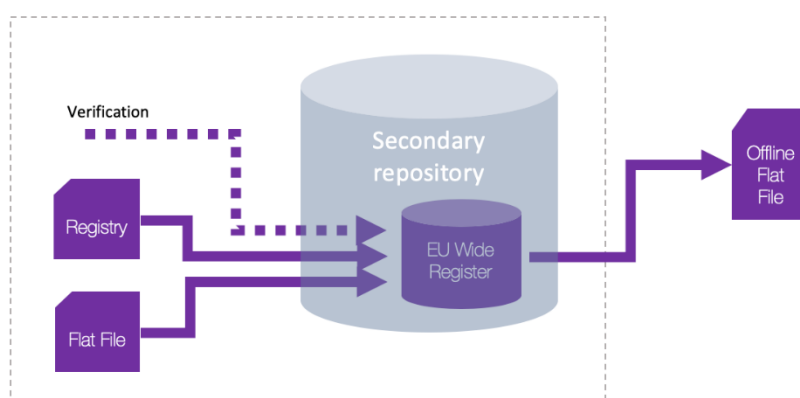
Figure 2 EU Wide Register

3.3 Overview of Data Dictionary processes

The following diagrams describe the different key processes and corresponding data flows that are implemented in the Traceability system. These processes and data flows are described in detail in section 4.

3.3.1 Identifier codes for Economic operators, Facilities, Machines and Machine Parts

The following diagram describes the key data flows whereby Economic operators such as Manufacturers, Importers, Distributors, Wholesalers and Operators of first retail outlets request from an ID Issuer the generation of Identifier codes, the correction of information or a de-registration. Those Identifier codes can identify either the Economic operator, a Facility, a Machine or a Machine Part.
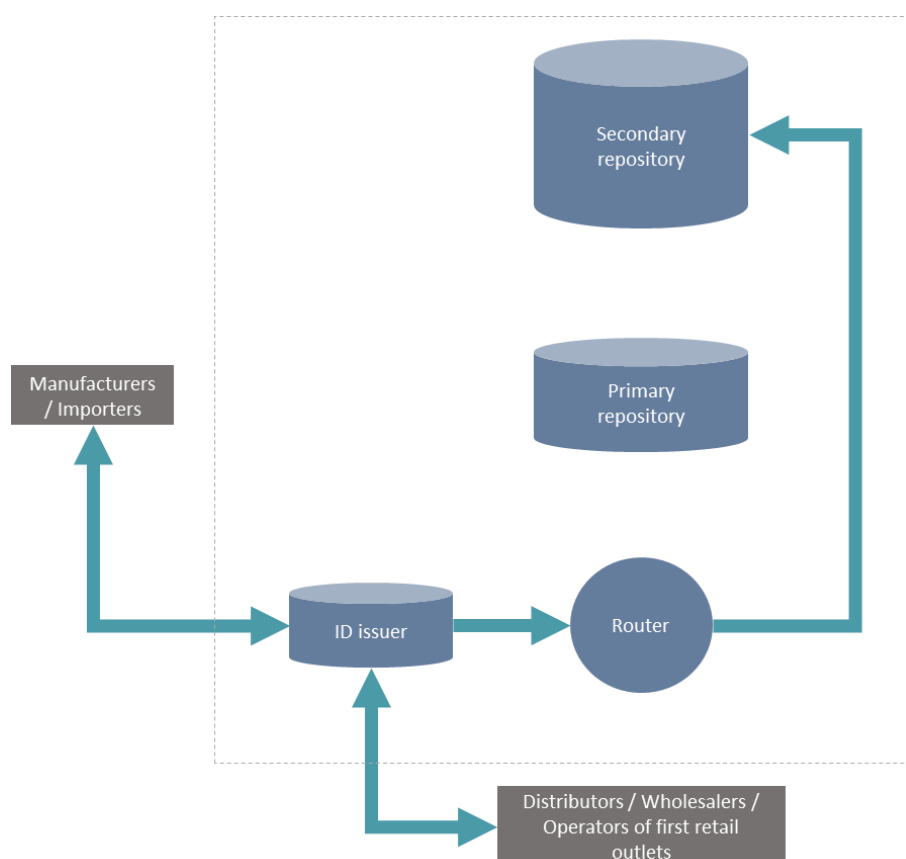
Figure 3 Identifier codes general data flow

The Economic operators exchange the necessary information with the ID issuer. The ID issuer generates the requested Identifier codes for the Economic operators and transfers offline flat-files and registries directly to the Secondary repository via the Router.

3.3.2 Unique identifiers (UIs) for Unit packets and Aggregated packaging of tobacco products

The following diagram describes the key data flows through which Economic operators such as Manufacturers, Importers, Distributors, and Wholesalers request the issuing or deactivation of Unique identifiers (UIs) either for Unit packets or for Aggregated packaging of tobacco products.
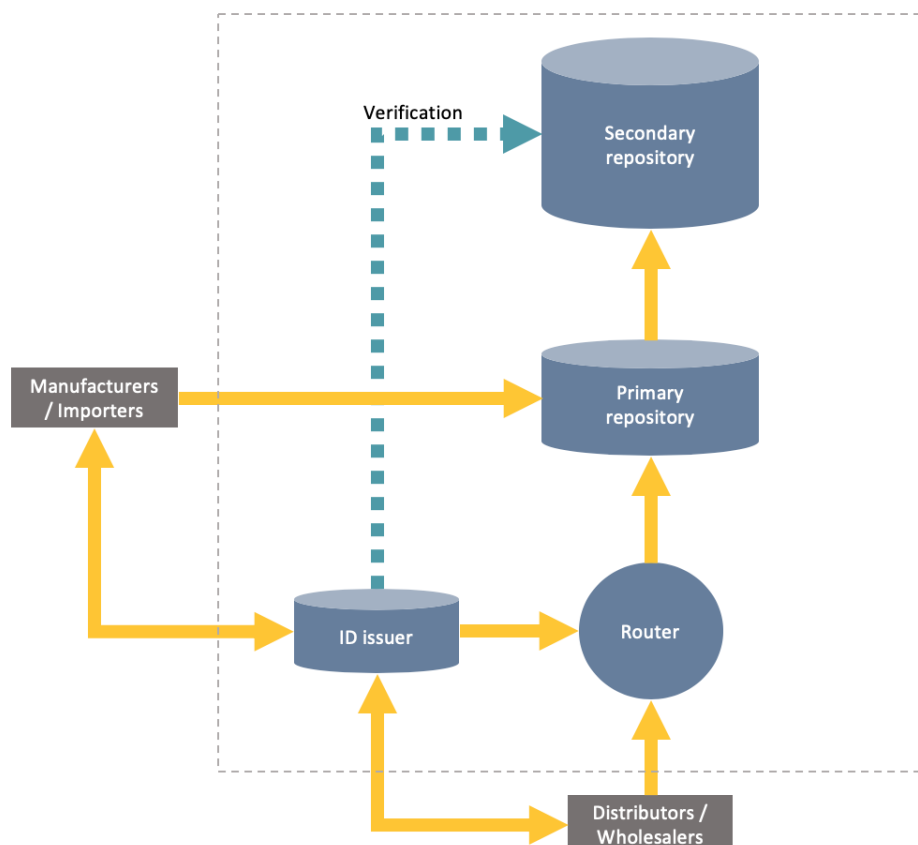
Figure 4 Unique identifier (UI) general data flow

The Economic operators exchange the necessary information with the ID issuer. The ID issuer generates the codes and transmits the data to the corresponding Primary repositories or to the Secondary repository via the Router, before issuing the Unique identifiers (UIs) to the Economic operators. The Primary repositories immediately forward the data to the Secondary repository.

The Secondary repository exposes a verification service allowing the ID issuer to check the validity of Identifier codes.

3.3.3 Report on Product movements

The following diagram describes the key data flows through which Economic operators such as Manufacturers, Importers, Distributors, Wholesalers, Transport Companies or Providers of courier services report on tobacco products movements (application of UIs, dispatch, arrival, trans-loading, disaggregation, delivery carried out with a vending van to multiple retail outlets).
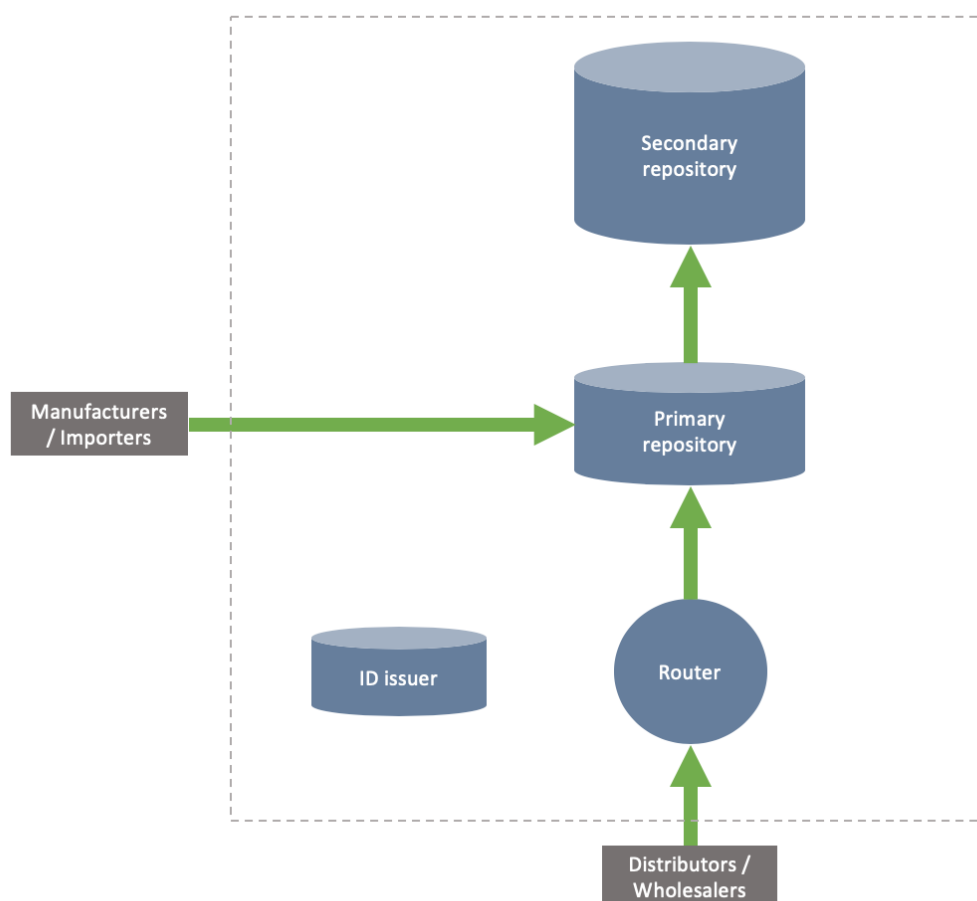
Figure 5 Product movement data flow

The Manufacturers and Importers store the data directly into their Primary repositories. The Distributors and Wholesalers send reports to the corresponding Primary repositories via the Router. The Primary repositories immediately forward the data to the Secondary repository.

3.3.4 Report on Transactional events

The following diagram describes the key data flows through which Economic operators such as Manufacturers, Importers, Distributors, and Wholesalers report on tobacco products transactional events (issuing of the order number, issuing of the invoice, and receipt of the payment).
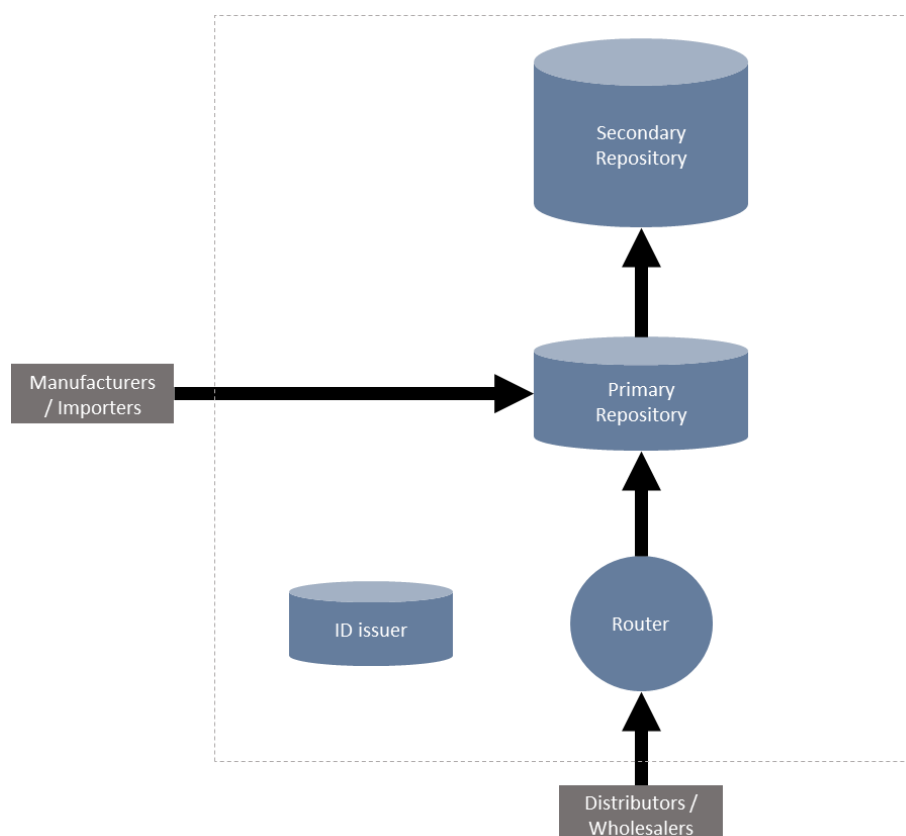
Figure 6 Transaction general data flow

The Manufacturers and Importers store the data directly into their Primary repositories. The Distributors and Wholesalers send reports to the corresponding Primary repositories via the Router. The Primary repositories immediately forward the data to the Secondary repository.

3.3.5 Recalls

Recalls must be delivered following this process: the system containing the Primary repositories, the Secondary repository and the Router is to be regarded as one system.
This system needs to have an efficient method of recalling an event over the whole group of repositories. To makes things easier, point of entry of the system is in charge of generating the RecallCode.

Use case 1. Router entry in the supply chain:
(i) The Economic operator calls the Router; (ii) the Router generates a UUID;
(iii) the Router passes it to the relevant Primary repository; (iv) the Primary
repository forwards it to the Secondary repository.

Should a recall be required, this can only be initiated from the Router, by the
Distributor or Wholesaler Economic operator. The Router performs the RCL call
to the Router, the Router forwards this to the correct Primary repository, the
Primary repository forwards this to the Secondary repository.

Use case 2. Primary repository entry from the Manufacturer system.
(i) The Economic operator calls the Primary repository; (ii) the Primary
repository generates a UUID; (iii) the Primary repository passes this to the
Secondary repository.

Should a recall be required, this can only be initiated from the Primary
repository, by the Manufacturer or Importer Economic operator. The Primary
repository does the RCL call to the Secondary repository.

Technical details:
The entry system must the "code" property in JSON payload to send the
generated RecallCode.
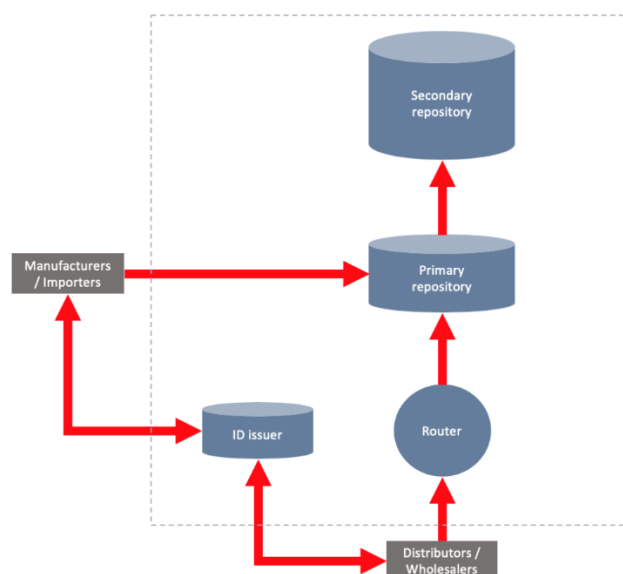
Figure 7 Recalls general data flow

3.4 System Architecture
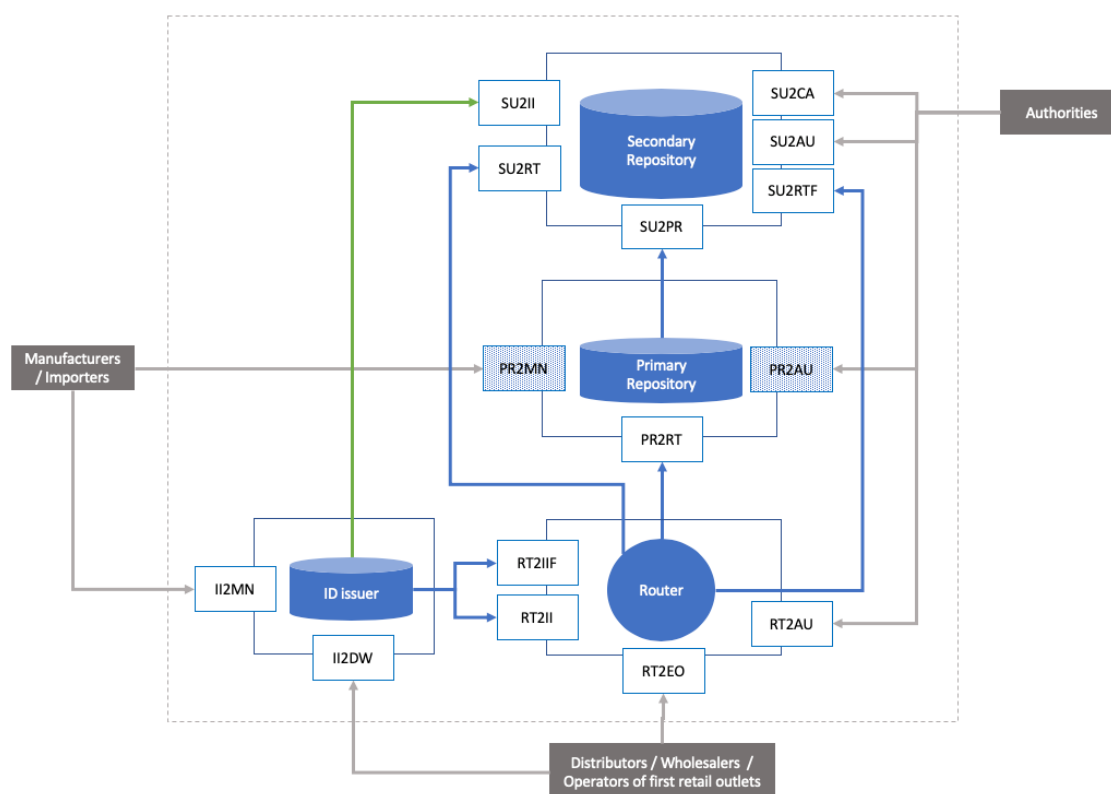
Figure 8 System Interfaces and Connections

The sub-systems of the Traceability System Architecture are as follows:

System	Description
Primary repository	The Primary repository is a repository storing traceability data exclusively related to the products of a given Manufacturer or Importer.
Secondary repository	The Secondary repository is a repository containing a copy of all traceability data stored in each Primary repository.
Router	The Router enables messages to be forwarded and/or split to the related Primary repositories according to the declared ownership of the products.
ID issuer	ID Issuers are accountable to accommodate the request and generation of required identifiers (e.g., EOID, FID, MID, upUI, aUI), the storage of all associated data, and the sharing of National Registry, flat-file, and algorithm compression/encryption techniques.

The interfaces of the Traceability System are as follows:

Interface acronym	Hosting system	Description
II2MN	ID issuer System	Secure interface published to Manufacturers and Importers
II2DW	ID issuer System	Secure interface published to Distributors and Wholesalers
PR2MN	Primary repository	Secure interface published by Primary repository providers for the internal Manufacturer system to push messages and recall those. No query nor data access for Manufacturer are allowed.
PR2AU	Primary repository	Secure interface published by Primary repository providers for competent Authorities
PR2RT	Primary repository	Secure interface published by Primary repository providers for Router communication
RT2II	Router	Secure interface published by the Router for the ID issuers.
RT2IIF	Router	File-based Secure interface published by the Router for the ID issuers.
RT2EO	Router	Secure interface published by the Router for Manufacturers and Importers
RT2AU	Router	Secure interface published by the Router for Competent Authorities
SU2PR	Secondary repository	Secure interface published by the Secondary repository for the Primary repositories' providers
SU2CA	Secondary repository	Secure interface published by the Secondary repository for Competent Authorities
SU2AU	Secondary repository	Secure interface published by the Secondary repository for auditing purposes
SU2RT	Secondary repository	Secure interface published by the Secondary repository for Router
SU2RTF	Secondary repository	File-based Secure interface published by the Secondary repository for Router
SU2II	Secondary repository	Secure interface published by the Secondary repository for Identifier Code verification purposes

3.5 Secondary Repository test environment

The provider of the secondary repository will set up a test environment that will allow ID issuers, providers of primary repositories and economic operators to perform QA of their technical solutions and routines before connecting to the repositories system. The test environment will closely simulate the repositories system and will always be available.

3.6 Secondary Repository user acceptance environment

The provider of the secondary repository will set up a user acceptance environment that will allow ID issuers, providers of primary repositories and economic operators to perform QA of their technical solutions and routines in anticipation of the next version of the repositories system. This environment will be the same as the test environment, which will be updated to the next version of the technical specifications with sufficient time to test prior to the cut-over date of the new specifications in the production environment.

This environment will be staged after 21st of December 2023 (as per the regulation) and only available for a limited time in case that a major update is done in the system, so that the QA environment becomes the "regression environment" with the previous version of the specifications and the "user acceptance environment" hosts the new version.

3.7 Optional II2MN II2DW interfaces

The ID Issuer defines the communication between the EO and the ID issuer corresponding to interfaces II2MN and II2DW.
The proposed messages presented in this List Of Specification are sample messages to illustrate the overall flow of data from the EO to the Secondary repository. These messages should be considered as a Guideline with no obligation of implementation.
All messages part of the II2MN and II2DW interfaces are marked as optional in this document.

Interface acronym	Hosting system	Description
II2MN	ID issuer System	Secure interface published to Manufacturers and Importers
II2DW	ID issuer System	Secure interface published to Distributors and Wholesalers

4 Processes description

The following section provides a detailed description of the different processes, the data flows related to them and the list of corresponding messages and interfaces (which are described further in the document as well as in the Data Dictionary).

4.1 Issuing Identifier codes

4.1.1 Issue of an Economic operator Identifier code

4.1.1.1 Description – Issuing of an Economic operator Identifier code

Economic operators (Manufacturers, Importers, Distributors, Wholesalers, Transport Companies or Providers of courier services) and Operators of first retail outlets must request Economic operator Identifier codes to the competent ID Issuers. The ID Issuers must transmit the Identifier codes to the requesting Economic operators within two working days from the receipt of the request.

Economic operators that are not based in the Union and handle the products manufactured in the Union and destined for the Union markets in transit through third countries, may apply for an economic operator identifier code from the ID issuer competent for the Member State on whose market the majority of the products handled by these economic operators is placed.

All the information submitted to the ID issuer and the corresponding identifier codes shall form part of a registry to be established, managed and kept up to date by the competent ID issuer. The competent ID issuer shall keep a record of the information stored in the register for as long as the traceability system is operational

Note: The ID issuers are responsible for establishing registries for the Identifier codes and corresponding information submitted in the application form, along with explanatory notes on their structures. The ID issuers must ensure that an up-to-date copy of all registries and explanatory notes is electronically provided via the Router to the Secondary repository.

4.1.1.2 Data Flow Diagram – Issuing of an Economic operator Identifier code

The diagram below depicts the data flows for the process through which an ID Issuer issues an Economic operator Identifier code.
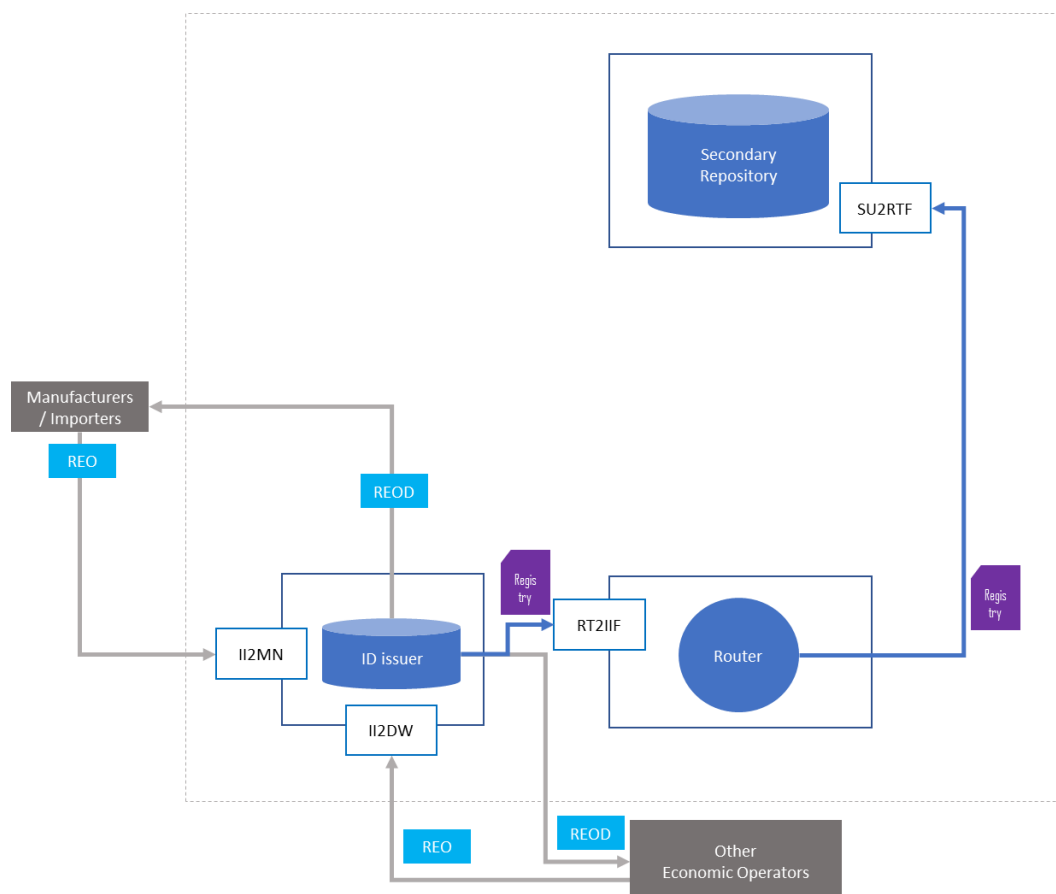
Figure 9 Data Flow Diagram – Issuing of an Economic operator Identifier code

The following table summarizes the messages, entities and systems displayed in the data flow diagram above.

Message code	Message description	From		To		Interface(s)
		Entity	System	Entity	System	
REO (1.1)	Request for an Economic operator Identifier code	Economic operators (Manufacturers, Importers, Distributors, Wholesalers, Transport Companies, Providers of courier services), Operators of first retail outlets		ID issuer		II2MN II2DW

4.1.2 Correction of information concerning an Economic operator

4.1.2.1 Description – Correction of Information concerning an Economic operator
Economic operators (Manufacturers, Importers, Distributors, Wholesalers, Transport Companies, Providers of courier services), and Operators of first retail outlets can request to the competent ID Issuers the correction of the information submitted in the initial application form for Economic operator Identifier codes.

Note: The ID issuers are responsible for establishing registries for the Identifier codes and corresponding information submitted in the application form, along with explanatory notes on their structures. The ID issuers must ensure that an up-to-date copy of all registries and explanatory notes is electronically provided via the Router to the Secondary repository.

4.1.2.2 Data Flow Diagram – Correction of Information concerning an Economic operator
The diagram below depicts the data flows for the process through which an Economic operator or Operator of first retail outlets requests the correction of information submitted in the initial application form for Economic operator Identifier codes.
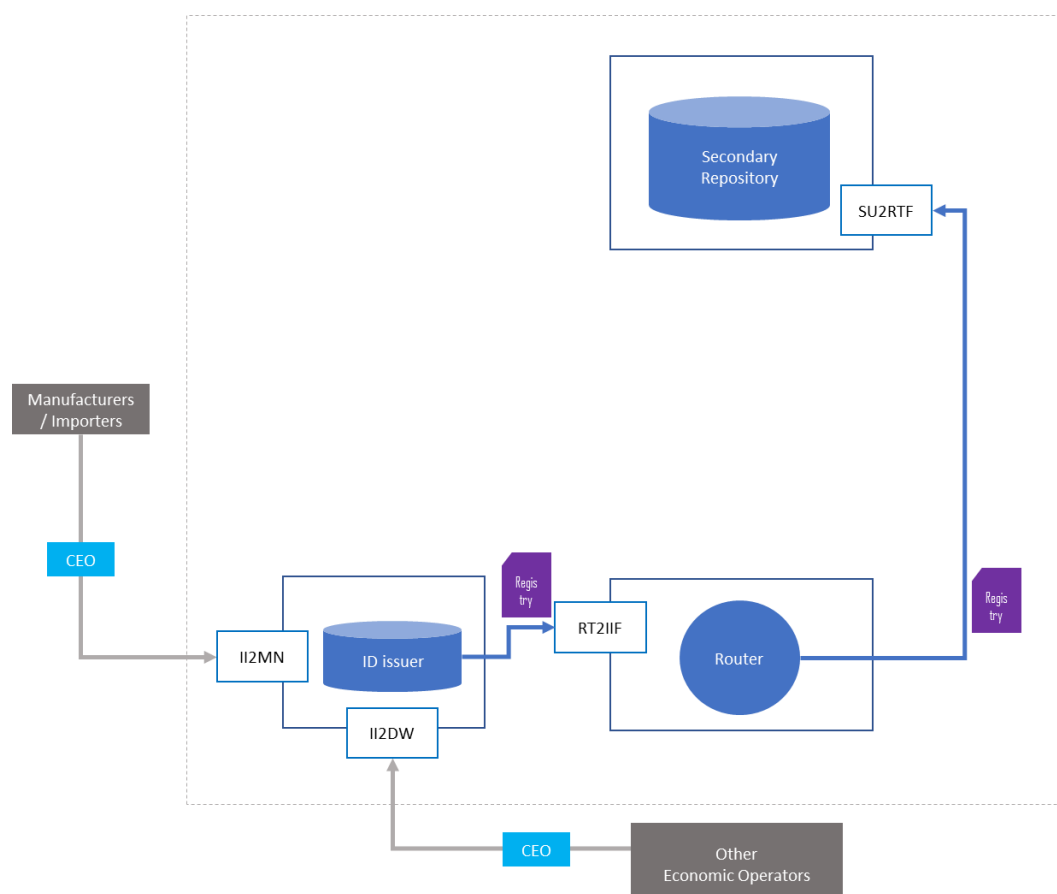
Figure 10 Correction of Information concerning an Economic operator

The following table summarizes the messages, entities and systems displayed in the data flow diagram above.

Message code	Message description	From		To		Interface(s)
		Entity	System	Entity	System	
CEO (1.2)	Request for the correction of information concerning an Economic operator	Economic operators (Manufacturers, Importers, Distributors, Wholesalers, Transport Companies, Providers of courier services), Operators of first retail outlets		ID issuer		II2MN II2DW

4.1.3 De-registration of Economic operator Identifier code

4.1.3.1 Description – De-registration of Economic operator Identifier code

Economic operators (Manufacturers, Importers, Distributors, Wholesalers, Transport Companies, Providers of courier services), and Operators of first retail outlets can request to the competent ID issuers their de-registration.

Competent Authorities of Member States may also, in accordance with their national laws, require the ID issuer to deactivate an Economic operator Identifier code.

In both cases, this must lead to the automatic deactivation of all the related Facility Identifier codes and all Machine Identifier codes.

Note: All Machine Identifier codes include all fixed and mobile parts.

Note: The ID issuers are responsible of establishing registries relating to the Identifier codes and corresponding information submitted in the application form, along with explanatory notes on the structures thereof. The ID issuers must ensure that an up-to-date copy of all registries and explanatory notes are electronically provided via the Router to the Secondary repository.

4.1.3.2 Data Flow Diagram – De-registration of Economic operator Identifier code

The diagram below depicts the data flows for the process through which an ID Issuer de-registers an Economic operator or an Operator of a first retail outlet.

Figure 11 De-registration of an Economic operator

The following table summarizes the messages, entities and systems displayed in the data flow diagram above.

Message code	Message description	From		To		Interface (s)
		Entity	**System**	**Entity**	**System**	
DEO (1.3)	Request for the de-registration of an Economic operator	Economic operators (Manufacturers, Importers, Distributors, Wholesalers, Transport Companies, Providers of courier services), Operators of first retail outlets Competent Authorities of Member States		ID issuer		II2MN II2DW

4.1.4 Issuing of a Facility Identifier code

4.1.4.1 Description – Issuing of a Facility Identifier code

All facilities from manufacturing to the first retail outlet must be identified by a Facility Identifier code generated by the ID Issuer competent for the territory in which the Facility is located. Economic operators (Manufacturers, Importers, Distributors, Wholesalers, Transport Companies, Providers of courier services) and Operators of first retail outlets must request Facility Identifier codes from the competent ID Issuer. The ID issuers must transmit the Identifier codes to the Economic operators within two working days.

In the case of a first retail outlet, the Facility Identifier code may be requested by another registered Economic operator, subject to the consent of the operator of the first retail outlet.

In the case of manufacturing facilities located outside the Union, it is the responsibility of the Importer established inside the Union to request the related Facility Identifier code to any ID Issuer appointed by a Member State on whose market they place their products.

In the case of first-retail outlets that are integrated into a non-retail type of facility shall be identified with a separate facility identifier code that corresponds to its function.

Economic operators managing standalone warehouses that are not based in the Union and that handle products manufactured in the Union and destined for the Union markets in transit through third countries may apply for a facility identifier code for a standalone warehouse that is located in a third country from the ID issuer competent for the Member State on whose market most of the products handled by these economic operators are placed. To this end, they shall provide to the ID issuer the information listed in point 1.4 of Section 1 of Chapter II of Annex II of Commission Implementing Regulation (EU) 2018/574, in the format indicated therein.

The ID issuers shall keep a record of the information stored in the register for as long as the traceability system is operational.

Note: The ID issuers are responsible for establishing registries for the Identifier codes and corresponding information submitted in the application form, along with explanatory notes on their structures. The ID issuers must ensure that an up-to-date copy of all registries and explanatory notes is electronically provided via the Router to the Secondary repository.

4.1.4.2 Data Flow Diagram – Issuing of a Facility Identifier code

The diagram below depicts the data flows related to the process whereby an ID Issuer issues a Facility Identifier code.

Figure 12 Issuing of a Facility Identifier code

The following table summarizes the messages, entities and systems displayed in the data flow diagram above.

Message code	Message description	From		To		Interface (s)
		Entity	System	Entity	System	
RFA (1.4)	Request of a Facility Identifier code	Economic operators (Manufacturers, Importers, Distributors, Wholesalers, Transport Companies, Providers of courier services) Operators of first retail outlets		ID issuer		II2MN II2DW

4.1.5 Correction of information concerning a Facility Identifier code

4.1.5.1 Description – Correction of Information concerning a Facility Identifier code

Economic operators (Manufacturers, Importers, Distributors, Wholesalers, Transport Companies, Providers of courier services) and Operators of first retail outlets can request to the competent ID issuers the correction of the information submitted in the initial application for Facility Identifier codes.

Note: The ID issuers are responsible for establishing registries for the Identifier codes and corresponding information submitted in the application form, along with explanatory notes on their structures. The ID issuers must ensure that an up-to-date copy of all registries and explanatory notes is electronically provided via the Router to the Secondary repository.

4.1.5.2 Data Flow Diagram – Correction of Information concerning a Facility Identifier code

The diagram below depicts the data flows for the process through which an Economic operator or operator of first retail outlets requests the correction of information submitted in the initial application form for Facility Identifier codes.
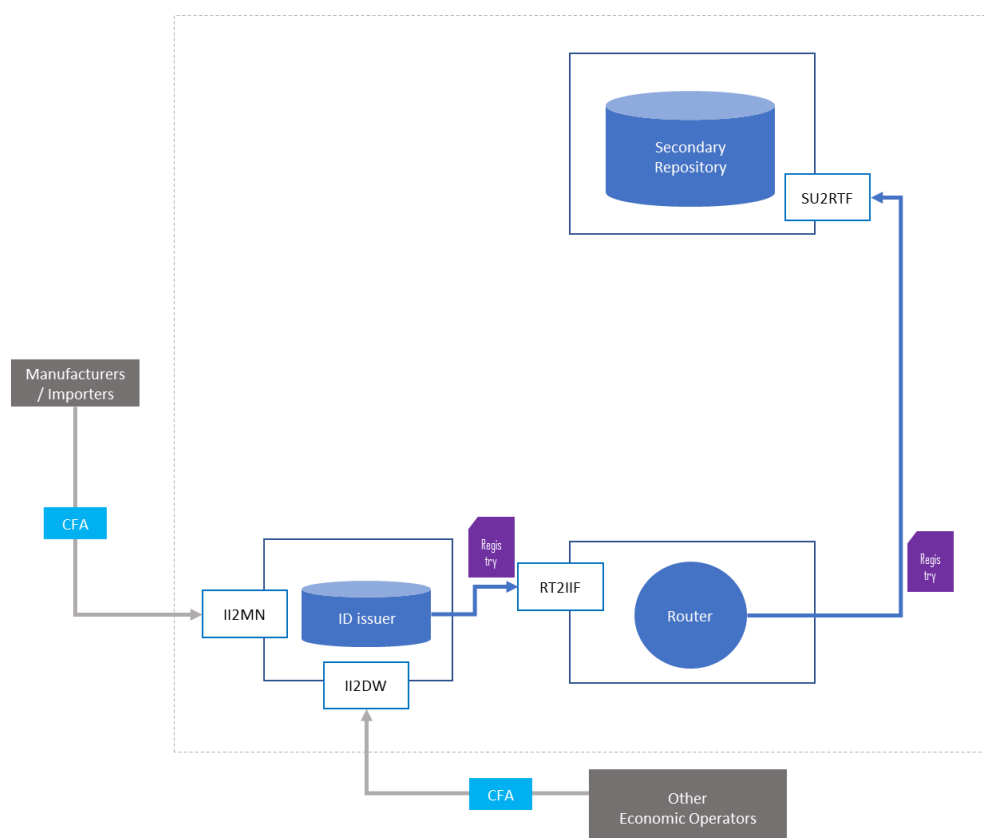
Figure 13 Correction of Information concerning a Facility

The following table summarizes the messages, entities and systems displayed in the data flow diagram above.

Message code	Message description	From		To		Interface(s)
		Entity	System	Entity	System	
CFA (1.5)	Request for the correction of information concerning a Facility	Economic operators (Manufacturers, Importers, Distributors, Wholesalers, Transport Companies, Providers of courier services) First retail outlets		ID issuer		II2MN I2DW

4.1.6 De-registration of a Facility Identifier code

4.1.6.1 Description – De-registration of a Facility Identifier code

Economic operators (Manufacturers, Importers, Distributors, Wholesalers, Transport Companies, Providers of courier services) and Operators of first retail outlets can request to the competent ID issuers the de-registration of a Facility.

Competent Authorities of Member States may also, in accordance with their national laws, require the ID issuer to deactivate a Facility Identifier code.

The de-registration of a facility identifier code shall lead to the automatic de-registration of all related machine identifier codes by the ID issuer.

Note: All Machine Identifier codes include all fixed and mobile parts."

Note: The ID issuers are responsible for establishing registries for the Identifier codes and corresponding information submitted in the application form, along with explanatory notes on their structures. The ID issuers must ensure that an up-to-date copy of all registries and explanatory notes is electronically provided via the Router to the Secondary repository.

4.1.6.2 Data Flow Diagram – De-registration of a Facility Identifier code

The diagram below depicts the data flows for the process through which the ID issuer de-registers a Facility.
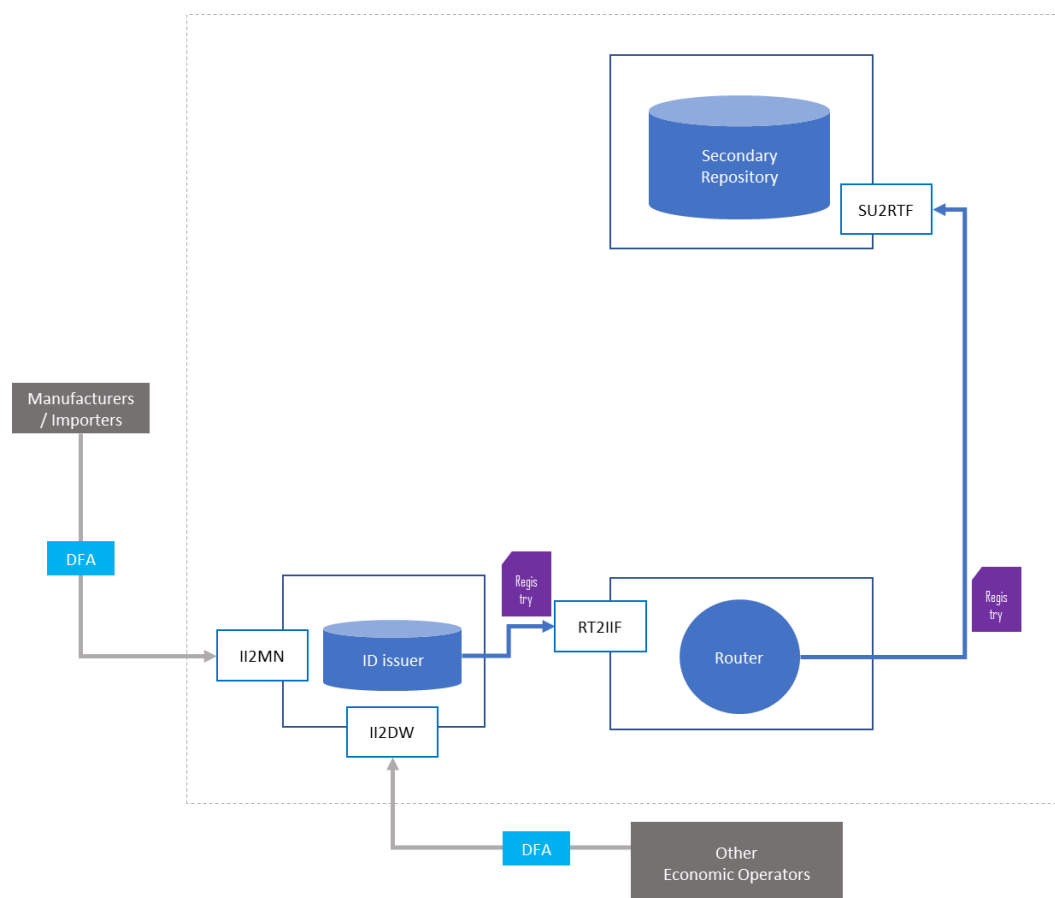
Figure 14 Data Flow Diagram – De-registration of a Facility

The following table summarizes the messages, entities and systems displayed in the data flow diagram above.

Message code	Message description	From		To		Interface(s)
		Entity	**System**	**Entity**	**System**	
DFA (1.6)	Request for the de-registration of a Facility	Economic operators (Manufacturers, Importers, Distributors, Wholesalers, Transport Companies, Providers of courier services) First retail outlets		ID issuer		II2MN II2DW

4.1.7 Issuing of a Machine Identifier code

4.1.7.1 Description – Issuing of a Machine Identifier code

Each Machine and machine part must be identified by a Machine Identifier code generated by the ID Issuer competent for the territory in which the Machine is located. Manufacturers and Importers must request Machine Identifier codes to the competent ID issuers. The ID issuers must transmit the codes to the requesting Economic operators within two working days.

In the case of Machines located in manufacturing facilities outside the Union, it is the responsibility of the Importer established inside the Union to request the related Machine Identifier code to any ID Issuer appointed by a Member State on whose market they place their products. The registration by the importer shall be subject to the consent of the entity responsible for the third country manufacturing facility. The importer shall inform the economic operator responsible for the third country manufacturing facility as to the full details of the registration, including the allocated machine identifier code.

The ID issuers shall keep a record of the information stored in the register for as long as the traceability system is operational.

Note: The ID issuers are responsible for establishing registries for the Identifier codes and corresponding information submitted in the application form, along with explanatory notes on their structures. The ID issuers must ensure that an up-to-date copy of all registries and explanatory notes is electronically provided via the Router to the Secondary repository.
Note: Having in mind that machines can have one or more machine parts depending of them, the recommended order of registering new machines would start by registering **first the machine parts** (if any) followed by the registration of the full machine (which will already contain the proper machine parts' ids).

4.1.7.2 Data Flow Diagram – Issuing of a Machine Identifier code

The diagram below depicts the data flows for the process through which the ID issuer issues a Machine Identifier code.
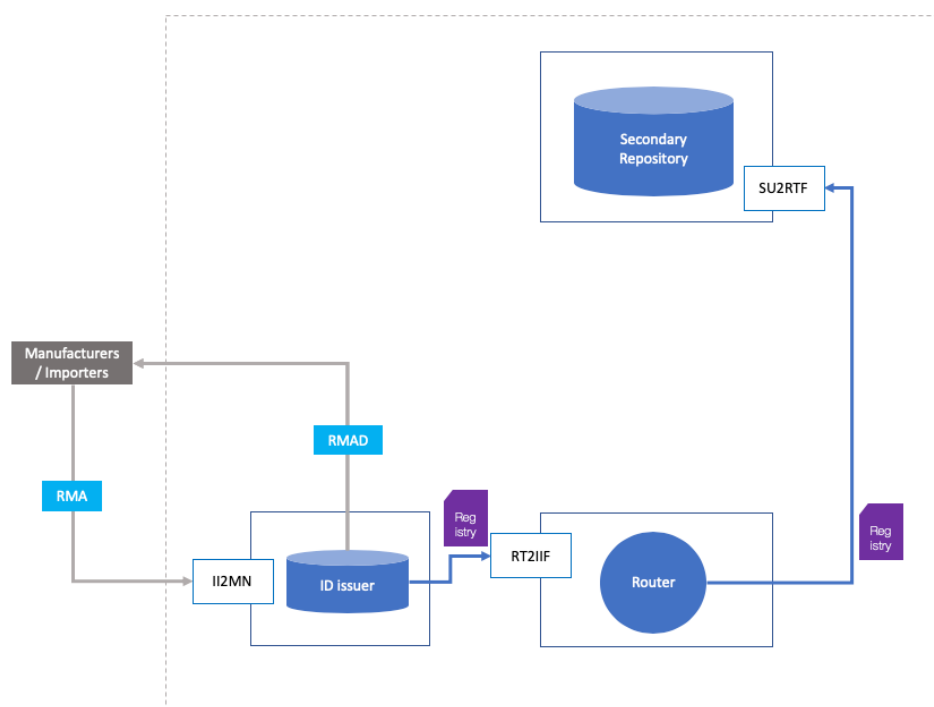
Figure 15 Data Flow Diagram – Issuing of a Machine Identifier code

The following table summarizes the messages, entities and systems displayed in the data flow diagram above.

Message code	Message description	From		To		Interface(s)
		Entity	**System**	**Entity**	**System**	
RMA (1.7)	Request for a Machine Identifier code	Economic operators: Manufacturers, Importers		ID issuer		II2MN

4.1.8 Correction of information concerning a Machine Identifier code

4.1.8.1 Description – Correction of Information concerning a Machine Identifier code

Manufacturers and Importers can request the correction of information submitted in the initial application form for Machine identifier codes from the competent ID issuers.

Note: The ID issuers are responsible for establishing registries for the Identifier codes and corresponding information submitted in the application form, along with explanatory notes on their structures. The ID issuers must ensure that an up-to-date copy of all registries and explanatory notes is electronically provided via the Router to the Secondary repository.

4.1.8.2 Data Flow Diagram – Correction of Information concerning a Machine Identifier code

The diagram below depicts the data flows for the process through which an Economic operator or operator of first retail outlets requests the correction of information submitted in the initial application form for Machine Identifier codes.
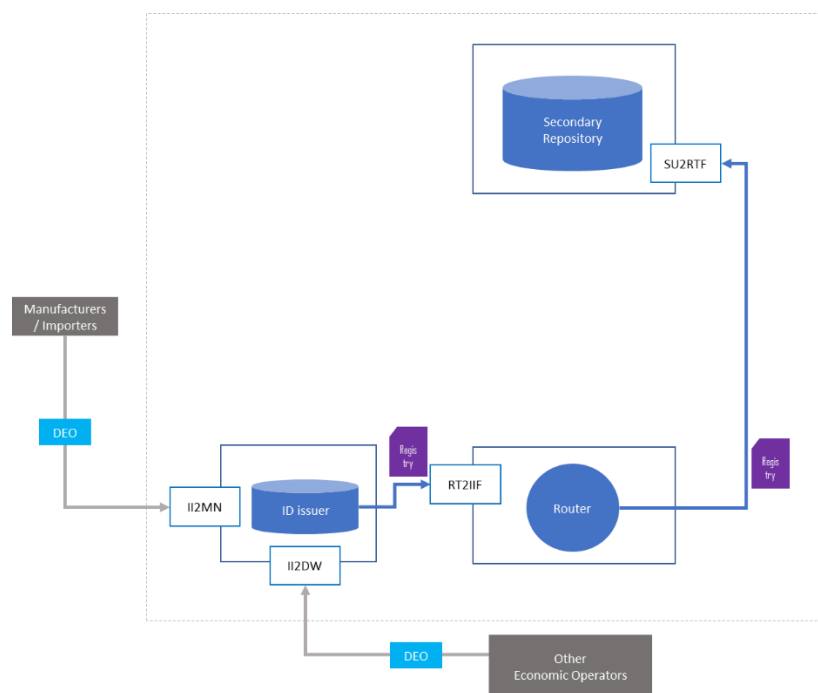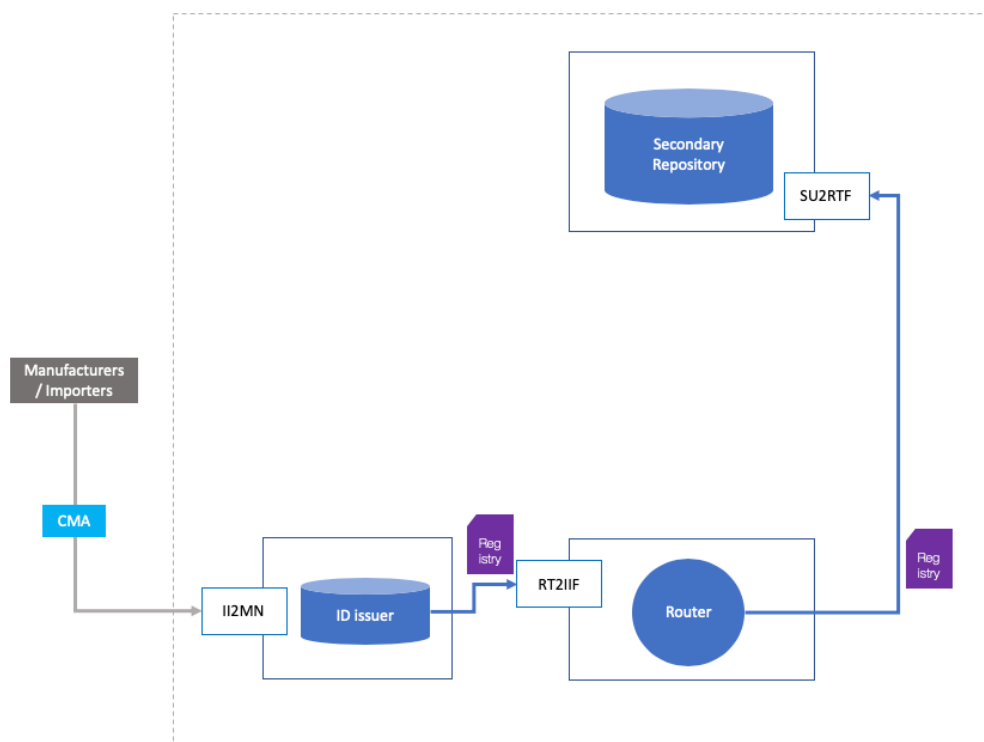

Figure 16 Data Flow Diagram – Correction of Information concerning a Machine

The following table summarizes the messages, entities and systems displayed in the data flow diagram above.

Message code	Message description	From		To		Interface(s)
		Entity	System	Entity	System	
CMA (1.8)	Request the correction of information concerning a Machine	Economic operators: Manufacturers, Importers		ID issuer		II2MN

4.1.9 De-registration of a Machine Identifier code

4.1.9.1 Description – De-registration of a Machine Identifier code

Manufacturers or Importers can request the de-registration of a Machine ID from the competent ID issuers.

As Machine Parts are identified by a Machine ID, this means that this message will also be used in case that the Manufacturer/Importer wishes to de-register an individual Machine Part, whether it is a fixed part or mobile part.

In case that a Machine ID that contains identifiable parts, is de-registered, all parts of type "Fixed" linked with it will be automatically de-registered. Machine Parts of type "Mobile" shall NOT be automatically de-registered as they are intended to be used with multiple machines (and not only with the one being de-activated).

Competent Authorities of Member States may also, observing their national laws, require the ID issuer to deactivate a Machine Identifier code. In this case, this must lead to the automatic deactivation of related Machine Identifiers codes representing machine parts that belong to the deactivated machine. Mobile Machine Parts shall not be automatically deactivated.

Note: The ID issuers are responsible for establishing registries for the Identifier codes and corresponding information submitted in the application form, along with explanatory notes on their structures. The ID issuers must ensure that an up-to-date copy of all registries and explanatory notes is electronically provided via the Router to the Secondary repository.

4.1.9.2 Data Flow Diagram – De-registration of a Machine

The diagram below depicts the data flows for the process through which the ID issuer de-registers a Machine.
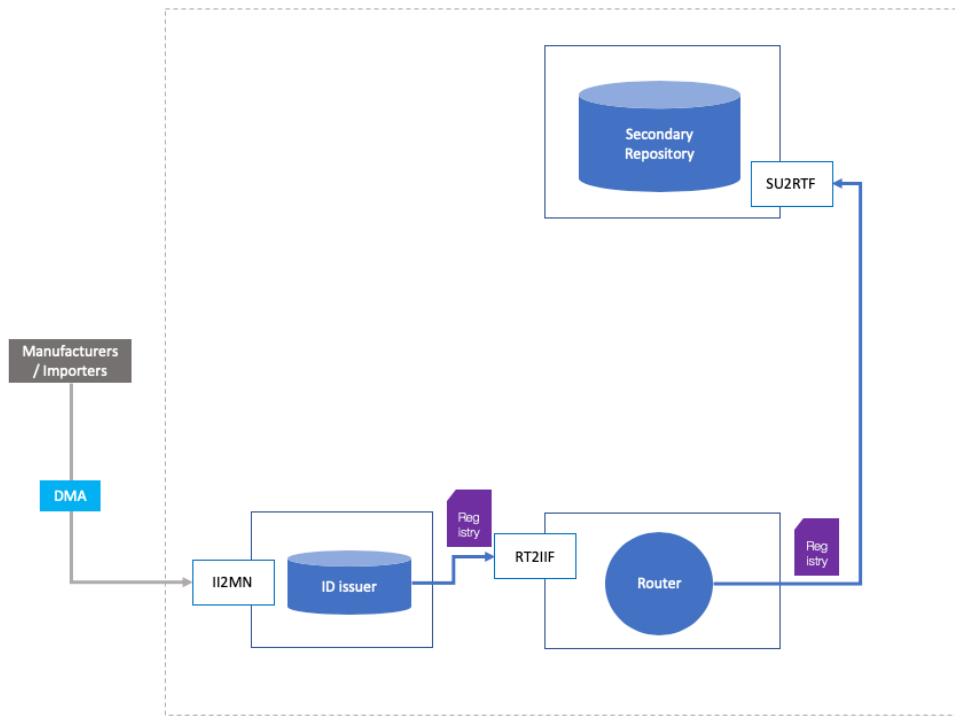
Figure 17 Data Flow Diagram – De-registration of a Machine
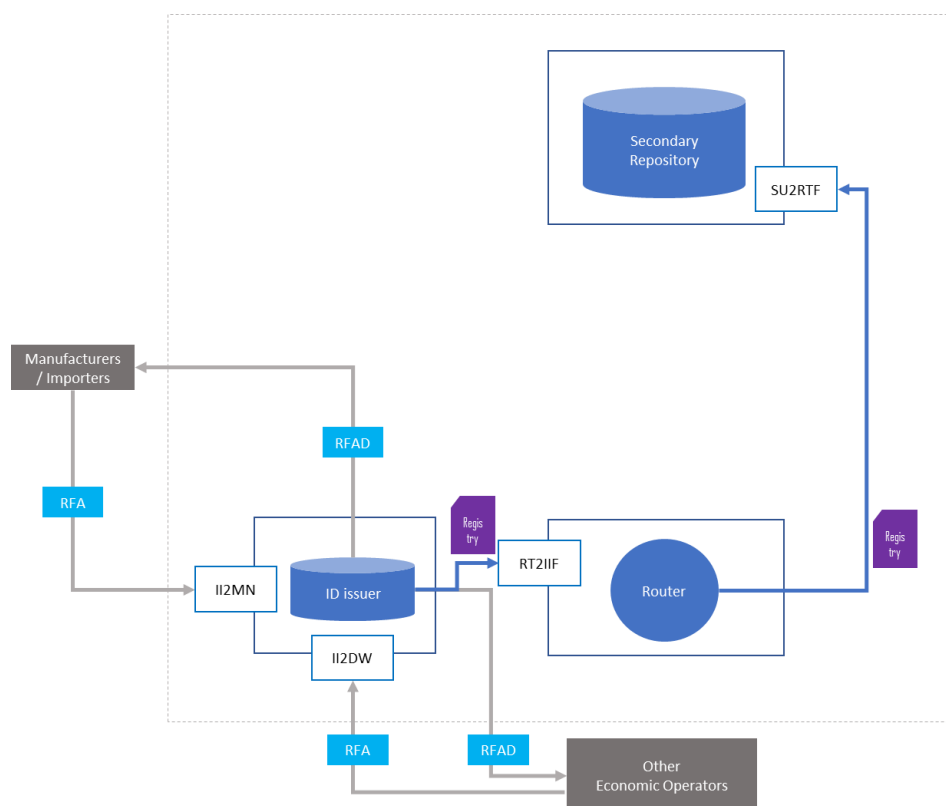
The following table summarizes the messages, entities and systems displayed in the data flow diagram above.

Message code	Message description	From		To		Interface(s)
		Entity	System	Entity	System	

DMA (1.9)	Request the de-registration of a Machine	Economic operators: Manufacturers, Importers		ID issuer		II2MN

4.1.10 Machine Identifier code for a machine part

4.1.10.1 Description – Issuing of a Machine Identifier code for a machine part

Each Machine part must be identified by a Machine Identifier code generated by the ID Issuer competent for the territory in which the Machine Part is located. Manufacturers and Importers must request Machine Identifier codes to the competent ID issuers. The ID issuers must transmit the codes to the requesting Economic operators within two working days.

In the case of Machine Parts located in manufacturing facilities outside the Union, it is the responsibility of the Importer established inside the Union to request the related Machine Identifier code to any ID Issuer appointed by a Member State on whose market they place their products.

The ID issuers shall keep a record of the information stored in the register for as long as the traceability system is operational.

Note: The ID issuers are responsible for establishing registries for the Identifier codes and corresponding information submitted in the application form, along with explanatory notes on their structures. The ID issuers must ensure that an up-to-date copy of all registries and explanatory notes is electronically provided via the Router to the Secondary repository.

Note: Having in mind that machines can have one or more machine parts depending of them, the recommended order of registering new machines would start by registering **first the machine parts** (if any) followed by the registration of the whole machine (which will already contain the proper machine parts' ids). The reason for that is that the registration of a machine requires, as a mandatory element, the submission of the machine identifier codes for the machine's parts.

4.1.10.2 Data Flow Diagram – Issuing of a Machine Identifier code for a machine part

The diagram below depicts the data flows for the process through which the ID issuer issues a Machine Identifier code.
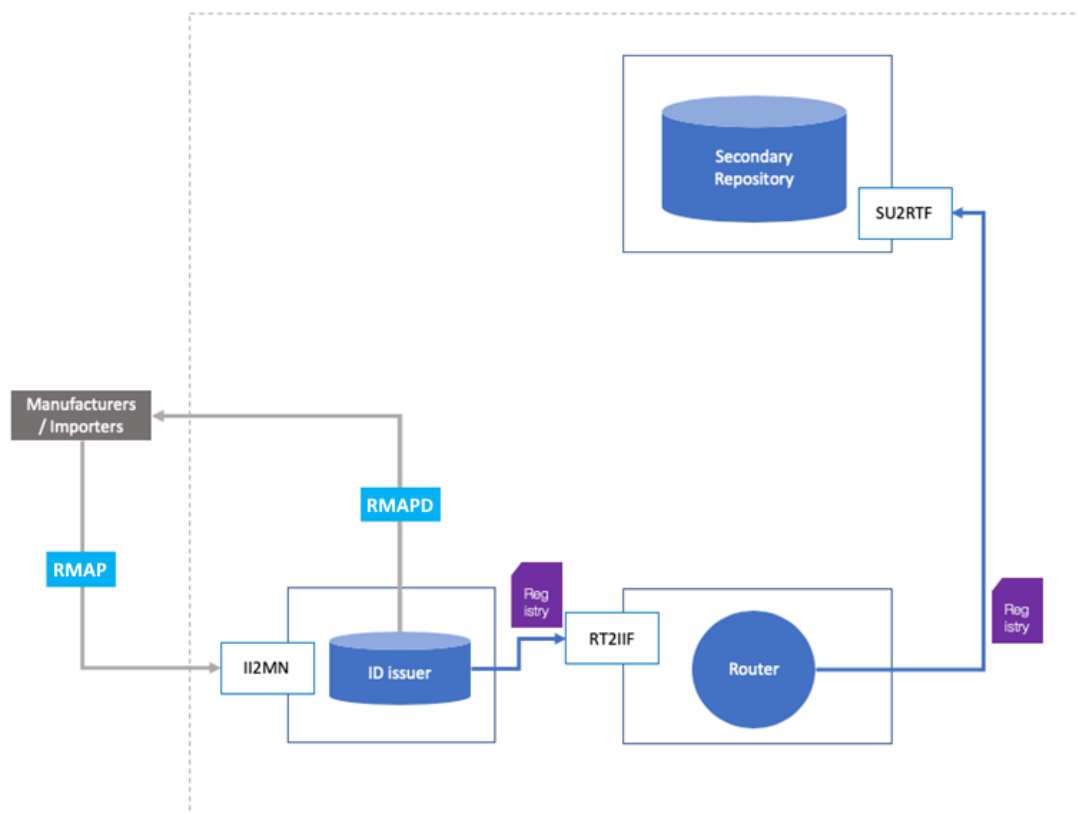
Figure 18 Data Flow Diagram – Issuing of a Machine Identifier code for a machine part

The following table summarizes the messages, entities and systems displayed in the data flow diagram above.

Message code	Message description	From		To		Interface(s)
		Entity	System	Entity	System	
RMAP (1.7)	Request for a Machine Identifier code	Economic operators: Manufacturers, Importers		ID issuer		II2MN

4.1.11 Correction of information concerning a Machine Identifier code issued for a machine part

4.1.11.1 Description – Correction of Information concerning a Machine Identifier code issued for a machine part

Manufacturers and Importers can request the correction of information submitted in the initial application form for Machine identifier codes that were issued for machine parts, from the competent ID issuers.

Note: The ID issuers are responsible for establishing registries for the Identifier codes and corresponding information submitted in the application form, along with explanatory notes on their structures. The ID issuers must ensure that an up-to-date copy of all registries and explanatory notes is electronically provided via the Router to the Secondary repository.

4.1.11.2 Data Flow Diagram – Correction of Information concerning a Machine Identifier code issued for a machine part

The diagram below depicts the data flows for the process through which an Economic operator or operator of first retail outlets requests the correction of information submitted in the initial application form for Machine Identifier codes that represent machine parts.
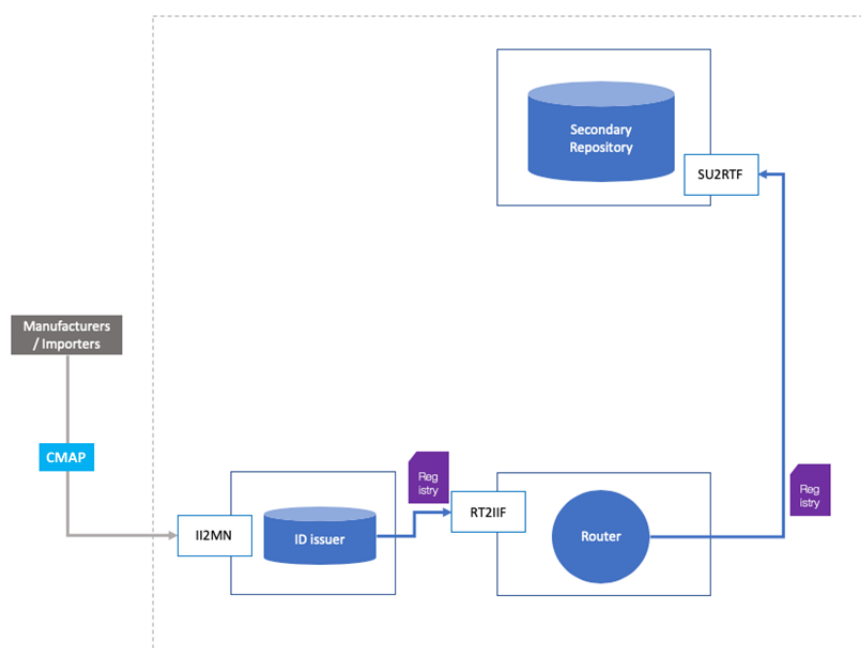
Figure 19 Data Flow Diagram - Correction of Information concerning a Machine Part

The following table summarizes the messages, entities and systems displayed in the data flow diagram above.

Message code	Message description	From		To		Interface(s)
		Entity	**System**	**Entity**	**System**	
CMAP (1.8)	Request the correction of information concerning a Machine Part	Economic operators: Manufacturers, Importers		ID issuer		II2MN

4.1.12 De-registration of a Machine Identifier code issued for a machine part

4.1.12.1 Description – De-registration of a Machine Identifier code issued for a machine part

Manufacturers or Importers can request the de-registration of a Machine ID that was issued for a machine part, from the competent ID issuers.

As Machine Parts are identified by a Machine ID, this means that this message will also be used in case that the Manufacturer/Importer wishes to de-register an individual Machine Part, whether it is a fixed part or mobile part.

Note: The ID issuers are responsible for establishing registries for the Identifier codes and corresponding information submitted in the application form, along with explanatory notes on their structures. The ID issuers must ensure that an up-to-date copy of all registries and explanatory notes is electronically provided via the Router to the Secondary repository.

4.1.12.2 Data Flow Diagram – De-registration of a Machine Part

The diagram below depicts the data flows for the process through which the ID issuer de-registers a Machine Part.
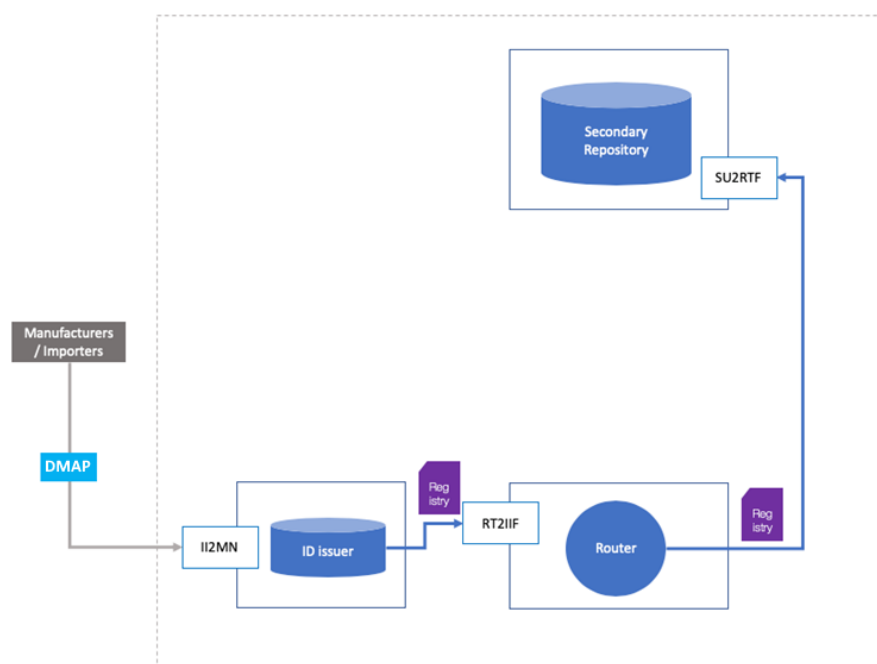
Figure 20 Data Flow Diagram - De-registration of a Machine Part

The following table summarizes the messages, entities and systems displayed in the data flow diagram above.

Message code	Message description	From		To		Interface(s)
		Entity	System	Entity	System	
DMAP (1.9)	Request the de-registration of a Machine Part	Economic operators: Manufacturers, Importers		ID issuer		II2MN

4.2 Issuing Unique identifiers (UIs)

4.2.1 Issuing of unit level Unique identifiers (upUIs)

4.2.1.1 Description – Issuing of unit level Unique identifiers (upUIs) for Unit packets

Each Unit packet of tobacco product manufactured or imported in the Union must be marked with a unit level Unique identifier (upUI). Manufacturers and Importers must introduce an electronic request to the competent ID Issuer for unit level Unique identifiers (upUIs), supplying all the necessary information. Within two working days from the receipt of the request, the ID Issuer must (i) generate the codes, (ii) transmit the codes and the related information via the Router to the Primary repository of the Manufacturers and/or Importers, and (iii) electronically transmit the codes to the requesting Manufacturers and/or Importers. A copy of this data must be immediately transferred from the Primary repository to the

Secondary repository. In some cases, the Manufacturers and/or Importers might request the ID issuer to transmit the codes physically, within ten working days.

Note: In addition, the ID issuers are responsible of establishing offline flat-files for offline checks of Unique identifiers (UIs) by Member States. ID issuers must ensure that an up-to-date copy of all offline flat-files are electronically provided via the Router to the Secondary.

Note: When requesting unit level UIs there is the possibility to indicate the machine where UIs will be printed (for automated production). With the inclusion of machine parts, which share the same definition and format as whole machines (Machine IDs), a Manufacturer/Importer could mistakenly request codes using the Machine ID that corresponds to a machine part. This is not the intended behaviour, therefore a Validation is added on the Data Dictionary where ID Issuers shall reject any 2.1 message where the Machine ID declared is a Machine Part. Requesting codes for Machine Parts is not allowed.

4.2.1.2 Data Flow Diagram – Issuing of unit level Unique identifiers (upUIs) for Unit packets

The diagram below depicts the data flow interaction when Manufacturers and Importers request an ID issuer to generate unit level Unique identifiers (upUIs) for Unit packets.
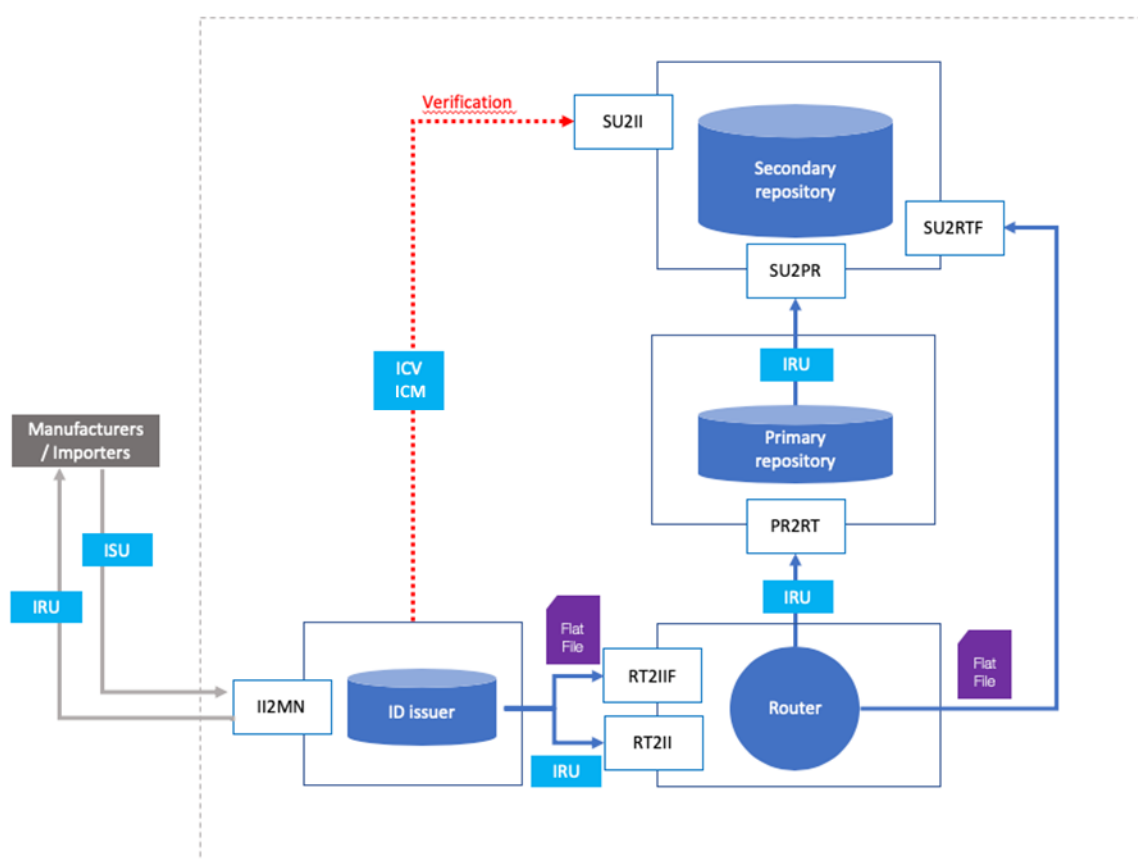
Figure 21 Data Flow Diagram – Issuing of unit level Unique identifiers (upUIs) for Unit packets

The following table summarizes the messages, entities and systems displayed in the data flow diagram above.

Message code	Message description	From		To		Interface(s)
		Entity	System	Entity	System	
ISU (2.1)	Request for unit level UIs	Economic operators: Manufacturers, Importers		ID issuer		II2MN
ICV (optional)	Verification request for the Identification Codes (EOID/FID/MID)	ID issuer			Secondary repository	SU2II
IRU	Reporting of unit level UIs generated	ID issuer			Router	RT2II
IRU	Routing of unit level UIs generated if message validated by the Router		Router		Secondary repository	
IRU	Transmission of unit level UIs generated if message validated by the Router		Router		Primary repository	PR2RT
IRU	Transmission of unit level UIs generated back to the Secondary Repository		Primary Repository		Secondary Repository	SU2PR
ICM (optional)	Validate the delivery of an IRU message	ID Issuer			Secondary repository	SU2II

The ID issuer should deliver the codes to the Economic Operator (Manufacturer/Importer) once the repositories system has processed the IRU message. The ID issuer should use the ICM to ensure that the repositories system has fully processed the IRU message by all of its components (Router, Secondary Repository, Primary Repository).

4.2.2 Issuing of aggregated level Unique identifiers (aUIs) for Aggregated packaging by ID issuers

Note: There are two methods for an Economic Operator to assign or generate aUIs, either by requesting from the competent ID Issuer, or by generating it themselves based on the regulation. GS1 aggregate packaging identifiers are referenced in Annex II, e.g. SSCC complying with ISO15459-1. The following section describes the process through which an Economic Operator requests aggregated level UIs to the competent ID issuer.

4.2.2.1 Issuing of aggregated level Unique Identifiers (aUIs) for Aggregated packaging by ID issuers – Request from Manufacturers and Importers

4.2.2.1.1   Description – Issuing of aggregated level Unique identifiers (aUIs) for Aggregated packaging – Request from Manufacturers and Importers

Each Aggregated packaging of tobacco product must be marked with an aggregated level Unique identifier (UI). Manufacturers and Importers must introduce an electronic request to the competent ID Issuer for aggregated level Unique identifiers (aUIs), supplying all the necessary information. Within two working days from the receipt of the request, the ID issuer must in the order indicated (i) generate the codes, (ii) transmit the codes and the related information via the Router to the corresponding Primary repository and (iii) electronically transmit the codes to the requesting Economic operator. A copy of those data must be transferred instantaneously from the Primary repository to the Secondary repository.

Note: Alternatively Economic operators can directly generate aggregated level Unique identifiers (aUIs), independently from any ID issuer and report it using message "Application of aggregated level UIs on aggregated packaging".

Note: In addition, the ID issuers are responsible of establishing offline flat-files for offline checks of Unique identifiers (UIs) by Member States. ID issuers must ensure that an up-to-date copy of all offline flat-files are electronically provided via the Router to the Secondary repository.

4.2.2.1.2   Data Flow Diagram – Issuing of aggregated level Unique identifiers (aUIs) for Aggregated packaging – Request from Manufacturers and Importers

The diagram below depicts the data flow interaction when Manufacturers and Importers request an ID issuer to generate aggregated level Unique identifiers (aUIs) for Aggregated packaging.

Figure 22 Data Flow Diagram – Issuing of aggregated level Unique identifiers (aUIs) for Aggregated packaging – Request from Manufacturers and Importers

The following table summarizes the messages, entities and systems displayed in the data flow diagram above.

Message code	Message description	From		To		Interface(s)
		Entity	System	Entity	System	
ISA (2.2)	Request for aggregated level UIs	Economic operators: Manufacturers, Importers		ID issuer		II2MN
ICV (optional)	Verification request for the Identification Codes (EOID/FID/MID)	ID issuer			Secondary repository	SU2II
IRA	Reporting of aggregated level UIs generated	ID issuer			Router	RT2II
IRA	Routing of aggregated level UIs generated if message validated by the Router		Router		Secondary Repository	
IRA	Routing of aggregated level UIs generated if message validated by the Router		Router		Primary repository	PR2RT

IRA	Transmission of aggregated level UIs generated		Primary repository		Secondary repository	SU2PR

The ID issuer should deliver the codes to the Economic Operator (Manufacturer/Importer) once the repositories system has processed the IRA message.

4.2.2.2 Issuing of aggregated level Unique Identifiers (aUIs) for Aggregated packaging by ID issuers – Request from Distributors and Wholesalers

4.2.2.2.1 Description – Issuing of aggregated level Unique identifiers (aUIs) for Aggregated packaging – Request from Distributors and Wholesalers

Each Aggregated packaging of tobacco product must be marked with an aggregated level Unique identifier (aUI). Distributors and Wholesalers must introduce an electronic request to the competent ID issuer for aggregated level Unique identifiers (aUIs), supplying all the necessary information. Within two working days from the receipt of the request, the ID issuer must, in the order indicated, (i) generate the codes, (ii) transmit the codes and the related information via the Router to the Secondary repository and (iii) electronically transmit the codes to the requesting Economic operator.

Note: Alternatively Economic operators can directly generate aggregated level Unique identifiers (aUIs), independently from any ID issuer and report it using the "Application of aggregated level UIs on aggregated packaging".

Note: In addition, the ID issuers are responsible of establishing offline flat-files for offline checks of Unique identifiers (UIs) by Member States. ID issuers must ensure that an up-to-date copy of all offline flat-files are electronically provided via the Router to the Secondary.

4.2.2.2.2 Data Flow Diagram – Issuing of aggregated level Unique identifiers (aUIs) for Aggregated packaging – Request from Distributors and Wholesalers

The diagram below depicts the data flow interaction when Distributors and Wholesalers requests an ID issuer to generate aggregated level Unique identifiers (aUIs) for Aggregated packaging.

Figure 23 Data Flow Diagram – Issuing of aggregated level Unique identifiers (aUIs) for Aggregated packaging – Request from Distributors and Wholesalers

The following table summarizes the messages, entities and systems displayed in the data flow diagram above.

Message code	Message description	From		To		Interface (s)
		Entity	System	Entity	System	
ISA (2.2)	Request for aggregated level UIs	Economic operators: Distributors, Wholesalers		ID issuer		II2DW
ICV (optional)	Verification request for the Identification Codes	ID issuer			Secondary repository	SU2II
IRA	Reporting of aggregated level UIs generated	ID issuer			Router	
IRA	Routing of aggregated level UIs generated if		Router		Secondary repository	RT2II

	message validated by the Router					
IRA	Issuing of aggregated level UIs if message validated by the Router	ID issuer		Economic operators : Distribut ors, Wholesal ers		SU2RT

4.2.3 Deactivation of unit level Unique identifiers (upUIs)

4.2.3.1 Deactivation of unit level Unique identifiers (upUIs) – Request from Manufacturers and Importers

4.2.3.1.1   Unit level unique identifier format

The deactivation of UI can be reported after the UI is issued and before its application with the deactivation reason unused (Deact_Reason1 = 5). The deactivation event support therefore different formats of the unit level identifier.

4.2.3.1.2   Description – Deactivation of unit level Unique identifiers (upUIs) – Request from Manufacturers and Importers

Following the application of unit level Unique identifiers (upUIs), Manufacturers and Importers may obtain their deactivation by electronically transmitting the deactivation request to the Primary repository contracted by them. The deactivation must not interfere with the integrity of the information already stored related to the Unique identifier.

Note: This process differs from the automatic deactivation of the UIs that occurs when the UIs have not been used after the six-months period of validity. It also differs from the process of Recall, whereby Manufacturers and Importers can cancel within one working day a request for issuance of UIs.

4.2.3.1.3   Data Flow Diagram – Deactivation of unit level Unique identifiers (uUIs) – Request from Manufacturers and Importers

The diagram below depicts the data flow interaction when Manufacturers and Importers deactivate unit level Unique identifiers (upUIs) in the Primary repository contracted by them.

Figure 24 Data Flow Diagram – Deactivation of unit level Unique identifiers (upUIs) – Request from Manufacturers and Importers

The following table summarizes the messages, entities and systems displayed in the data flow diagram above.

Message code	Message description	From		To		Interface(s)
		Entity	System	Entity	System	
IDA (2.3)	Request deactivation of unit level UIs	Economic operators: Manufacturers, Importers			Primary repository	PR2MN
IDA (2.3)	Transmission of deactivated unit level UIs	Primary repository			Secondary repository	SU2PR

4.2.3.2 Deactivation of unit level Unique identifiers (upUIs) – Request from Distributors and Wholesalers

4.2.3.2.1 Description – Deactivation of unit level Unique identifiers (upUIs) – Request from Distributors and Wholesalers

Following the application of unit level Unique identifiers (upUIs), Distributors and Wholesalers may obtain their deactivation by electronically transmitting the deactivation request to the Router that will route the request to the corresponding Primary repository. The deactivation must not interfere with the integrity of the information already stored related to the Unique identifier.

Note: This process differs from the process of automatic deactivation of the UIs when the UIs have not been used after the six-month period of validity. It also differs from the process of recall, whereby Distributors and Wholesalers can cancel a request sent within one working day.

4.2.3.2.2   Data Flow Diagram – Deactivation of unit level Unique identifiers (upUIs) – Request from Distributors and Wholesalers

The diagram below depicts the data flow interaction when Distributors and Wholesalers request a Primary repository via the Router to deactivate unit level Unique identifiers (upUIs).
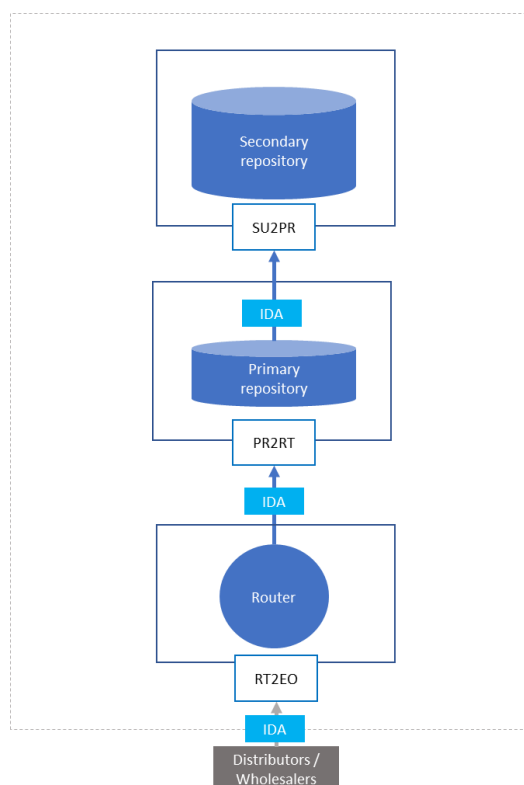
Figure 25 Data Flow Diagram – Deactivation of unit level Unique identifiers (upUIs) – Request from Distributors and Wholesalers

The following table summarizes the messages, entities and systems displayed in the data flow diagram above.

Message code	Message description	From		To		Interface(s)
		Entity	**System**	**Entity**	**System**	
IDA (2.3)	Request deactivation of unit level UIs	Economic operators: Distributors, Wholesalers			Router	RT2EO
IDA (2.3)	Routing request deactivation of unit level UIs		Router		Primary repository	PR2RT
IDA (2.3)	Transmission of deactivated unit level UIs		Primary repository		Secondary repository	SU2PR

4.2.4 Deactivation of aggregated level Unique identifiers (aUIs)

4.2.4.1 Deactivation of aggregated level Unique identifiers (aUIs) – Request from Manufacturers and Importers

4.2.4.1.1 Description – Deactivation of aggregated level Unique identifiers (aUIs) – Request from Manufacturers and Importers

Following the application of aggregated level Unique identifiers (aUIs), Manufacturers and Importers may obtain their deactivation by electronically transmitting the deactivation request to the Primary repository contracted by them. The deactivation must not interfere with the integrity of the information already stored related to the Unique identifier.

Note: This process differs from the automatic deactivation of the UIs that occurs when the UIs have not been used after the six-month period of validity. It also differs from the process of Recall, whereby Manufacturers and Importers can cancel within one working day a request for issuance of UIs.

4.2.4.1.2 Data Flow Diagram – Deactivation of aggregated level Unique identifiers (aUIs) – Request from Manufacturers and Importers

The diagram below depicts the data flow interaction when Manufacturers and Importers deactivate aggregated level Unique identifiers (aUIs) in the Primary repository contracted by them.
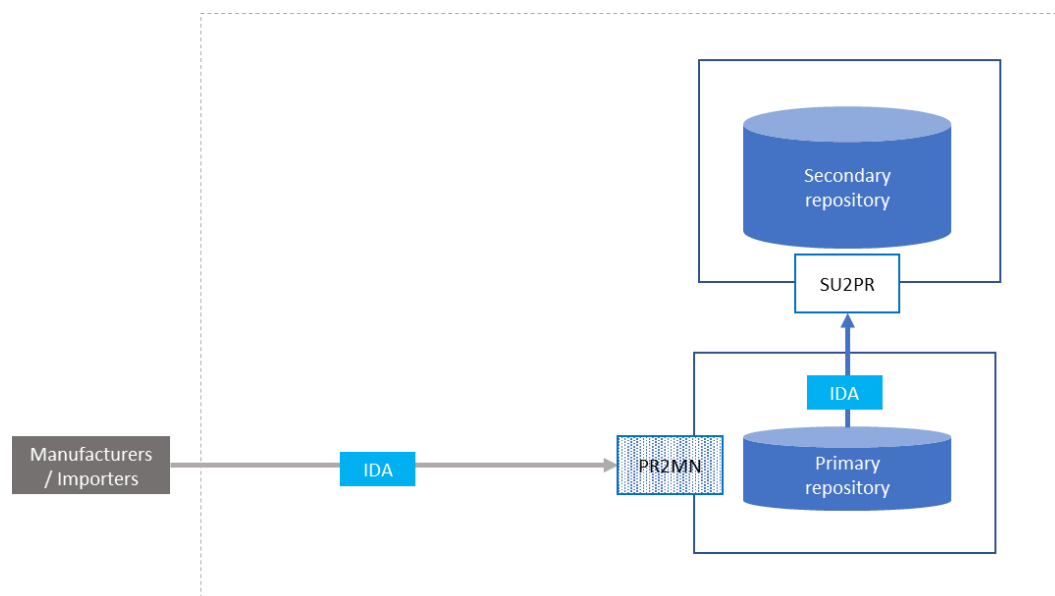
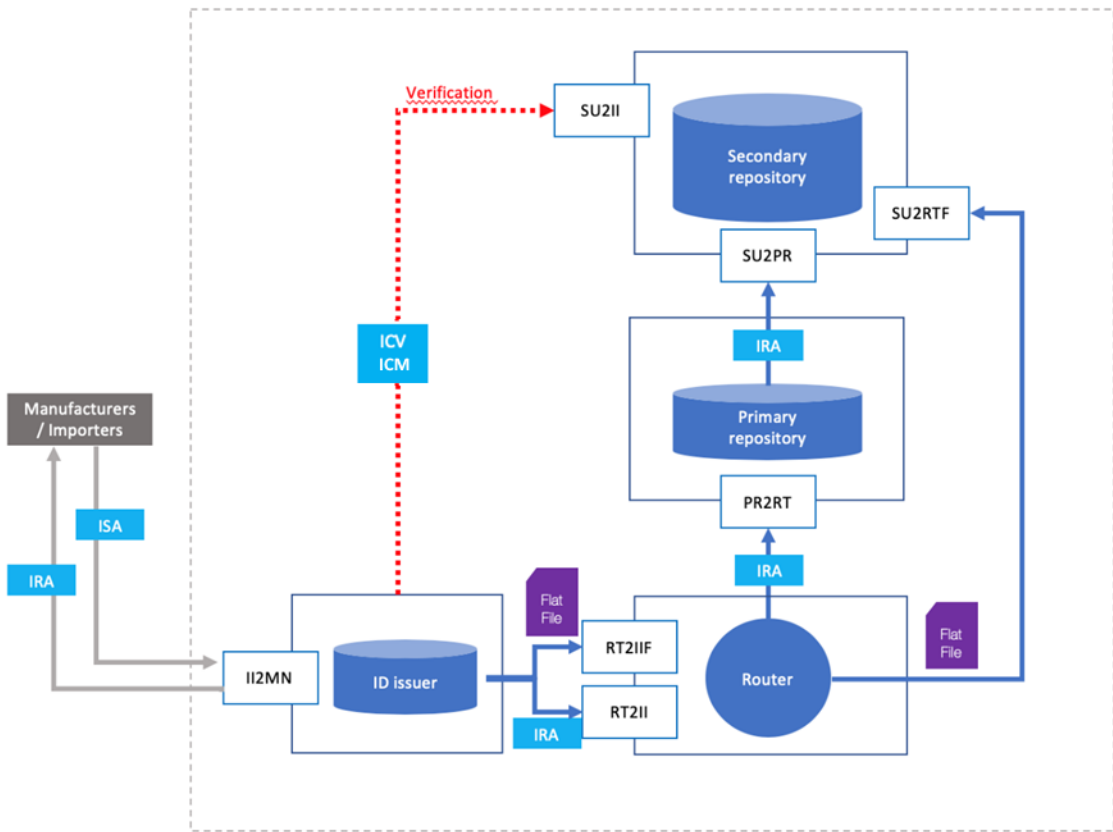*Figure 26 Data Flow Diagram – Deactivation of aggregated level Unique identifiers (aUIs) – Request from Manufacturers and Importers*

The following table summarizes the messages, entities and systems displayed in the data flow diagram above.

Message code	Message description	From		To		Interface(s)
		Entity	System	Entity	System	
IDA (2.3)	Request deactivation of aggregated level UIs	Economic operators: Manufacturers, Importers			Primary repository	PR2MN
IDA (2.3)	Transmission of deactivated aggregated level UIs		Primary repository		Secondary repository	SU2PR

4.2.4.2 Deactivation of aggregated level Unique identifiers (aUIs) – Request from Distributors and Wholesalers

4.2.4.2.1   Description – Deactivation of aggregated level Unique identifiers (aUIs) – Request from Distributors and Wholesalers

Following the application of aggregated level Unique identifiers (aUIs), Distributors and Wholesalers may obtain their deactivation by electronically transmitting the deactivation request to the Router that will route the request to the Secondary repository. The deactivation must not interfere with the integrity of the information already stored related to the Unique identifier.

Note: This process differs from the process of automatic deactivation of the UIs when the UIs have not been used after the six-month period of validity. It also differs from the process of recall, whereby Distributors and Wholesalers can cancel a request sent within one working day.

4.2.4.2.2   Data Flow Diagram – Deactivation of aggregated level Unique identifiers (aUIs) – Request from Distributors and Wholesalers

The diagram below depicts the data flow interaction when Distributors and Wholesalers request the Router to deactivate aggregated level Unique identifiers (aUIs).
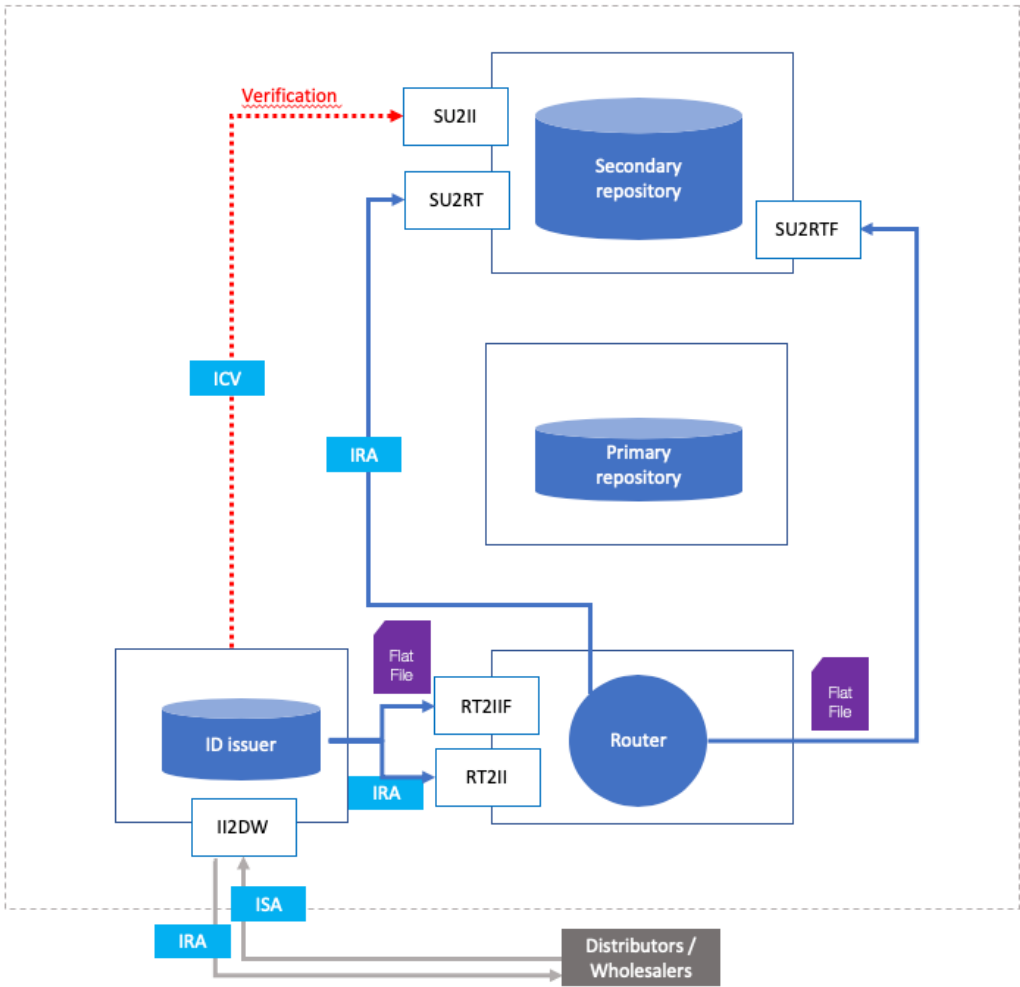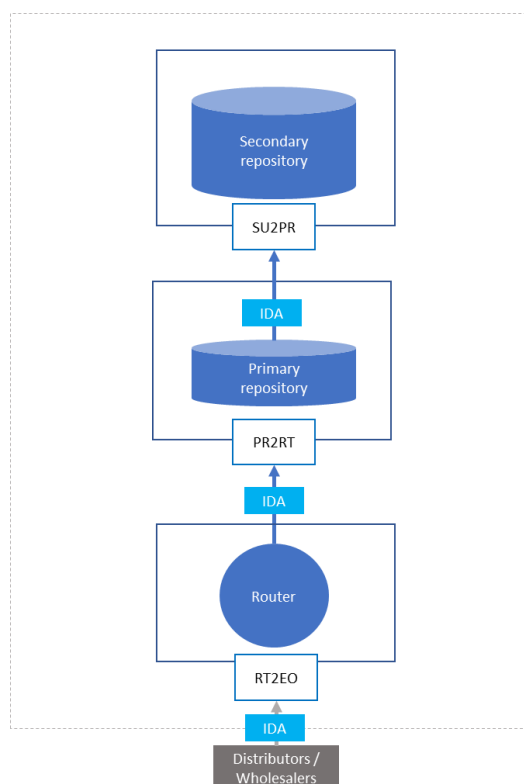
Figure 27 Data Flow Diagram – Deactivation of aggregated level Unique identifiers (aUIs) – Request from Distributors and Wholesalers

The following table summarizes the messages, entities and systems displayed in the data flow diagram above.

Message code	Message description	From		To		Interface(s)
		Entity	System	Entity	System	
IDA (2.3)	Request deactivation of aggregated level UIs	Economic operators: Distributors, Wholesalers			Router	RT2EO
IDA (2.3)	Routing request deactivation of aggregated level UIs		Router		Primary repository	PR2RT
IDA (2.3)	Transmission of deactivated aggregated level UIs		Primary repository		Secondary repository	SU2PR

4.2.5 Automatic deactivation of Unique Identifiers

The automatic deactivation of Unique Identifiers is be performed on the Primary repository or the Distributors and Wholesalers. The deactivation messages will be sent to the Secondary repository or the Router.

4.2.6 Request for reactivation of UIs for products reported as stolen but recovered

4.2.6.1 Request for reactivation of UIs for products reported as stolen – Request from Manufacturers and Importers

4.2.6.1.1 Description - Request for reactivation of UIs for products reported as stolen – Request from Manufacturers and Importers

Following a deactivation of UIs for products reported as stolen, in certain cases these products are recovered. The reactivation of UIs for products reported as stolen by electronically transmitting the reactivation request to the Primary repository contracted by them. The reactivation must not interfere with the integrity of the information already stored related to the Unique identifier.

Note: This reactivation is only permitted if preceding message is 2.3 and the field Deact_Reason1 = 2.

4.2.6.1.2 Data Flow Diagram - Request for reactivation of UIs for products reported as stolen – Request from Manufacturers and Importers

The diagram below depicts the data flow interaction when Manufacturers and Importers reactivate Unique identifiers (UIs) in the Primary repository contracted by them.
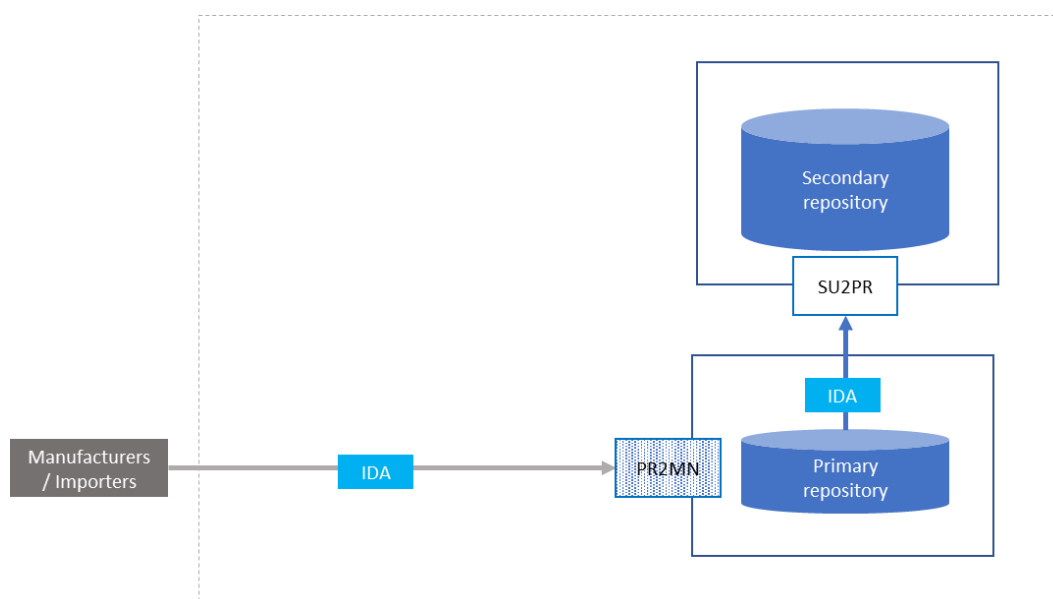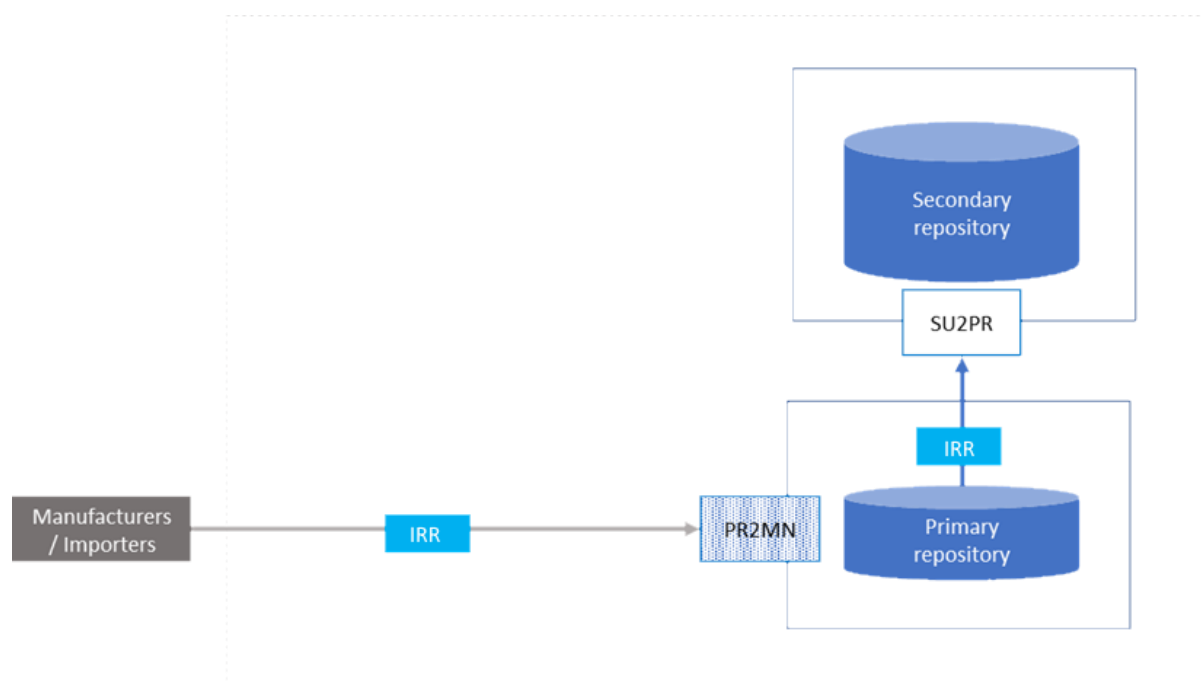

Figure 28 - Data Flow Diagram – Request for reactivation of UIs reported as stolen – Request from Manufacturers and Importers

The following table summarizes the messages, entities and systems displayed in the data flow diagram above.

Message code	Message description	From		To		Interface(s)
		Entity	System	Entity	System	
IRR (2.4)	Request reactivation of UIs	Economic operators: Manufacturers, Importers			Primary repository	PR2MN
IRR (2.4)	Transmission of reactivated UIs		Primary repository		Secondary repository	SU2PR

4.2.6.2 Request for reactivation of UIs for products reported as stolen – Request from Distributors and Wholesalers

4.2.6.2.1 Description - Request for reactivation of UIs for products reported as stolen – Request from Distributors and Wholesalers

Following a deactivation of UIs for products reported as stolen, in certain cases these products are recovered. The reactivation of UIs for products reported as stolen by electronically transmitting the deactivation request to the Router that will route the request to the Secondary repository. The deactivation must not interfere with the integrity of the information already stored related to the Unique identifier.

Note: This reactivation is only permitted if preceding message is 2.3 and the field Deact_Reason1 = 2.

4.2.6.2.2 Data Flow Diagram - Request for reactivation of UIs for products reported as stolen – Request from Distributors and Wholesalers

The diagram below depicts the data flow interaction when Distributors and Wholesalers request the Router to reactivate Unique identifiers.

*Figure 29 Data Flow Diagram – Request for reactivation of UIs
reported as stolen – Request from Distributors and Wholesalers*

The following table summarizes the messages, entities and systems displayed in the data flow diagram above.

Message code	Message description	From		To		Interface(s)
		Entity	System	Entity	System	
IRR (2.4)	Request reactivation of UIs	Economic operators: Distributors, Wholesalers			Router	RT2EO
IRR (2.4)	Routing request reactivation of aggregated level UIs		Router		Primary repository	PR2RT
IRR (2.4)	Transmission of reactivated UIs		Primary repository		Secondary repository	SU2PR

4.3 Reporting operational events (product movement information)

4.3.1 ID Application of unit level Unique identifiers (upUIs) on Unit packets

4.3.1.1 Description – Application of unit level Unique identifiers (upUIs) on Unit packets – Report from Manufacturers and Importers

Each Unit packet of tobacco product manufactured or imported in the Union must be marked with a unit level Unique identifiers (upUIs). Once they collect the unit level codes from the ID issuer, Manufacturers and Importers incorporate the Unique identifiers (UIs) into the Data Carriers. Once the Data Carriers are printed/affixed onto the Unit packets, they are read and verified with scanners. When the Data Carriers are unreadable, the Manufacturers and Importers must deactivate the corresponding unit level UIs. When the Data Carriers are readable, the Manufacturers and Importers must validate them and report the corresponding unit level UIs to the Primary repository contracted by them, as described below. A copy of those data must be transferred instantaneously from the Primary repository to the Secondary repository.

The human readable code that is printed in the product along with the Data Carrier must be in the format delivered by the ID Issuer as part of the upUI codes.

The Human Readable code (upUI(s)) will be validated when available by the Primary Repository.

4.3.1.2 Data Flow Diagram – Application of unit level Unique identifiers (upUIs) on Unit packets – Report from Manufacturers and Importers

The diagram below depicts the data flow interaction related to the process whereby Manufacturers and Importers report unit level UIs to the Primary repository contracted by them.

Figure 30 Data Flow Diagram – Application of unit level Unique identifiers (upUIs) on Unit packets – Report from Manufacturers and Importers

The following table summarizes the messages, entities and systems displayed in the data flow diagram above.

Message code	Message description	From		To		Interface(s)
		Entity	System	Entity	System	
EUA (3.1)	Report the application of unit level UI on Unit packet	Economic operators: Manufacturers, Importers			Primary repository	PR2MN
EUA (3.1)	Transmit information on the application of unit level UI on Unit packet if message validated by Primary repository		Primary repository		Secondary repository	SU2PR

4.3.2 Application of aggregated level Unique identifiers (aUIs) on Aggregated packaging

4.3.2.1 Application of aggregated level Unique identifiers (aUIs) on Aggregated packaging – Report from Manufacturers and Importers

4.3.2.1.1 Description – Application of aggregated level Unique identifiers (aUIs) on Aggregated packaging – Report from Manufacturers and Importers

Where Manufacturers or Importers choose to comply with the recording obligations by means of the recording of aggregated packaging, each aggregated packaging of tobacco product must be marked with an aggregated level Unique identifier (aUI). Manufacturers and Importers can request aggregated level Unique identifiers (aUIs) to the competent ID Issuer or directly generate those following open standards (e.g. STGIN / SSCC). Once they collect the aggregated level codes from the ID issuer, Manufacturers and Importers incorporate the aggregated level Unique identifiers (aUIs) into the Data Carriers. Once the Data Carriers are applied onto the Aggregated packaging, they are read and verified with scanners. When the Data Carriers are unreadable, the Manufacturers and Importers must deactivate the corresponding aggregated level UIs. When the Data Carriers are readable, the Manufacturers and Importers must validate them and report the corresponding aggregated level UIs to the Primary repository contracted by them, as described below. The report must contain the list of all Unique identifiers (UIs) that are subject to aggregation, both at Unit packet and Aggregated packaging levels. A copy of those data must be transferred instantaneously from the Primary repository to the Secondary repository.

4.3.2.1.2 Data Flow Diagram – Application of aggregated level Unique identifiers (aUIs) on Aggregated packaging – Report from Manufacturers and Importers

The diagram below depicts the data flow interaction related to the process whereby Manufacturers and Importers report aggregated level Unique identifiers (aUIs) to the Primary repository contracted by them.

Figure 31 Data Flow Diagram – Application of aggregated level Unique identifiers (aUIs) on Aggregated packaging – Report from Manufacturers and Importers

The following table summarizes the messages, entities and systems displayed in the data flow diagram above.

Message code	Message description	From		To		Interface(s)
		Entity	System	Entity	System	
EPA (3.2)	Report the application of aggregated level UIs on Aggregated packaging	Economic operators: Manufacturers, Importers			Primary repository	PR2MN
EPA (3.2)	Transmit information on the application of aggregated level UIs on Aggregated packaging if message validated by Primary repository		Primary repository		Secondary repository	SU2PR

4.3.2.2 Application of aggregated level Unique identifiers (aUIs) on Aggregated packaging – Report from Distributors and Wholesalers

4.3.2.2.1 Description – Application of aggregated level Unique identifiers (aUIs) on Aggregated packaging – Report from Distributors and Wholesalers

Where Distributors or Wholesalers choose to comply with the recording obligations by means of the recording of aggregated packaging, each Aggregated packaging of tobacco product must be marked with an aggregated level Unique identifier (UI). Distributors and Wholesalers can request aggregated level Unique identifiers (aUIs) to the competent ID issuer. Once they collect the aggregated level codes from the ID issuer, Distributors and Wholesalers incorporate the aggregated level Unique identifiers (aUIs) into the Data Carriers. Once the Data Carriers are applied onto the Aggregated packaging, they are read and verified with scanners. When the Data Carriers are unreadable, Distributors and Wholesalers must deactivate the corresponding aggregated level UIs. When the Data Carriers are readable, Distributors and Wholesalers must validate them and report the aggregated level UIs to the Secondary repository via the Router, as described below. The report must contain the list of all Unique identifiers (UIs) that are subject to aggregation, both at Unit packet and Aggregated packaging levels.

4.3.2.2.2 Data Flow Diagram – Application of aggregated level Unique identifiers (aUIs) on Aggregated packaging – Report from Distributors and Wholesalers

The diagram below depicts the data flow interaction related to the process whereby Distributors and Wholesalers report aggregated level Unique identifiers (aUIs) to the Secondary repository via the Router.
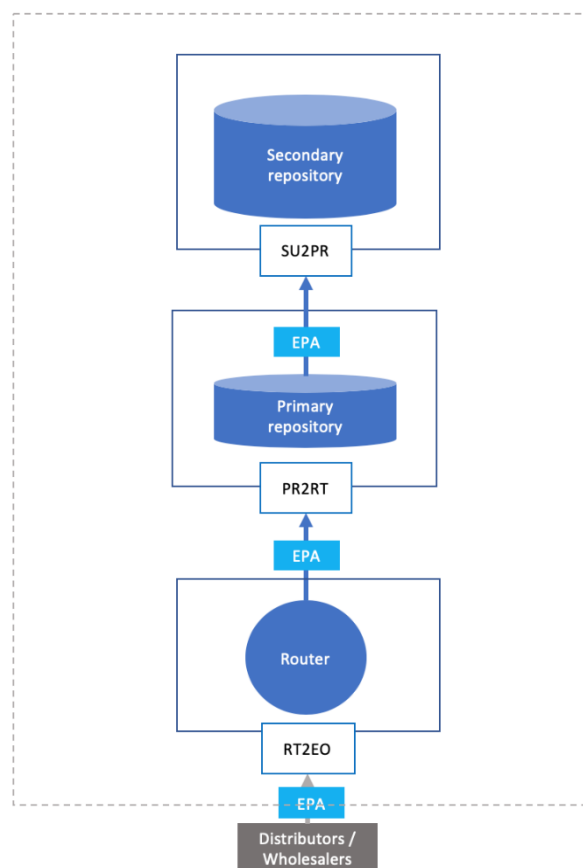
Figure 32 Data Flow Diagram – Application of aggregated level UIs on Aggregated packaging by Distributors and Wholesalers

The following table summarizes the messages, entities and systems displayed in the data flow diagram above.

Message code	Message description	From		To		Interface(s)
		Entity	System	Entity	System	
EPA (3.2)	Report the application of aggregated level UIs on Aggregated packaging	Economic operators: Distributors, Wholesalers			Router	RT2EO
EPA (3.2)	Route the application of aggregated level UIs on Aggregated packaging		Router		Primary repository	PR2RT
EPA (3.2)	Route the application of aggregated level UIs on Aggregated packaging		Primary repository		Secondary repository	SU2PR

4.3.3 Dispatch of tobacco products from a Facility

4.3.3.1 Dispatch of tobacco products from a Facility – Report from Manufacturers and Importers

4.3.3.1.1   Description – Dispatch of tobacco products from a Facility – Report from Manufacturers and Importers

Manufacturers and Importers must report to the Primary repository contracted by them the dispatch of tobacco products from a Facility within 24 hours prior to the occurrence of the event. A copy of those data must be transferred instantaneously from the Primary repository to the Secondary repository.

4.3.3.1.2   Data Flow Diagram – Dispatch of tobacco products from a Facility – Report from Manufacturers and Importers

The diagram below depicts the data flow interaction related to the process whereby Manufacturers and Importers report to the Primary repository contracted by them the dispatch of tobacco products from a Facility.
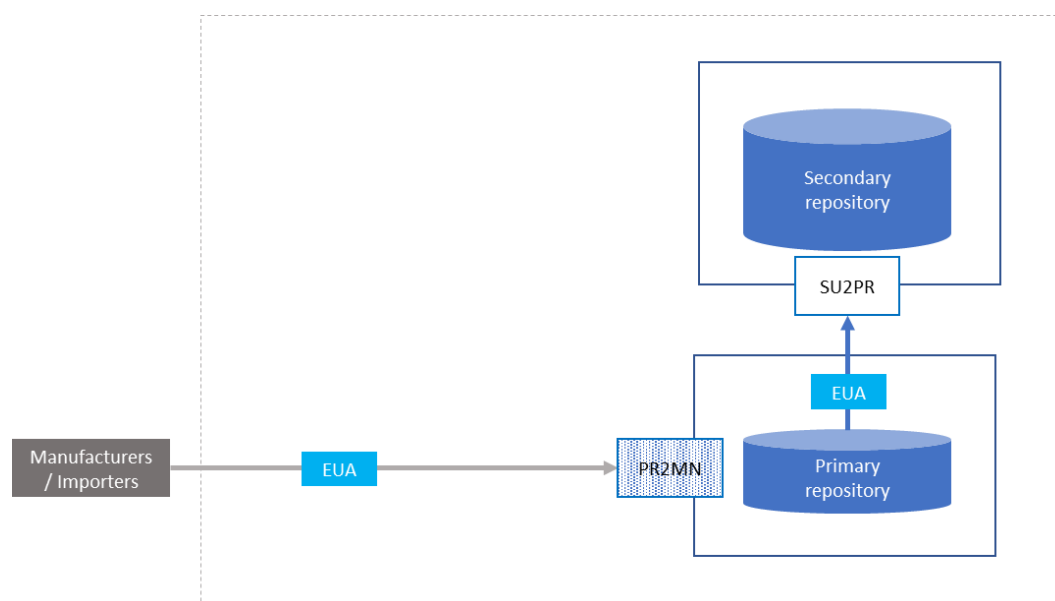

Figure 33 Data Flow Diagram – Dispatch of tobacco products from a Facility – Report from Manufacturers and Importers

The following table summarizes the messages, entities and systems displayed in the data flow diagram above.

Message code	Message description	From		To		Interface(s)
		Entity	System	Entity	System	
EDP (3.3)	Report the dispatch of tobacco products from a Facility	Economic operators: Manufacturers, Importers			Primary repository	PR2MN
EDP (3.3)	Transmit information on the dispatch of tobacco products from a Facility, if message validated by the Primary repository		Primary repository		Secondary repository	SU2PR

4.3.3.2 Dispatch of tobacco products from a Facility – Report from Distributors and Wholesalers

4.3.3.2.1   Description – Dispatch of tobacco products from a Facility – Report from Distributors and Wholesalers

Distributors and Wholesalers must report to the corresponding Primary repository via the Router the dispatch of tobacco products from a Facility within 24 hours prior to the occurrence of the event. A copy of those data must be transferred instantaneously from the Primary repository to the Secondary repository.

4.3.3.2.2   Data Flow Diagram – Dispatch of tobacco products from a Facility – Report from Distributors and Wholesalers

The diagram below depicts the data flow interaction related to the process whereby Distributors and Wholesalers report to the corresponding Primary repository via the Router the dispatch of tobacco products from a Facility.

Figure 34 Data Flow Diagram – Dispatch of tobacco products from a Facility – Report from Distributors and Wholesalers

The following table summarizes the messages, entities and systems displayed in the data flow diagram above.

Message code	Message description	From		To		Interface(s)
		Entity	System	Entity	System	
EDP (3.3)	Report the dispatch of tobacco products form a Facility	Economic operators: Distributors, Wholesalers			Router	RT2EO
EDP (3.3)	Route the information on the dispatch of tobacco products form a Facility, if message validated by the Router		Router		Primary repository	PR2RT
EDP (3.3)	Transmit the information on the dispatch of tobacco products form a Facility, if message validated by the Router		Primary repository		Secondary repository	SU2PR

4.3.4 Arrival of tobacco products at a Facility

4.3.4.1 Arrival of tobacco products at a Facility – Report from Manufacturers and Importers

4.3.4.1.1 Description – Arrival of tobacco products at a Facility – Report from Manufacturers and Importers

Manufacturers and Importers must report the arrival of tobacco products at a Facility to the Primary repository contracted by them. A copy of those data must be transferred instantaneously from the Primary repository to the Secondary repository.

4.3.4.1.2 Data Flow Diagram – Arrival of tobacco products at a Facility – Report from Manufacturers and Importers

The diagram below depicts the data flow interaction related to the process whereby Manufacturers and Importers report to the Primary repository contracted by them the arrival of tobacco products at a Facility.
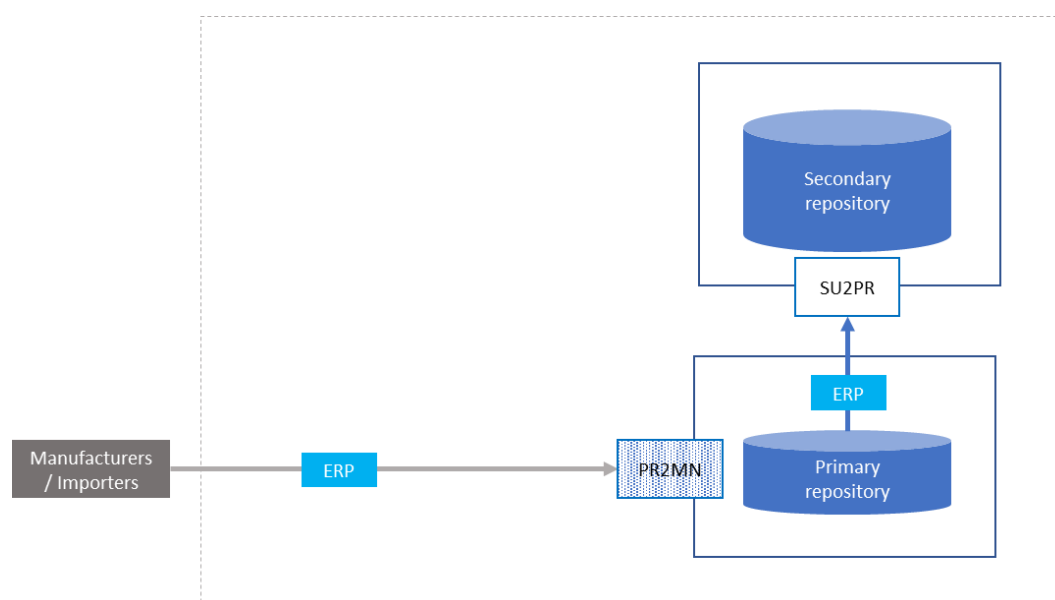
Figure 35 Data Flow Diagram – Arrival of tobacco products at a Facility – Report from Manufacturers and Importers

The following table summarizes the messages, entities and systems displayed in the data flow diagram above.

Message code	Message description	From		To		Interface(s)
		Entity	System	Entity	System	
ERP (3.4)	Report the arrival of tobacco products at a Facility	Economic operators: Manufactu rers, Importers			Primary repository	PR2MN
ERP (3.4)	Transmit information on the arrival of tobacco products at a Facility, if message validated by the Primary repository		Primary repository		Secondary repository	SU2PR

4.3.4.2 Arrival of tobacco products at a Facility – Report from Distributors and Wholesalers

4.3.4.2.1   Description – Arrival of tobacco products at a Facility – Report from Distributors and Wholesalers

Distributors and Wholesalers must report the arrival of tobacco products at a Facility to the corresponding Primary repository via the Router. A copy of those data must be transferred instantaneously from the Primary repository to the Secondary repository.

4.3.4.2.2   Data Flow Diagram – Arrival of tobacco products at a Facility – Report from Distributors and Wholesalers

The diagram below depicts the data flow interaction related to the process whereby Distributors and Wholesalers report to the corresponding Primary repository via the Router the arrival of tobacco products at a Facility.
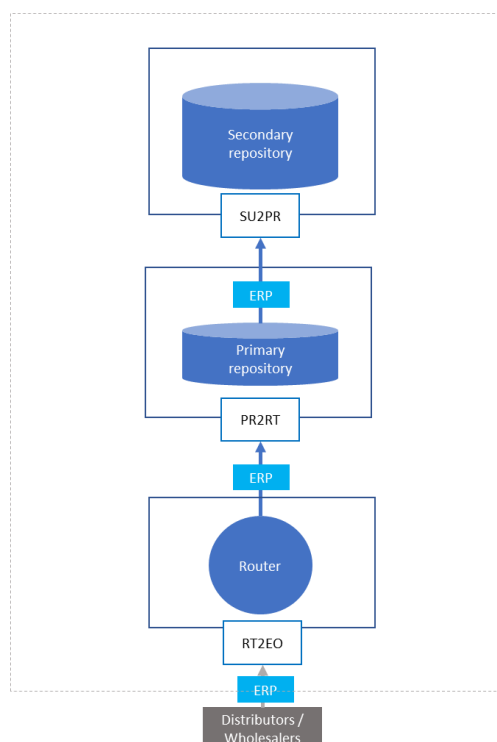
Figure 36 Data Flow Diagram – Arrival of tobacco products at a Facility – Report from Distributors and Wholesalers

The following table summarizes the messages, entities and systems displayed in the data flow diagram above.

Message code	Message description	From		To		Interface(s)
		Entity	System	Entity	System	
ERP (3.4)	Report the dispatch of tobacco products form a Facility	Economic operators: Distributors, Wholesalers			Router	RT2EO
ERP (3.4)	Route the information on the dispatch of tobacco products form a Facility, if message validated by the Router		Router		Primary repository	PR2RT
ERP (3.4)	Transmit the information on the dispatch of tobacco products form a Facility, if message validated by the Router		Primary repository		Secondary repository	SU2PR

4.3.5 Trans-loading

4.3.5.1 Trans-loading – Report from Manufacturers and Importers

4.3.5.1.1 Description – Trans-loading – Report from Manufacturers and Importers

Trans-loading is any transfer of tobacco products from one vehicle to another during which tobacco products do not enter or exit a Facility. Manufacturers and Importers must report trans-loading events to the Primary repository contracted by them, within 24 hours prior to the occurrence of the event. A copy of those data must be transferred instantaneously from the Primary repository to the Secondary repository.

4.3.5.1.2 Data Flow Diagram – Trans-loading – Report from Manufacturers and Importers

The diagram below depicts the data flow interaction related to the process whereby Manufacturers and Importers report to the Primary repository contracted by them the trans-loading of tobacco products.
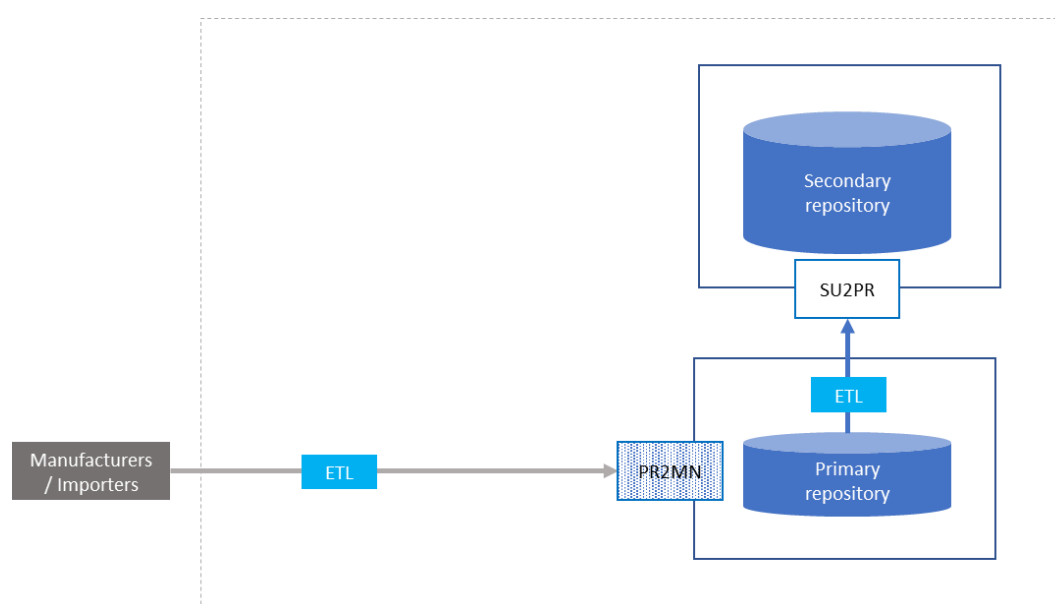
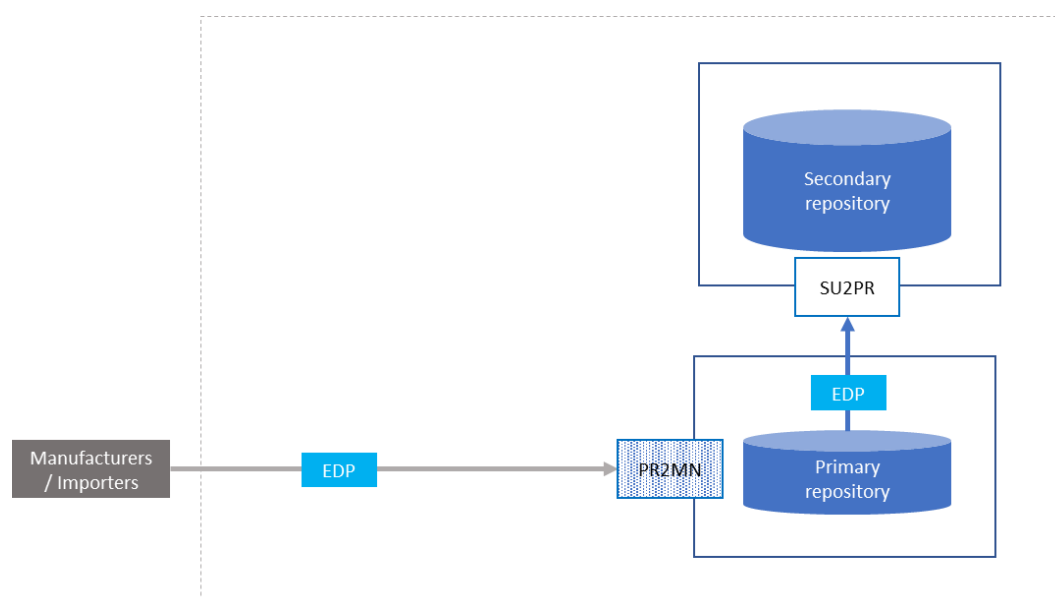*Figure 37 Data Flow Diagram – Trans-loading of tobacco products – Report from Manufacturers and Importers*

The following table summarizes the messages, entities and systems displayed in the data flow diagram above.

Message code	Message description	From		To		Interface(s)
		Entity	System	Entity	System	
ETL (3.5)	Report the trans-loading of tobacco products	Economic operators: Manufacturers, Importers			Primary repository	PR2MN
ETL (3.5)	Transmit information on the trans-loading of tobacco products, if message validated by Primary repository		Primary repository		Secondary repository	SU2PR

4.3.5.2 Trans-loading – Report from Distributors and Wholesalers

4.3.5.2.1   Description – Trans-loading – Report from Distributors and Wholesalers

Trans-loading is any transfer of tobacco products from one vehicle to another during which tobacco products do not enter and exit a Facility. Distributors and Wholesalers must report trans-loading events to the corresponding Primary repository via the Router, within 24 hours prior to the occurrence of the event. A copy of those data must be transferred instantaneously from the Primary repository to the Secondary repository.

4.3.5.2.2   Data Flow Diagram – Trans-loading – Report from Distributors and Wholesalers

The diagram below depicts the data flow interaction related to the process whereby Distributors and Wholesalers report to the corresponding Primary repository via the Router the trans-loading of tobacco products.
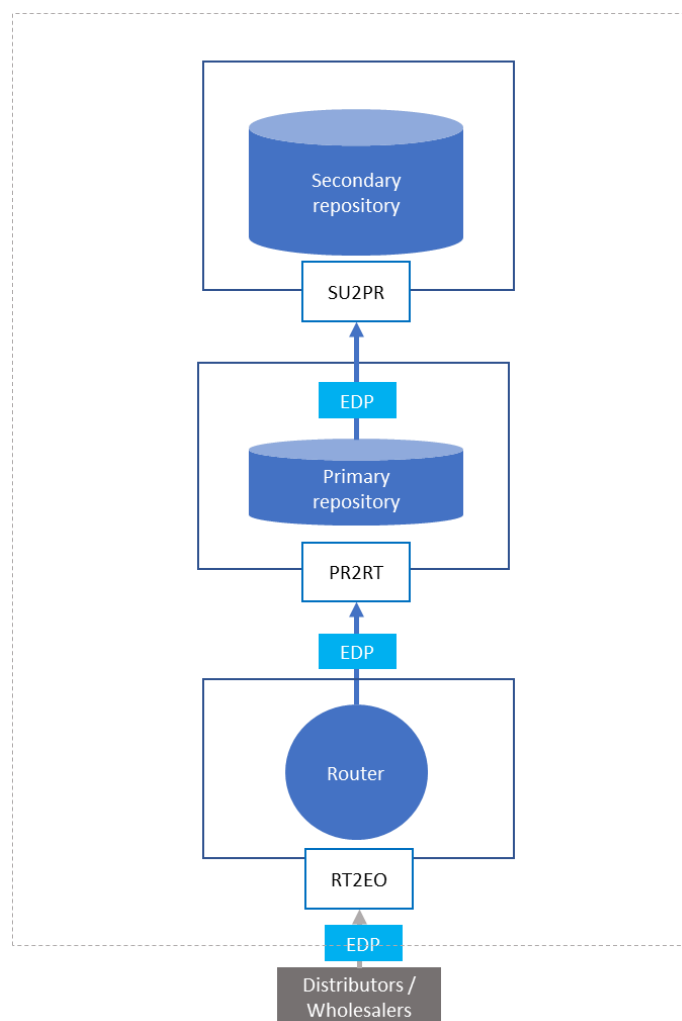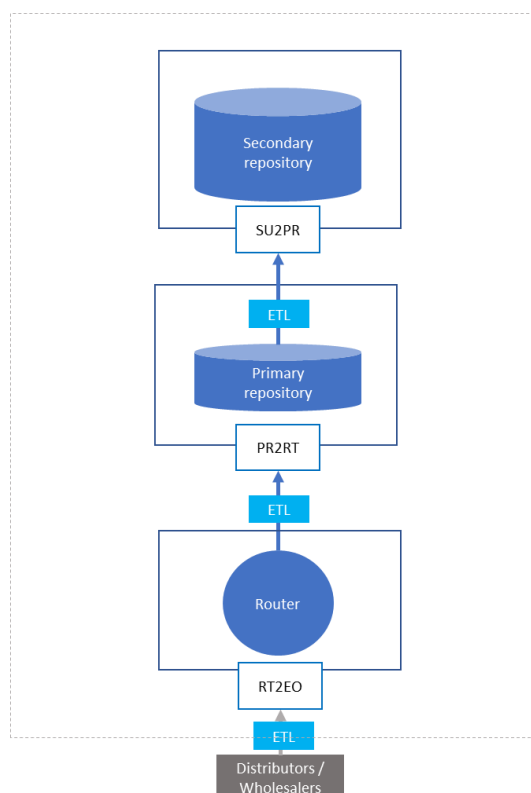
Figure 38 Data Flow Diagram – Trans-loading of tobacco products – Report from Distributors and Wholesalers

The following table summarizes the messages, entities and systems displayed in the data flow diagram above.

Message code	Message description	From		To		Interface(s)
		Entity	System	Entity	System	
ETL (3.5)	Report the trans-loading of tobacco products	Economic operators: Distributors, Wholesalers			Router	RT2EO
ETL (3.5)	Route the information on the trans-loading of tobacco products, if message validated by the Router		Router		Primary repository	PR2RT
ETL (3.5)	Transmit the information on the trans-loading of tobacco products, if message validated by the Router		Primary repository		Secondary repository	SU2PR

4.3.6 Disaggregation of aggregated level Unique identifier (UI)

4.3.6.1 Disaggregation of aggregated level UIs – Report from Manufacturers and Importers

4.3.6.1.1   Description – Disaggregation of aggregated level UIs – Report from Manufacturers and Importers

In the case of a disaggregation event whereby an aggregated level Unique identifier (aUI) was initially generated by an Economic operator and the Economic operator wants to reuse it in future operations, Manufacturers and Importers must report the disaggregation of aggregated level Unique identifier (aUI) event to the Primary repository contracted by them. A copy of those data must be transferred instantaneously from the Primary repository to the Secondary repository.

Note: The disaggregation report is only mandatory when the aggregated UI has been generated by the Economic Operator and will be re-used in future operations. The disaggregation of an aggregated packaging and its corresponding aggregated level UI does not lead to the deactivation of the unit level or aggregated level UIs that were contained in it.

4.3.6.1.2   Data Flow Diagram – Disaggregation of aggregated level UIs – Report from Manufacturers and Importers

The diagram below depicts the data flow interaction related to the process whereby Manufacturers and Importers report to the Primary repository contracted by them the disaggregation of aggregated level Unique identifier (UI).
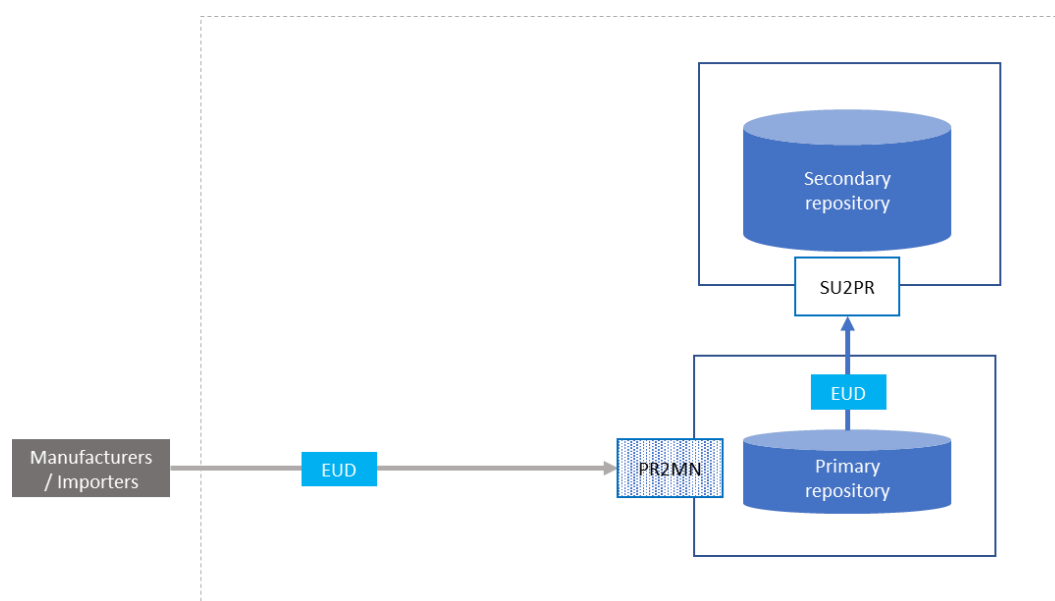
Figure 39 Data Flow Diagram – Disaggregation of aggregated level UIs – Report from Manufacturers and Importers

The following table summarizes the messages, entities and systems displayed in the data flow diagram above.

Message code	Message description	From		To		Interface(s)
		Entity	System	Entity	System	
EUD (3.6)	Report the disaggregation of aggregated level UIs	Economic operators: Manufacturers, Importers			Primary repository	PR2MN
EUD (3.6)	Transmit information on the disaggregation of aggregated level UIs, if message validated by Primary repository		Primary repository		Secondary repository	SU2PR

4.3.6.2 Disaggregation of aggregated level UIs – Report from Distributors and Wholesalers

4.3.6.2.1   Description – Disaggregation of aggregated level UIs – Report from Distributors and Wholesalers

In the case of a disaggregation event whereby an aggregated level Unique identifier (aUI) was initially generated by an Economic operator and the Economic operator wants to reuse it in future operations, Distributors and Wholesalers must report the disaggregation of aggregated level UIs to the Secondary repository via the Router.

Note: The disaggregation report is only mandatory when the aggregated UI has been generated by the Economic Operator and will be re-used in future operations. The disaggregation of an aggregated packaging and its corresponding aggregated level UI does not lead to the deactivation of the unit level or aggregated level UIs that were contained in it.

4.3.6.2.2   Data Flow Diagram – Disaggregation of aggregated level UIs – Report from Distributors and Wholesalers

The diagram below depicts the data flow interaction related to the process whereby Distributors and Wholesalers report to the Secondary repository via the Router the disaggregation of aggregated level UIs.
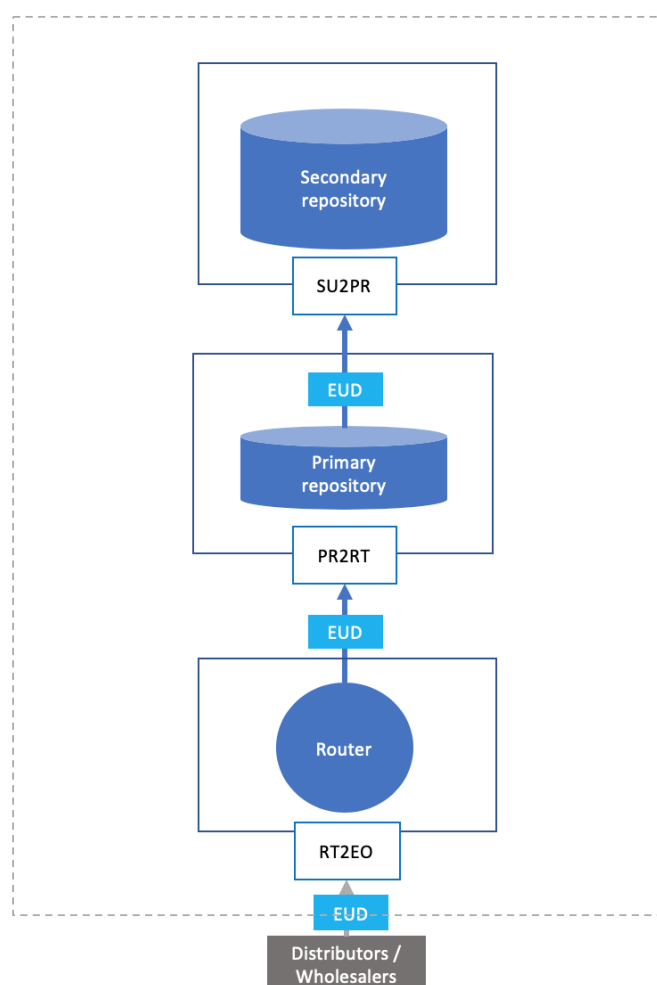
Figure 40 Data Flow Diagram – Disaggregation of aggregated level UIs – Report from Distributors and Wholesalers

The following table summarizes the messages, entities and systems displayed in the data flow diagram above.

Message code	Message description	From		To		Interface(s)
		Entity	System	Entity	System	
EUD (3.6)	Report the disaggregation of aggregated level UIs	Economic operators: Distributors, Wholesalers			Router	RT2EO
EUD (3.6)	Route the information on the disaggregation of aggregated level UIs, if message validated by the Router		Router		Primary repository	PR2RT
EUD (3.6)	Route the information on the disaggregation of aggregated level UIs		Primary repository		Secondary repository	SU2PR

4.3.7 Delivery carried out with a vending van to multiple retail outlets

4.3.7.1 Delivery carried out with a vending van to multiple retail outlets – Report from Manufacturers and Importers

4.3.7.1.1   Description – Delivery carried out with a vending van to multiple retail outlets – Report from Manufacturers and Importers

Vending van is a vehicle used for the delivery of tobacco products to multiple retail outlets in quantities that have not been predetermined in advance of the delivery. Manufacturers and Importers must report these events to the Primary repository contracted by them. A copy of those data must be transferred instantaneously from the Primary repository to the Secondary repository.

4.3.7.1.2   Clarification of event sequence
Relevant provisions: Articles 2(20), 25(1)(f) and (g), 26(3), 32(4), 32(7), 34(1) of Commission Implementing Regulation (EU) 2018/574

In accordance with Article 32(4) of the Implementing Regulation, for deliveries to multiple first retail outlets by means of a vending van, manufacturers and importers shall transmit the information listed in point 3.7 of Section 3 of Chapter II of Annex II, in the format indicated therein, to the primary contracted by them. All other economic operators shall transmit the information listed in point 3.7 of Section 3 of Chapter II of Annex II, in the format indicated therein via the router.

Regarding the characteristics of the repositories system, the latter shall allow for automatic validation of messages received from economic operators including refusal of incorrect or incomplete messages.

Economic operators reporting delivery by means of vending van need to submit: (i) message EDP(3.3) on dispatch of tobacco products from a facility with value '4' to be indicated in the field 'Destination_ID1' delivery with VV; (ii) for each retail outlet, message(s) 3.7 on the actual delivery(ies) carried out with a vending van; and (iii) for any remaining products/stock remaining after finishing the delivery tour, message ERP(3.4) on arrival of tobacco products at a facility with value '1' indicated in the field 'Product_Return'.

On whether EVR(3.7) message could be preceded by a ETL(3.5) message: Under Article 2(20) of the Implementing Regulation, vending van means a vehicle used for the delivery of tobacco products to multiple retail outlets in quantities that have not been predetermined in advance of the delivery. Considering that reporting of a trans-loading event requires and permits only one facility identifier code, reporting of trans-loading activities directly to a vending van is not possible.

On the basis of the foregoing, a EVR(3.7) message could only be preceded by a EDP(3.3) message and not by a ETL(3.5) message.

4.3.7.1.3   Data Flow Diagram – Delivery carried out with a vending van to multiple retail outlets – Report from Manufacturers and Importers

The diagram below depicts the data flow interaction related to the process whereby Manufacturers and Importers report to the Primary repository contracted by them delivery carried out with a vending van to multiple retail outlets.
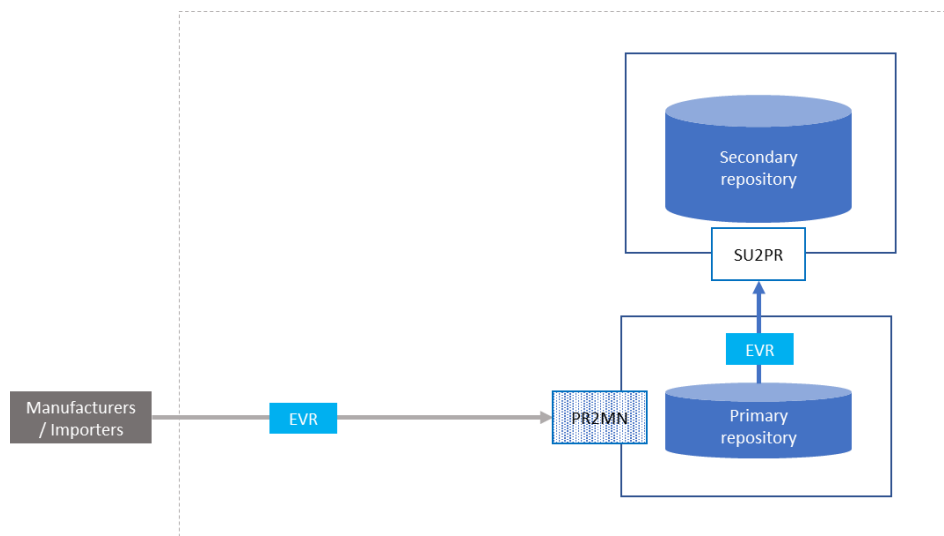
Figure 41 Data Flow Diagram – Delivery carried out with a vending van to multiple retail outlets – Report from Manufacturers and Importers

The following table summarizes the messages, entities and systems displayed in the data flow diagram above.

Message code	Message description	From		To		Interface(s)
		Entity	System	Entity	System	
EVR (3.7)	Report a delivery carried out with a vending van to multiple retail outlets	Economic operators: Manufacturers, Importers			Primary repository	PR2MN
EVR (3.7)	Transmit information on delivery carried out with a vending van to multiple retail outlets, if message validated by Primary repository		Primary repository		Secondary repository	SU2PR

4.3.7.2 Delivery carried out with a vending van to multiple retail outlets – Report from Distributors and Wholesalers

4.3.7.2.1   Description – Delivery carried out with a vending van to multiple retail outlets – Report from Distributors and Wholesalers

Vending van is a vehicle used for the delivery of tobacco products to multiple retail outlets in quantities that have not been predetermined in advance of the delivery. Distributors and Wholesalers must report these events to the corresponding Primary repository via the Router. A copy of those data must be transferred instantaneously from the Primary repository to the Secondary repository.

4.3.7.2.2   Data Flow Diagram – Delivery carried out with a vending van to multiple retail outlets – Report from Distributors and Wholesalers

The diagram below depicts the data flow interaction related to the process whereby Distributors and Wholesalers report to the corresponding Primary repository via the Router the trans-loading of tobacco products.
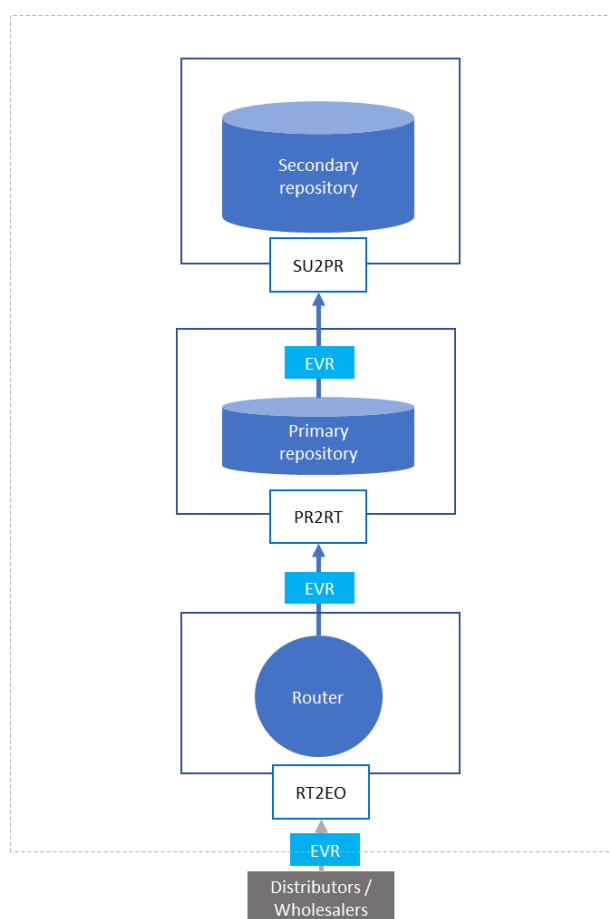
Figure 42 Data Flow Diagram – Delivery carried out with a vending van to multiple retail outlets – Report from Distributors and Wholesalers

The following table summarizes the messages, entities and systems displayed in the data flow diagram above.

Message code	Message description	From Entity	System	To Entity	System	Interface(s)
EVR (3.7)	Report a delivery carried out with a vending van to multiple retail outlets	Economic operators: Distributors, Wholesalers			Router	RT2EO
EVR (3.7)	Route the information on delivery carried out with a vending van to multiple retail outlets, if message validated by the Router		Router		Primary repository	PR2RT
EVR (3.7)	Transmit the information on delivery carried out with a vending van to multiple retail outlets, if message validated by the Router		Primary repository		Secondary repository	SU2PR

4.3.8 Dispatch of tobacco products from a Facility to laboratories, waste disposal centres, national authorities, international governmental organisations, embassies and military bases

4.3.8.1 Dispatch of tobacco products from a Facility to laboratories, waste disposal centres, national authorities, international governmental organisations, embassies and military bases – Report from Manufacturers and Importers

4.3.8.1.1 Description – Dispatch of tobacco products from a Facility to laboratories, waste disposal centres, national authorities, international governmental organisations, embassies and military bases – Report from Manufacturers and Importers

Manufacturers and Importers must report to the Primary repository contracted by them the dispatch of tobacco products from a Facility to laboratories, waste disposal centres, national authorities, international governmental organisations, embassies and military bases within 24 hours prior to the occurrence of the event. A copy of those data must be transferred instantaneously from the Primary repository to the Secondary repository.

4.3.8.1.2 Data Flow Diagram – Dispatch of tobacco products from a Facility to laboratories, waste disposal centres, national authorities, international governmental organisations, embassies and military bases – Report from Manufacturers and Importers

The diagram below depicts the data flow interaction related to the process whereby Manufacturers and Importers report to the Primary repository contracted by them the dispatch of tobacco products from a Facility to laboratories, waste disposal centres, national authorities, international governmental organisations, embassies and military bases.
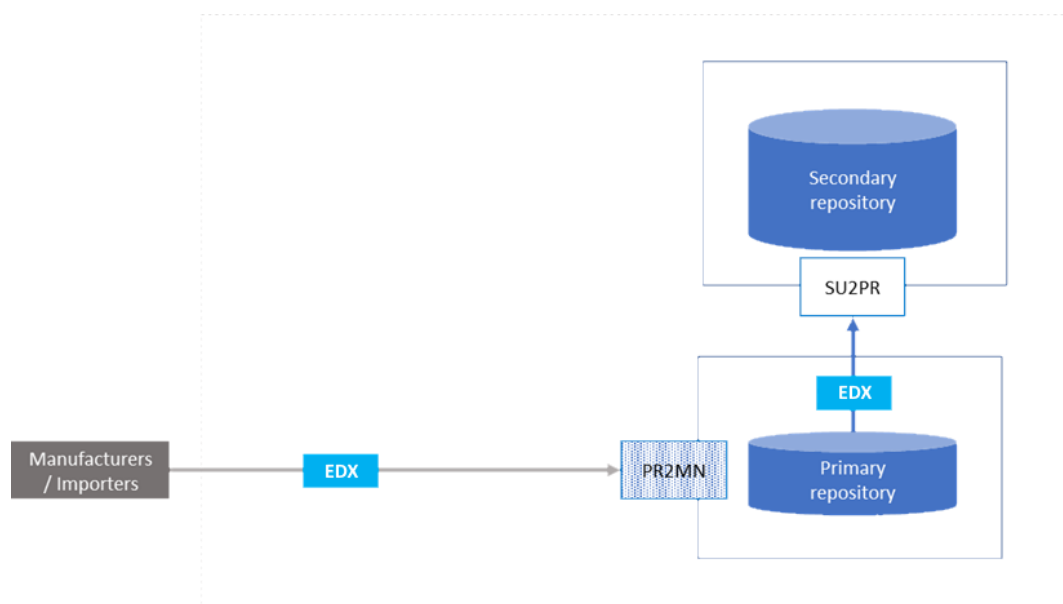
Figure 43 Data Flow Diagram – Dispatch of tobacco products from a Facility to laboratories, waste disposal centres, national authorities, international governmental organisations, embassies and military bases – Report from Manufacturers and Importers

The following table summarizes the messages, entities and systems displayed in the data flow diagram above.

Message code	Message description	From		To		Interface(s)
		Entity	System	Entity	System	
EDX (3.8)	Report the dispatch of tobacco products from a Facility	Economic operators: Manufacturers, Importers			Primary repository	PR2MN
EDX (3.8)	Transmit information on the dispatch of tobacco products from a Facility, if message validated by the Primary repository		Primary repository		Secondary repository	SU2PR

4.3.8.2 Dispatch of tobacco products from a Facility to laboratories, waste disposal centres, national authorities, international governmental organisations, embassies and military bases – Report from Distributors and Wholesalers

4.3.8.2.1 Description – Dispatch of tobacco products from a Facility to laboratories, waste disposal centres, national authorities, international governmental organisations, embassies and military bases – Report from Distributors and Wholesalers

Distributors and Wholesalers must report to the corresponding Primary repository via the Router the dispatch of tobacco products from a Facility to laboratories, waste disposal centres, national authorities, international governmental organisations, embassies and military bases within 24 hours prior to the occurrence of the event. A copy of those data must be transferred instantaneously from the Primary repository to the Secondary repository.

4.3.8.2.2 Data Flow Diagram – Dispatch of tobacco products from a Facility to laboratories, waste disposal centres, national authorities, international governmental organisations, embassies and military bases – Report from Distributors and Wholesalers

The diagram below depicts the data flow interaction related to the process whereby Distributors and Wholesalers report to the corresponding Primary repository via the Router the dispatch of tobacco products from a Facility to laboratories, waste disposal centres, national authorities, international governmental organisations, embassies and military bases.
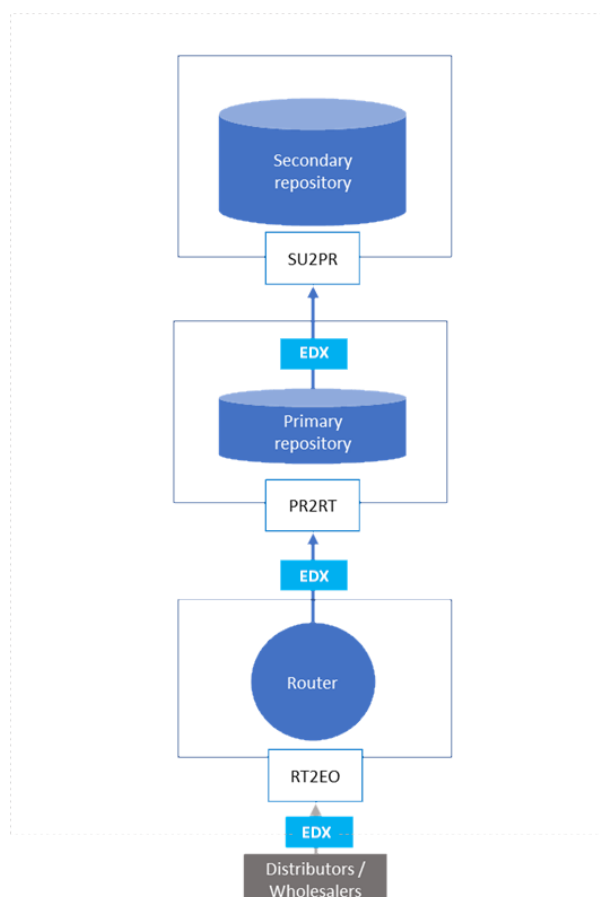
Figure 44 Data Flow Diagram – Dispatch of tobacco products from a Facility to laboratories, waste disposal centres, national authorities, international governmental organisations, embassies and military bases – Report from Distributors and Wholesalers

The following table summarizes the messages, entities and systems displayed in the data flow diagram above.

Message code	Message description	From		To		Interface(s)
		Entity	System	Entity	System	
EDX (3.8)	Report the dispatch of tobacco products form a Facility	Economic operators: Distributors, Wholesalers			Router	RT2EO
EDX (3.8)	Route the information on the dispatch of tobacco products form a Facility, if message validated by the Router		Router		Primary repository	PR2RT
EDX (3.8)	Transmit the information on the dispatch of tobacco products form a Facility, if message validated by the Router		Primary repository		Secondary repository	SU2PR

4.4 Reporting transactional events (trade information)

4.4.1 Issuing of the invoice

4.4.1.1 Issuing of invoice – Report from Manufacturers and Importers
4.4.1.1.1 Description – Issuing of invoice – Report from Manufacturers and Importers

When in the position of vendors, Manufacturers and Importers must report the issuing of invoice to the Primary repository contracted by them. A copy of those data must be transferred instantaneously from the Primary repository to the Secondary repository.

4.4.1.1.2 Data Flow Diagram – Issuing of invoice – Report from Manufacturers and Importers

The diagram below depicts the data flow interaction related to the process whereby Manufacturers and Importers report the issuing of invoice to the Primary repository contracted by them.

Figure 45 Data Flow Diagram – Issuing of invoice – Report from Manufacturers and Importers

The following table summarizes the messages, entities and systems displayed in the data flow diagram above.

Message code	Message description	From		To		Interface(s)
		Entity	System	Entity	System	
EIV (4.1)	Report the issuing of invoice	Economic operators: Manufacturers, Importers			Primary repository	PR2MN
EIV (4.1)	Transmit information on the issuing of invoice, if message validated by the Primary repository		Primary repository		Secondary repository	SU2PR

4.4.1.2 Issuing of invoice – Report from Distributors and Wholesalers

4.4.1.2.1   Description – Issuing of invoice – Report from Distributors and Wholesalers

When in the position of vendors, Distributors and Wholesalers must report the issuing of invoice to the corresponding Primary repository via the Router. A copy of those data must be transferred instantaneously from the Primary repository to the Secondary repository.

4.4.1.2.2   Data Flow Diagram – Issuing of invoice – Report from Distributors and Wholesalers

The diagram below depicts the data flow interaction related to the process whereby Distributors and Wholesalers report the issuing of invoice to the corresponding Primary repository via the Router.

Figure 46 Data Flow Diagram – Issuing of invoice – Report from Distributors and Wholesalers

The following table summarizes the messages, entities and systems displayed in the data flow diagram above.

Message code	Message description	From		To		Interface(s)
		Entity	System	Entity	System	
EIV (4.1)	Report the issuing of invoice	Economic operators: Distributors, Wholesalers			Router	RT2EO
EIV (4.1)	Route the information on the issuing of invoice, if message validated by the Router		Router		Primary repository	PR2RT
EIV (4.1)	Transmit the information on the issuing of invoice, if message validated by the Router		Primary repository		Secondary repository	SU2PR

4.4.2 Issuing of the order number

4.4.2.1 Issuing of order number – Report from Manufacturers and Importers

4.4.2.1.1   Description – Issuing of order number – Report from Manufacturers and Importers

When in the position of vendors, Manufacturers and Importers must report the issuing of order number to the Primary repository contracted by them. Depending on the characteristics of the Economic operator, the report must be transmitted within 3 or 24 hours from the occurrence of the event. A copy of those data must be transferred instantaneously from the Primary repository to the Secondary repository.

4.4.2.1.2   Data Flow Diagram – Issuing of order number – Report from Manufacturers and Importers

The diagram below depicts the data flow interaction related to the process whereby Manufacturers and Importers report the issuing of order number to the Primary repository contracted by them.

Figure 47 Data Flow Diagram – Issuing of order number – Report from Manufacturers and Importers

The following table summarizes the messages, entities and systems displayed in the data flow diagram above.

Message code	Message description	From		To		Interface(s)
		Entity	System	Entity	System	
EPO (4.2)	Report the issuing of order number	Economic operators: Manufacturers, Importers			Primary repository	PR2MN
EPO (4.2)	Transmit information on the issuing of order number, if message validated by the Primary repository		Primary repository		Secondary repository	SU2PR

4.4.2.2 Issuing of order number – Report from Distributors and Wholesalers

4.4.2.2.1 Description – Issuing of order number – Report from Distributors and Wholesalers

When in the position of vendors, Distributors and Wholesalers must report the issuing of order number to the corresponding Primary repository via the Router. A copy of those data must be transferred instantaneously from the Primary repository to the Secondary repository.

4.4.2.2.2 Data Flow Diagram – Issuing of order number – Report from Distributors and Wholesalers

The diagram below depicts the data flow interaction related to the process whereby Distributors and Wholesalers report the issuing of order number to the corresponding Primary repository via the Router.
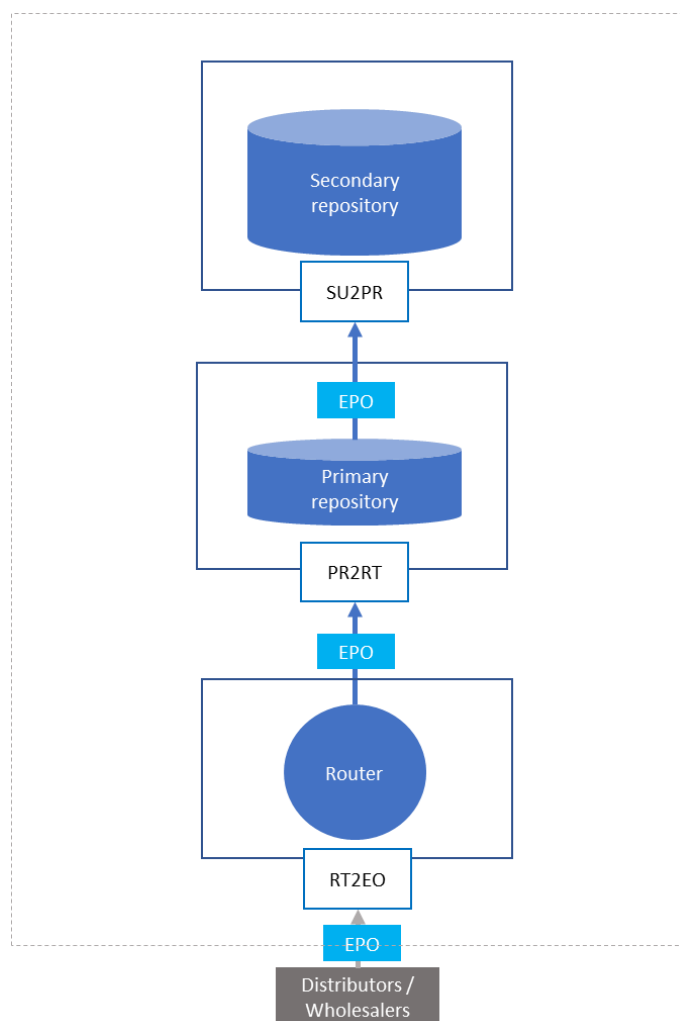
Figure 48 Data Flow Diagram – Issuing of order number – Report from Distributors and Wholesalers

The following table summarizes the messages, entities and systems displayed in the data flow diagram above.

Message code	Message description	From		To		Interface(s)
		Entity	System	Entity	System	
EPO (4.2)	Report the issuing of order number	Economic operators: Distributors, Wholesalers			Router	RT2EO
EPO (4.2)	Route the information on the issuing of order number, if message validated by the Router		Router		Primary repository	PR2RT
EPO (4.2)	Transmit information on the issuing of order number, if message validated by the Router		Primary repository		Secondary repository	SU2PR

4.4.3 Receipt of the payment

4.4.3.1 Receipt of the payment – Report from Manufacturers and Importers

4.4.3.1.1   Description – Receipt of the payment – Report from Manufacturers and Importers

When in the position of vendors, Manufacturers and Importers must report the receipt of payment to the Primary repository contracted by them. A copy of those data must be transferred instantaneously from the Primary repository to the Secondary repository.

4.4.3.1.2   Data Flow Diagram – Receipt of the payment – Report from Manufacturers and Importers

The diagram below depicts the data flow interaction related to the process whereby Manufacturers and Importers report the receipt of payment to the Primary repository contracted by them.
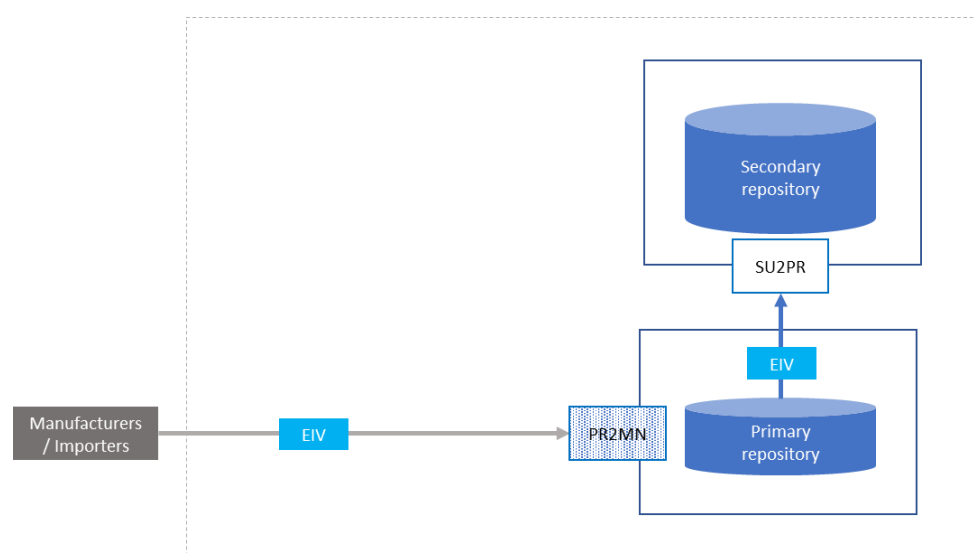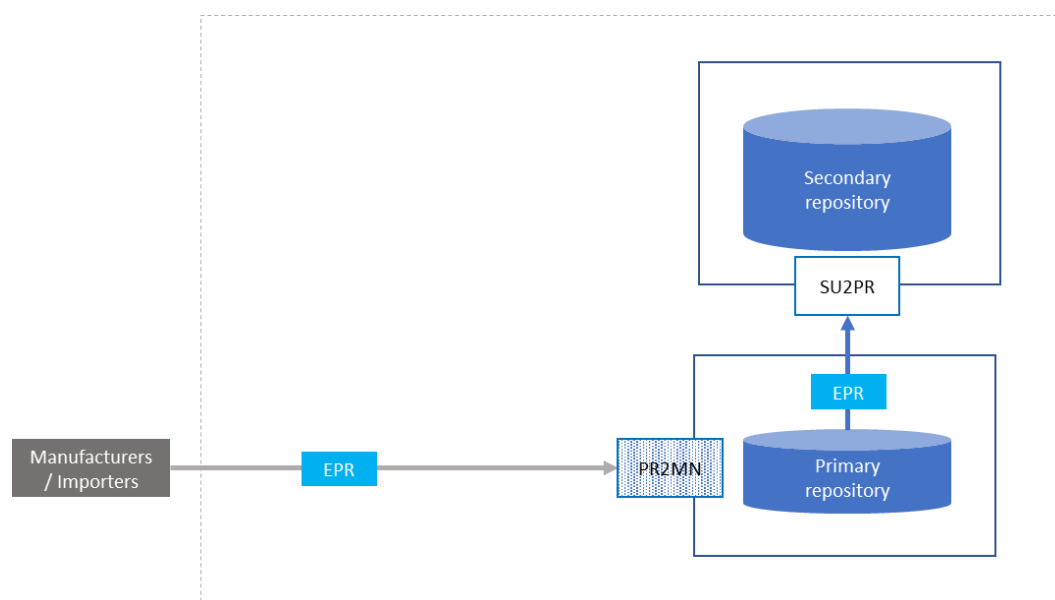

Figure 49 Data Flow Diagram – Receipt of payment – Report from Manufacturers and Importers

The following table summarizes the messages, entities and systems displayed in the data flow diagram above.

Message code	Message description	From		To		Interface(s)
		Entity	System	Entity	System	
EPR (4.3)	Report the receipt of payment	Economic operators: Manufacturers, Importers			Primary repository	PR2MN
EPR (4.3)	Transmit information on the receipt of payment, if message validated by the Primary repository		Primary repository		Secondary repository	SU2PR

4.4.3.2 Receipt of payment – Report from Distributors and Wholesalers

4.4.3.2.1 Description – Receipt of the payment – Report from Distributors and Wholesalers

When in the position of vendors, Distributors and Wholesalers must report the receipt of payment to the corresponding Primary repository via the Router. A copy of those data must be transferred instantaneously from the Primary repository to the Secondary repository.

4.4.3.2.2 Data Flow Diagram – Receipt of the payment – Report from Distributors and Wholesalers

The diagram below depicts the data flow interaction related to the process whereby Distributors and Wholesalers report the receipt of payment to the corresponding Primary repository via the Router.
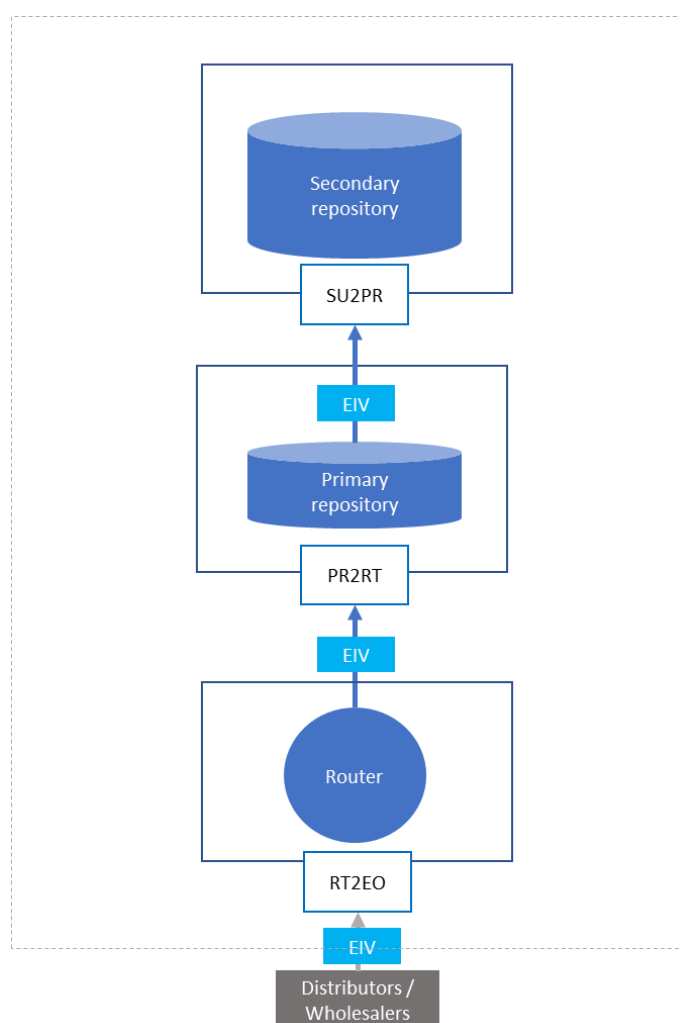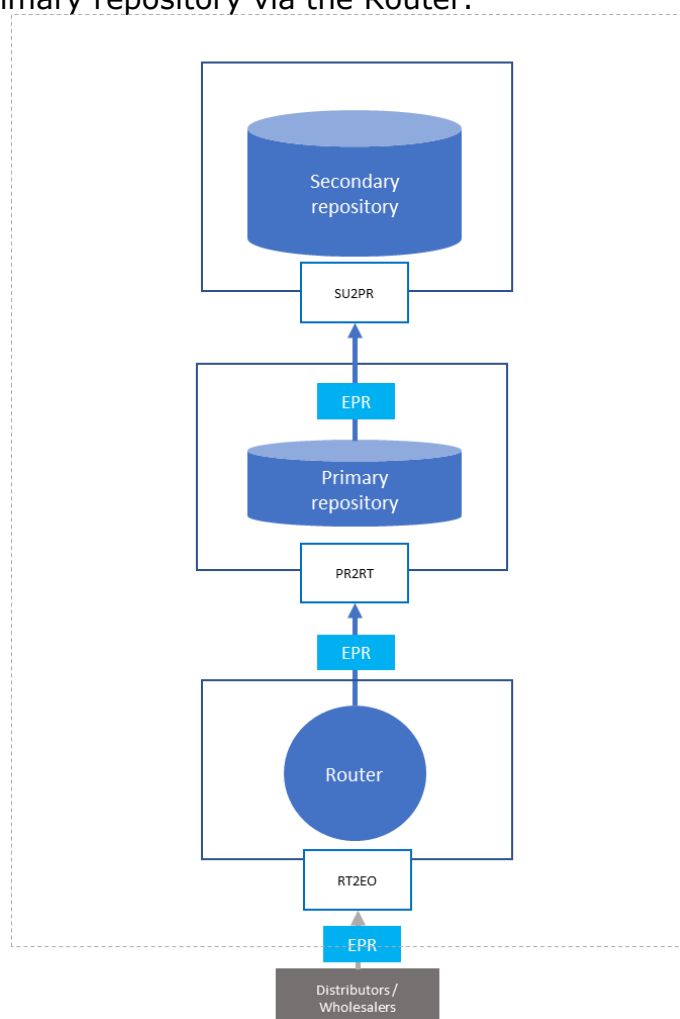

Figure 50 Data Flow Diagram – Receipt of payment – Report from Distributors and Wholesaler

The following table summarizes the messages, entities and systems displayed in the data flow diagram above.

Message code	Message description	From		To		Interface(s)
		Entity	System	Entity	System	
EPR (4.3)	Report the receipt of payment	Economic operators: Distributors, Wholesalers			Router	RT2EO
EPR (4.3)	Route the information on the receipt of payment, if message validated by the Router		Router		Primary repository	PR2RT
EPR (4.3)	Transmit information on the receipt of payment, if message validated by the Router		Primary repository		Secondary repository	SU2PR

4.5 Recalls of requests, operational and transactional messages

4.5.1 Recalls of operational and transactional messages

4.5.1.1 Recalls of operational and transactional messages – Recalls from Manufacturers and Importers

4.5.1.1.1   Description – Recalls of operational and transactional messages – Recalls from Manufacturers and Importers

In order to recall reports concerning operational or transactional events, Manufacturers and Importers must send a recall message to the Primary repository contracted by them, including the Message Recall Code previously transmitted by the Primary repository. A copy of those data must be transferred instantaneously from the Primary repository to the Secondary repository. Reasons for Recalls are either that the reported event did not materialize (for Dispatch and Trans-loading events, since they must be reported prior to the occurrence of the event), the original message contained erroneous information, or other reason. A recall with respect to operational events results in flagging the recalled message as cancelled but does not lead to the deletion of the existing database record.

4.5.1.1.2   Data Flow Diagram – Recalls of operational and transactional messages – Recalls from Manufacturers and Importers

The diagram below depicts the data flow interaction related to the process whereby Manufacturers and Importers recall an operational or transactional message to the Primary repository contracted by them.
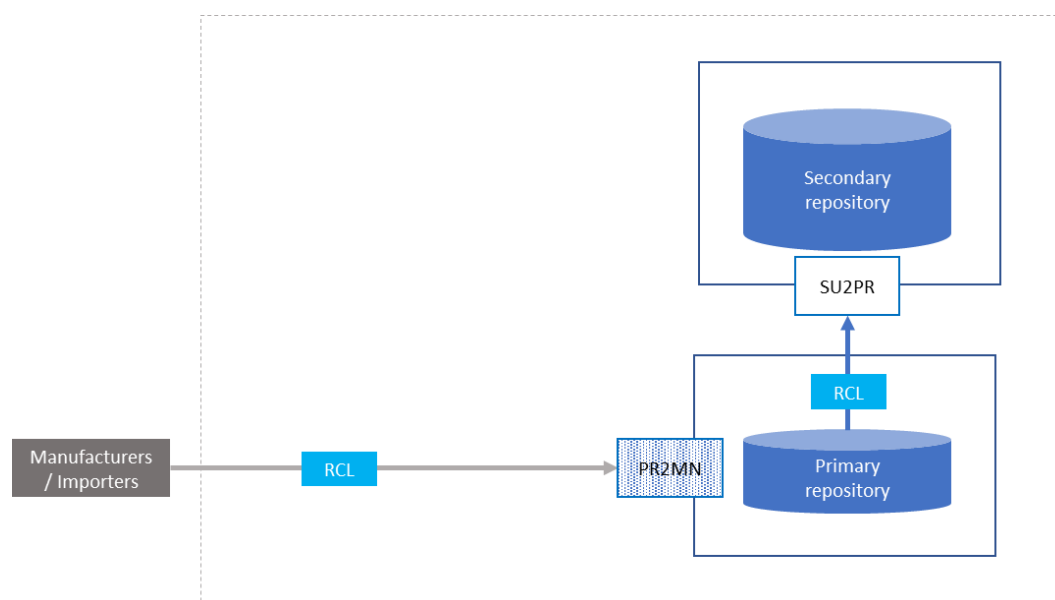
Figure 51 Data Flow Diagram – Recalls of operational and transactional messages – Recalls from Manufacturers and Importers

The following table summarizes the messages, entities and systems displayed in the data flow diagram above.

Message code	Message description	From		To		Interface(s)
		Entity	System	Entity	System	
RCL (5)	Recall of operational and transactional event message	Economic operators: Manufacturers, Importers			Primary repository	PR2MN
RCL (5)	Transmit information on the recall of operational and transactional event message, if message validated by the Primary repository		Primary repository		Secondary repository	SU2PR

4.5.1.2 Recalls of operational and transactional messages – Recalls from Distributors and Wholesalers

4.5.1.2.1   Description – Recalls of operational and transactional messages – Recalls from Distributors and Wholesalers

In order to recall reports concerning operational or transactional events, Distributors and Wholesalers must send a recall message to the Router, including the Message Recall Code previously transmitted by the Router. The Router must report the recall to the corresponding Primary repository. A copy of those data must be transferred instantaneously from the Primary repository to the Secondary repository. Reasons for Recalls are either that the reported event did not materialize (for Dispatch and Trans-loading events, since they must be reported prior to the occurrence of the event), the original message contained erroneous information, or other reason.   A recall with respect to operational events results in flagging the recalled message as cancelled but does not lead to the deletion of the existing database record.

4.5.1.2.2   Data Flow Diagram – Recalls of operational and transactional messages – Recalls from Distributors and Wholesalers

The diagram below depicts the data flow interaction related to the process whereby Distributors and Wholesalers recall an operational or transactional message to the Router.
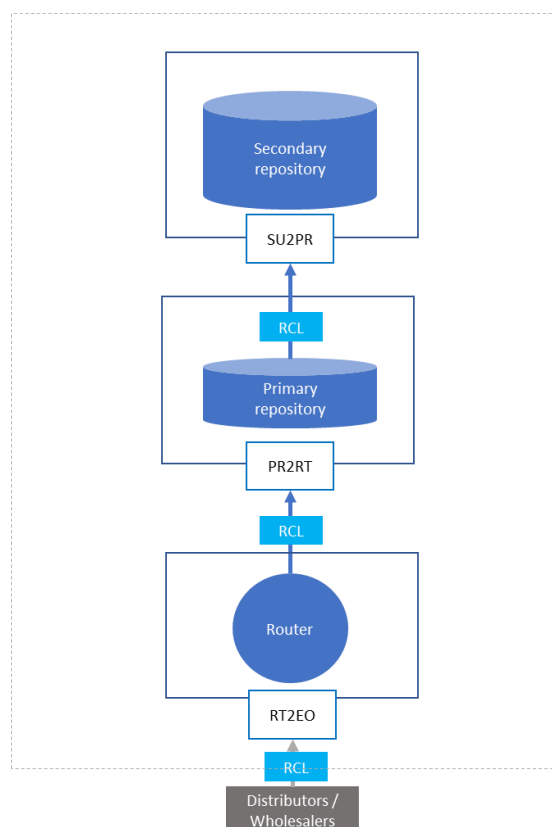
Figure 52 Data Flow Diagram – Recalls of operational and transactional messages – Recalls from Distributors and Wholesalers

The following table summarizes the messages, entities and systems displayed in the data flow diagram above.

Message code	Message description	From		To		Interface(s)
		Entity	System	Entity	System	
RCL (5)	Recall of operational and transactional event message	Economic operators: Distributors and Wholesalers			Router	RT2EO
RCL (5)	Route the Recall of operational and transactional event message, if message validated by the Router		Router		Primary repository	PR2RT
RCL (5)	Transmit the Recall of operational and transactional event message, if message validated by the Router		Primary repository		Secondary repository	SU2PR

4.6 Importer Scenario

4.6.1 Identifier Code request

The Importer must register with the competent ID Issuer to receive valid Economic Operator ID(s), Facility ID(s) and Machine ID(s) in accordance with the rules set out in implementing regulation 2018/574.

4.6.2 Unique Identifier request

The IRU (response to message 2.1 defined in Annex II) must contain the import flag information.

4.6.3 Reporting through a primary repository

The reporting of events for the Importer must be done using a primary repository. The Primary repository forwards the reported events to the Secondary repository.

4.6.4 Reporting flow

The UI requests with the import flag enabled requires the following events to be reported.
- Application event 3.1 (EUA) that reports the application process on the
- Aggregation event 3.2 (EPA) (optional).
- Arrival event 3.4 (ERP). The first event that must be reported for the imported goods is the Arrival event.
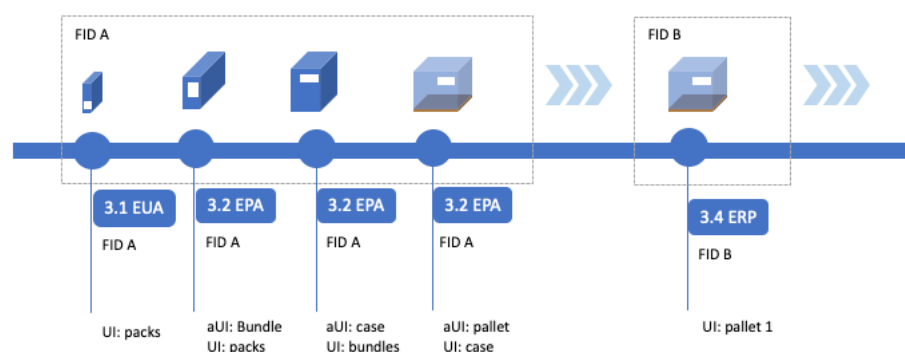
Figure 53 Importing flow

4.7 Recording and transmission of information on supply chain events

Art. 15(5) TPD requires that all economic operators involved in the trade of tobacco products, from the manufacturer to the last economic operator before the first retail outlet, record the entry of all unit packets into their possession, as well as all intermediate movements and the final exit of the unit packets from their possession.

Arts. 32 and 33 of CIR 2018/574 detail the reporting obligations on product movements, and on transactional events respectively, by requiring inter alia the following:

- In the case of product movements, the responsibility for recording and transmitting the information shall lie with the economic operator that is in possession of the tobacco products. To that end, all the reporting activities shall use the identifier code of this economic operator. IT service providers may also transmit this information on behalf of the economic operator that is in possession of the tobacco products. In this case, the IT service provider should use the identifier codes of the economic operator in possession of the products. If this is a manufacturer or importer, the IT service provider should transmit the information to the primary repository contracted by the manufacturer or importer. In all other cases, the IT service provider should transmit the information to the router.
- In the case of transactional information, the responsibility for recording and transmitting the information shall lie with the economic operator who is the vendor. To this end, all the reporting activities shall use the identifier code of this economic operator. IT service providers may also transmit this information on behalf of the economic operator who is the vendor of the tobacco products. In this case, the IT service provider should use the identifier codes of the vendor. If this is a manufacturer or importer, the IT service provider should transmit the information to the primary repository contracted by the manufacturer or importer. In all other cases, the IT service provider should transmit the information to the router.

Manufacturers and importer must transmit their reporting messages to the primary repository contracted by them. All other economic operators must transmit their reporting messages via the router.

5 Interfaces

5.1 Overview

The interfaces of the Traceability System are as follows:
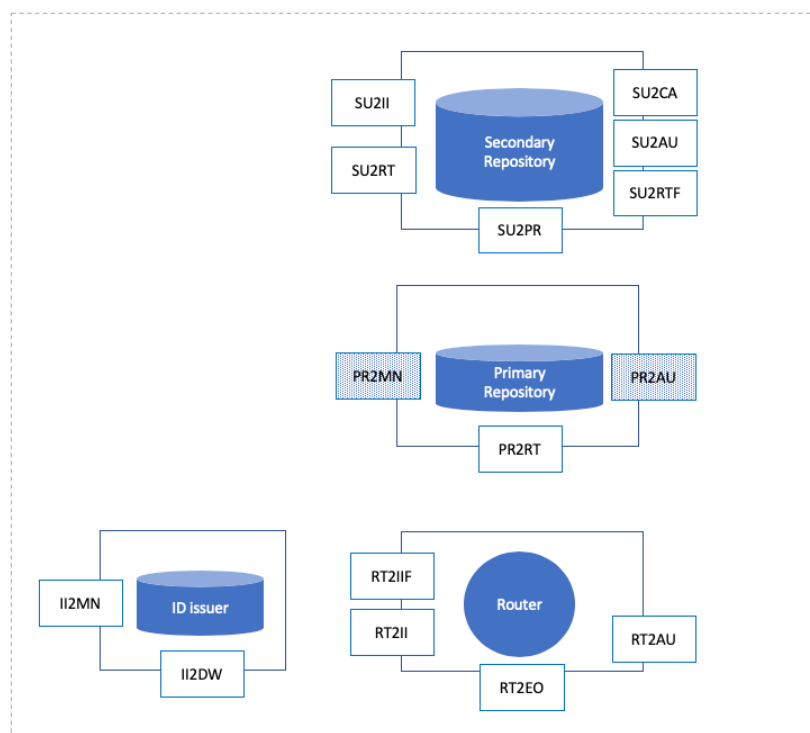
Figure 54 System interfaces and endpoints

5.2 Secondary repository and Router interface

This section describes the interfaces through which the Router and the Secondary repository interact with each other. The Secondary repository offers three methods of interaction:

a) An application programmable interface (API)
    This is the main entry point for data ingress from the ID issuer, the Primary repositories and the Router.
b) A graphical user interface (GUI) / stationary interface
    The GUI is used for reporting purposes and some entity sign up processes.
c) A mobile user interface containing an inspection application for the leading mobile operating systems.

All of the GUIs offered rely on browser-based html/JavaScript technics and support current browsers from major browser suppliers.

5.2.1 Secondary repository and Router application programmable interface

Interface acronym	Hosting system	Description
RT2II	Router	Secure interface published by the Router for the ID issuers.
RT2IIF	Router	Secure File interface published by the Router for the ID issuers.
RT2EO	Router	Secure interface published by the Router for Manufacturers and Importers
RT2AU	Router	Secure interface published by the Router for Competent Authorities
SU2PR	Secondary repository	Secure interface published by the Secondary repository for the primary repository's providers
SU2CA	Secondary repository	Secure interface published by the Secondary repository for competent authorities
SU2AU	Secondary repository	Secure interface published by the Secondary repository for auditing purposes
SU2RT	Secondary repository	Secure interface published by the Secondary repository for Router
SU2RTF	Secondary repository	File based Secure interface published by the Secondary repository for Router
SU2II	Secondary Repository	Secure interface published by the Secondary repository for Verification purposes

5.2.2 Methods of interaction

5.2.2.1 JSON interface
The API is offered with an http based RestAPI with JSON parameters. Details of the interfaces offered, and supported messages are defined in this document. HTTP POST method is used for all calls (except the second asynchronous file upload HTTP PUT).

5.2.3 Encoding
All messages are encoded in UTF-8

5.2.4 Secured communication
Communication between the Secondary repository and interacting participants of the tobacco industry is secured by TSL 1.2 encryption AES256 cypher. Cypher suites that are less secure are not supported. If the TLS version or cypher used proves to be corroded or vulnerable, Dentsu Aegis reserves the right to replace the affected item with a state-of-the-art item after prior announcement.

The repository system uses Oauth 2.0 to authorize access to the web service methods. Oauth 2.0 is the industry-standard protocol for authorization. Oauth 2.0

supersedes the work done on the original Oauth protocol created in 2006. Oauth 2.0 focuses on client developer simplicity while providing specific authorization flows for web applications, desktop applications and server to server communication.

The system uses the OAuth client credential flow. The client credentials flow is used as an authorization grant as the authorization scope is limited to the protected resources previously arranged with the authorization server (the server being the Secondary repository).

Access tokens are issued as credentials used to access protected resources. An access token is a string representing an authorization issued to the client. The string is opaque to the client and passed in the authentication header. Tokens represent specific scopes and durations of access, granted by the resource owner, and enforced by the resource server and authorization server. Tokens have an expiry of 3600 seconds (1 hour).

5.2.5 Version and backwards compatibility

Dentsu provides an API versioning approach using a version identifier in the URL.

We currently see no reason to make a breaking change or enhancement that would require a V2 to be added. This convention is in place to facilitate all eventualities in the future.

Our goal would be to make releases to the API that are non-breaking by being backward compatible, for example adding additional return properties, not removing old ones.

While it is true that the new regulation version could be considered a V2, the risk of updating all the URLs and endpoints for all stakeholders of the system (ID Issuers, Primary Repositories, Service Providers, Economic Operators) is too high, therefore V1 will be kept.

However, unlike with any previous versions, backwards compatibility **cannot be maintained due to the fact that fields have disappeared from the regulation to be replaced for new ones (i.e. the Address Fields).**

Therefore V2.0 of the specifications will still be published on the URL with the v1 prefix, but backwards compatibility is not kept for messages whose core fields have been changed in the Implementing Regulation revision

5.2.6 System Reception Timestamp

In some cases, manufacturer systems can generate bursts of messages. A number of messages can be produced during the same second and therefore will have the same EventTime and the same MessageTimeLong.

In order to implement efficiently the sequence validation controls, the System Reception_Time at a millisecond precision is defined.

The Reception_Time will be recorded and added by the Primary repository and Router.

The reception Time added by the router will be transmitted to the primaries. Primary repositories should accept and transmit the field to the secondary repository.

5.2.7 Message identification and RecallCode

5.2.7.1 Overview
The traceability system, and more precisely, the entry point system (Primary repository and Router) assigns a unique identifier to each message. This unique identifier is the RecallCode.
When the message is routed and transmitted to the Secondary repository via the primary repositories, the RecallCode issued by the Router is forwarded to the primary repository.

5.2.7.2 Message Recall
Economic operators have the possibility to recall requests, operational and transactional messages transmitted to the Secondary repository.

The reasons for recalling the original message may be:
1. Reported event did not materialise (only for messages related to dispatch events and trans-loading)
2. Message contained erroneous information
3. Other

5.2.7.3 RecallCode structure
ReallCode structure follows version 5 of the UUIDs standards from ISO/IEC 11578:1996.

5.2.7.4 Messages
The following table describes the messages that are subject to Recall.

	Annex II Reference	
ISU	(2.1)	Request for unit level UIs
ISA	(2.2)	Request for reporting the issuance of Unique Identifiers at aggregated level
IDA	(2.3)	Data Request for deactivation of UIs (only within 24 hours from the original reporting of message 2-3, for Deact_Reason1 other than "2 – Product stolen")
EUA	(3.1)	Application of unit level UIs on unit packets
EPA	(3.2)	Application of aggregated level UIs on aggregated packaging
EDP	(3.3)	Dispatch of tobacco products from a facility
ERP	(3.4)	Arrival of tobacco products at a facility

ETL	(3.5)	Trans-loading
EUD	(3.6)	Disaggregation of aggregated level UIs
EVR	(3.7)	Report of delivery carried out with a vending van to retail outlet
EDX	(3.8)	Dispatch of tobacco products from a facility to laboratories, waste disposal centres, national authorities, international governmental organisations, embassies and military bases
EIV	(4.1)	Issuing of the invoice
EPO	(4.2)	Issuing of the order number
EPR	(4.3)	Receipt of the payment

5.2.7.5 Recall Process

The recall must include the message's RecallCode that has been provided to the message sender in the acknowledgement of the original message. It must also contain the following information:

- Reason for recalling the original message
- Description of the reason for recalling the original message
- Any additional explanations on the reason for recalling the original message

A recall with respect to operational and logistic events results in flagging the recalled message as cancelled but does not lead to the deletion of the existing database record.

5.2.7.6 RecallCode Field

Technically the RecallCode is obtained from the original message's "code" property:

Example response:
```
{
    "Code": "6854f9a6-a2b2-4c08-8000-0173f3c35567",
    "Message_Type": "EPA",
    "Error": false,
    "Errors": null
}
```

Where the "Code" is the RecallCode.

5.2.8 Message response

A message transmission corresponds to a message request performed by a sender system and a message response provided by the destination system back to the sender system.
The Message response contains and http status and the body of the messages response.

5.2.8.1 Successful response or event acknowledgment

As per the Implementing Regulation, A message or event is considered reported upon the reception of the acknowledgement message (successful) transmitted back by the destination system.
The http status for the message positive response without any warning are 200 and 202.
A warning (http status 299) is considered as a successful response.

5.2.8.2 Negative response

The destination system is providing with a negative response if the reported event is not meeting the technical specifications.
Negative response http status is in the range of 400-499 and 500-599.

5.2.8.3 Timeout

The destination system did not produce a response within the time that the sender system was prepared to wait. The sender system may repeat the request without modifications at any later time.
The absence of response (or the http timeout response) indicates that the message is not acknowledged.

5.2.8.4 Timeout handling

In case of a timeout for a certain request, the sender system should retransmit the original message (identical payload).
If the sender system changes the original message (by updating the Message Time Long for example), the receiving system will consider the message as a different message.
If the response to the retransmission is a response code "PAYLOAD_NOT_UNIQUE"/"CODE_NOT_UNIQUE", it means the original message shall be considered as positively acknowledged by the Secondary Repository and/or the Router.

5.2.8.5 Successful response sample

HTTP Status 202

```
{
    "Code": " 6854f9a6-a2b2-4c08-8000-0173f3c35567",
    "Message_Type": "EPA",
    "Error": false,
    "Errors": null,
    "Checksum": "G6HF5H"
}
```

5.2.8.6 Error response sample

The system should provide the sufficient details to allow external systems, administrators to identify precisely the issue in order to act accordingly.

The response message can contain a list of error

```
    "Errors": [
        { << Error >>},
        { << Error >>},
        { << Error >>},
    ],
```

Each error contains the following information.

- **Error_InternalID** is the unique identification of the message processing and validation activity.
- **Error_Code** is the identifier of the type within the systems.
- **Error_Descr** is the description in human readable format containing specific error information
- **Error_Data** is the data for which the error is talking about. This can be used for EO_IDs, F_IDs, M_IDs and UIs.
  - Note: use # as separator for the UI in case a list of UI is provided in the error data field.

Example of List of errors

```
{
   "Error_InternalID": "yndkFz7TBEO706frD38hzA",
   "Error_Code": "INVALID_REQUEST_FORMAT",
   "Error_Descr": "The EconomicOperatorIdentifier field is unknown."
   "Error_Data": "123456789123456#123456789123455#123456789123444"
}
```

Security errors

HTTP status	Error Code	
401		Invalid security token
401		Expired security token

Processing errors

HTTP status	Error Code	
400	INVALID_REQUEST_FORMAT	This error is returned when at least one of the mandatory fields are missing.
400	INVALID_MESSAGE_TYPE	When the field "Message_Type" is out of the defined list.
400	INVALID_INPUT_FORMAT	When the body of the message doesn't contain a valid JSON.
500	SYSTEM_ERROR	Internal system error.

Error body sample

```
{
   "Code": null,
   "Message_Type": null,
   "Error": true,
   "Errors": [
      {
         "Error_InternalID": "yndkFz7TBEO706frD38hzA",
         "Error_Code": "INVALID_REQUEST_FORMAT",
         "Error_Descr": "The EconomicOperatorIdentifier field is required."
         "Error_Data": "54G7J
      }
   ],
   "Checksum": "G6HF5H"
}
```

5.2.9 Forward Rejected Messages.

It is a requirement that the Secondary repository must store validation failures, this including failures that occur on the Primary repositories and the Router.

Primary repositories and Router will therefore forward the rejected messages to the Secondary repository.

5.2.9.1 Scope of Rejected Messages to be forwarded.

A rejected message is defined as a message that fails due to a business validation reason. The validation messages are described in the following sections:

- section Unique Identifiers validation
- section Identification Code validation
- section Recall Validation

It is not expected that the Secondary repository is sent failed authentication attempts, badly formed messages or anything other than the validations listed in the above sections.

5.2.9.2 Message Rejection processing

In case the message fails the validation, the system should

- log the rejected message
- log the response information
- send an error message to the requesting system with the details
- forward the rejected message to the Secondary Repository

5.2.9.3 The message should contain

- The original request
- The optional base request sections

```
{
    "EO_ID": "Z25Q1H44IB3002078572YSHR",
    "F_ID": "OVERSEEING9220693452TACTL",
    "Event_Time": "19032014",
    "aUI": "testparent_sdgdg",
     "Aggregation_Type": 1,
    "Aggregated_UIs1": [
         "123456789123456789"
    ],
    "Aggregated_UIs2": null,
    "aUI_comment": "Comments",
    "Message_Type": "EPA",
    "Code": null,
    "RejectionData": {
        "Errors": [
        {
        "Error_Code": "INVALID_REQUEST_FORMAT",
        "Error_Descr": "The EconomicOperatorIdentifier does not exist.",
        "ErrorData": "123456789123456789"
        }
        ]
```

```
    }
}
```

5.2.10 Message integrity and hash

The Repository system will verify the message checksum to ensure that the data was not tampered with between parts of the whole Repository system. Messages where the hash is not valid must not be accepted.

This integrity check ensures that the messages making up traffic cannot be altered in transit or within the parts of the Repository system, neither can messages be added or removed from the sequence, without detection.

The client adds a MD5 hash to the X-OriginalHash HTTP header.
This structure is then added to the message

Message Header

X-OriginalHash	1234567890abcdefghijklmnopqrstuvwxyz
Content-Type	application/json
Authorization	<Token>

HTTP status	Error Code	
401	INVALID_SIGNATURE	"The message signature does not match"

5.2.11 Message size

5.2.11.1 Message size
The maximum message size is 6MB.
The limit on the HTTP header size is 10'240 bytes.

5.2.11.2 Maximum number of UI

The online sequence validation controls require the limitation of the number of UI (sum of the unit level UI and the aggregated level UI) per message for the following events

Message Type	Annex II Reference	Message description	Number of UI (upUI + aUI)
IRU		Message to report the issuance of serial numbers at unit packet level	20 000. Divided into: 10 000 upUI(i) + 10 000 upUI(s)
IDA	(2.3)	Request for deactivation of UIs	1 000
IRR	(2.4)	Request for reactivation of UIs for products reported as stolen but recovered	5 000

EUA	(3.1)	Application of unit level UIs on unit packets	5 000. Divided into: 2500 upUI(L) + 2500 upUI(s)
EPA	(3.2)	Application of aggregated level UIs on aggregated packaging	5 000
EDP	(3.3)	Dispatch Event	5 000
ERP	(3.4)	Reception event	5 000
ETL	(3.5)	Trans-loading event	5 000
EVR	(3.7)	Report the delivery carried out with a vending van to retail outlet	5 000
EDX	(3.8)	Dispatch of tobacco products from a facility to laboratories, waste disposal centres, national authorities, international governmental organisations, embassies and military bases	5 000
EIV	(4.1)	Message to report an invoice	5 000
EPO	(4.2)	Purchase order	5 000
EPR	(4.3)	Payment record	5 000

5.2.12 Number of simultaneous connections

There is no limit for simultaneous connections between any stakeholder and the Router or the Secondary repository.

5.2.13 Message Sequence

Message sequence must comply with the corresponding regulation.

The Primary Repositories must report the messages reported by the manufacturer/importer in the same sequence. The reporting of messages by the Primary Repository to the Secondary Repository is completed upon reception of an acknowledgement message by the Secondary Repository.

The service providers and economic operators reporting to the Router must report the messages reported in sequence. The reporting of messages to the Router is completed upon reception of an acknowledgement message by the Router.

Note: When transmitting a message to the Secondary Repository or the Router if two messages affect the same group of UIs and the sender does not wait for the acknowledgment from the Secondary Repository or the Router between the messages, both messages are considered to be reported simultaneously and **NOT in sequence**. By "affecting the same group of UIs" it refers either explicitly mentioned UIs between the messages or implicitly calculated UIs based on previous messages (i.e. hierarchy related UIs).

5.2.14 Buffering and Burst transmissions

Messages should be transmitted continuously by the different systems without buffering.

In case of technical buffering caused by technical maintenance activities, the transmitting system should implement mechanism to ensure the correct sequencing of the events.

5.2.15 Message Retransmission limitation

A message that was positively acknowledged must not be retransmitted a second time.

5.2.16 Connectivity Test Message

A Connectivity Test Message (CTM) is implemented on the interface PR2RT. This message is sent by the Router to check the availability and the security configuration of the endpoint.

Interface acronym	Hosting system	Description
PR2RT	Primary repository	Secure interface published by Primary repository providers for Router communication

5.2.17 Duplicate message validation

Retransmission of successful messages introduce an unnecessary load and negatively impact the data visualization and reporting.
A validation of duplicate successful message is included in order to eliminate such duplicate retransmission of successful messages.

5.2.17.1 New Message validation

Upon reception of a message, the first entry point (the Router or the Primary repository) validates the messages and assign a unique RecallCode.

If the message passes the validation and is accepted (returning a successful response Status 200 or 202), the message is processed by the system and is not expected to be received again.
In case the successful message is retransmitted (identical payload) to the system, the system will return a duplicate message validation error (adding the Recallcode corresponding to the original successful message) (Status 400).

Note: in case the message validation fails, the transmitting system is able to send the same message.

5.2.17.2 Routed or forwarded message validation

When the message is routed or forwarded, the message contains a RecallCode. The system will maintain the list of all successful RecallCode corresponding to the successful messages.
In case the incoming message RecallCode indicate that the message has been processed successfully, the system returns a validation error.

5.2.18 Identification of the message originator

The Secondary Repository and the Router identifies the message originator by using the OAUTH2 clientID. Each OAUTH2 clientID is associated with the

information of the party that registered in the system for the purpose of transmitting messages to the Secondary Repository and the Router. This allows the authorities to retrieve from any transmitted message the information corresponding to the message originator.

The Secondary Repository and the Router identifies the economic operator submitting a message via the Economic Operator ID information inside that message.

By combining ClientID and Economic Operator ID, authorities can differentiate between the message originator and the Economic Operator ID submitting the respective message.

5.3 EU Wide Register

5.3.1 Overview

Each ID Issuer must establish and maintain:
- A **Registry** that contains the Identifier codes for the Economic operators, Operators of first retail outlets, Machines and Facilities.
- A **Flat file** allowing for the extraction of information encoded in the Unique Identifiers by the verification devices used for offline checks.

An up-to-date copy of these Registries and flat-files, along with the corresponding information is transferred electronically via the Router to the Secondary repository and compiled into a EU Wide Register

The **Offline flat-files** are transferred to the Competent Authorities of the Member States and contain the sufficient information to allow the off line decoding of UIs by the Verification devices.

The following diagram describes the general flow of data.
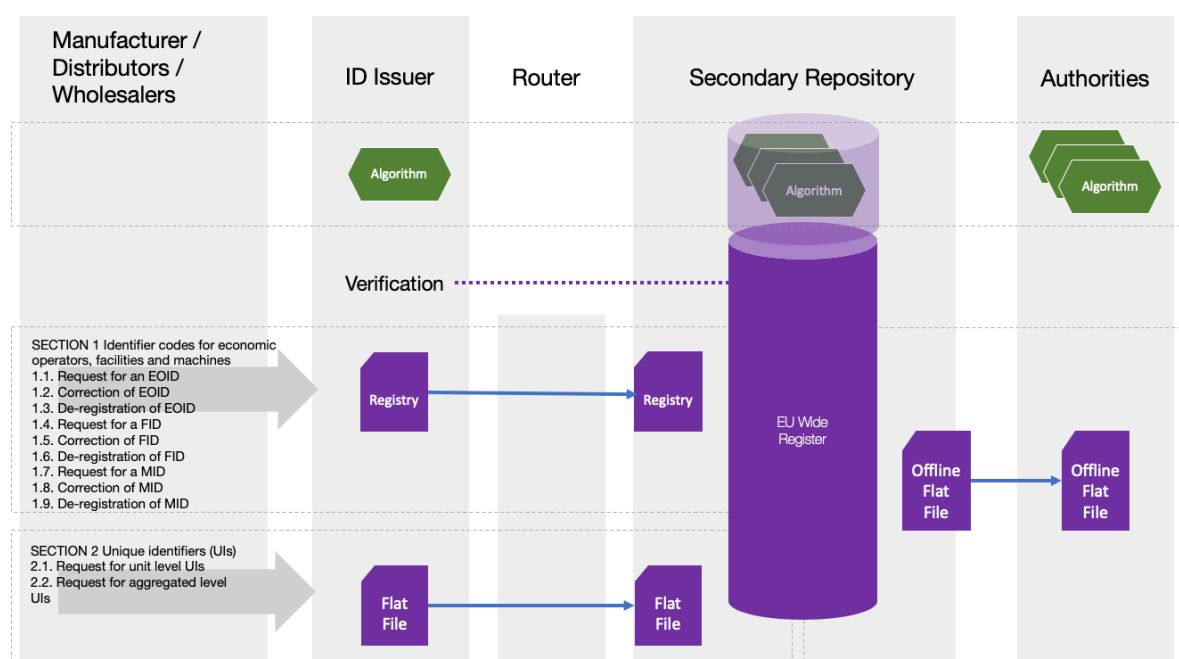
Figure 55 EU Wide Register Flow

5.3.2 Registry

5.3.2.1 Overview

The Registry stores data on the Economic operator, Facility and Machine Identifier codes.
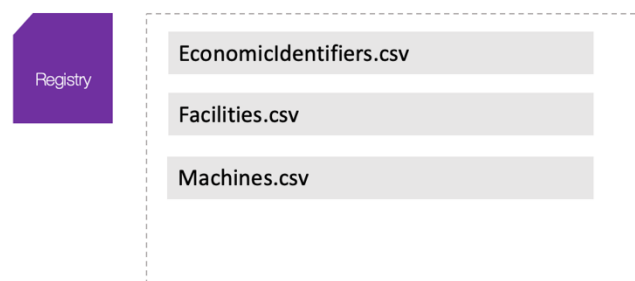
Figure 56 Registry file structure

Filename	Description
EconomicIdentifiers.csv	Contains the Economic operators Identifier codes along with the corresponding information
Facilities.csv	Contains the Facility Identifier codes along with the corresponding information
Machines.csv	Contains the Machine Identifier codes along with the corresponding information. Machine Identifier codes may refer to full machines or machine parts

Please note that it is assumed that the update of the Registry file is performed incrementally, meaning only new or changed items are included in the update file.

5.3.2.2 EU Wide Registry Governance

5.3.2.2.1 Overview

ID Issuers are mandated to provision and maintain the EU Wide Register. In some cases, identifier might be transferred from one ID Issuer to another ID Issuer. The second ID issuer is then responsible to maintain the record (economic Operator, facility and machine).
In order to control this process and avoid accidental record update, a technical ownership mechanism is implemented on each record of the EU Wide Register.

5.3.2.2.2 Technical ownership

The technical ownership of each record is defined by the identification code of the ID Issuer (IIID). This field is provided by the ID Issuer that create the record (economic Operator, facility, machine and machine part).

5.3.2.2.3 Technical Record Transfer

An ID Issuer can transfer the technical ownership of a record to another ID Issuer by updating the technical ownership field. Once the information is successfully processed, only the new ID Issuer would be authorized to update the record.

5.3.3 Flat-files

The flat-files contain data in a plain text format allowing for the extraction of information encoded in the Unique Identifiers used at the unit packet and aggregated packaging levels.

Two formats of flat files are available
- Flat-file type I
- Flat-file type II

The ID Issuer should choose one of the formats during the setup phase.

5.3.3.1 Flat-file type I format
The flat-file type I format presents the minimal set of files required to provide the information required to decode the UI in an offline manner.
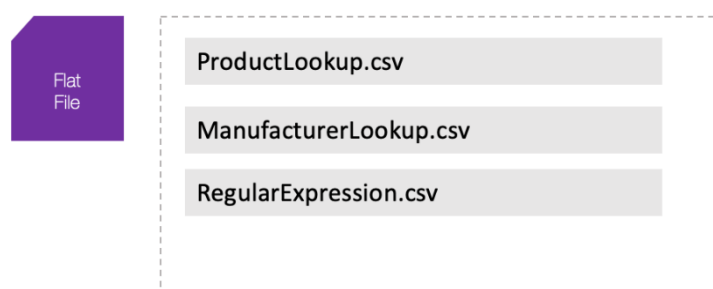
Figure 57 Flat File structure

Filename	Description
ProductLookup.csv	Product based lookup data provides • the product description; • the intended market of retail sale; • the intended shipment route; • where applicable, the importer into the Union;
ManufacturerLookup.csv	Manufacturer based lookup data provides • the place of manufacturing; • the manufacturing facility referred to in Article 16; • the machine used to manufacture the tobacco products referred to in Article 18;
RegularExpression.csv	(optional) A list of regular expression to extract Product lookup and/or MID / FID from the code.

The update of the flat-files must be performed in a non-incremental way, meaning all information should be present, when uploaded via the full upload ULO call.
The update of the Flat-files must be performed in an incremental way when uploaded via the PLO call.

5.3.3.2 Flat-filetype II format
The flat-file type II format presents the most granular lookup capabilities.
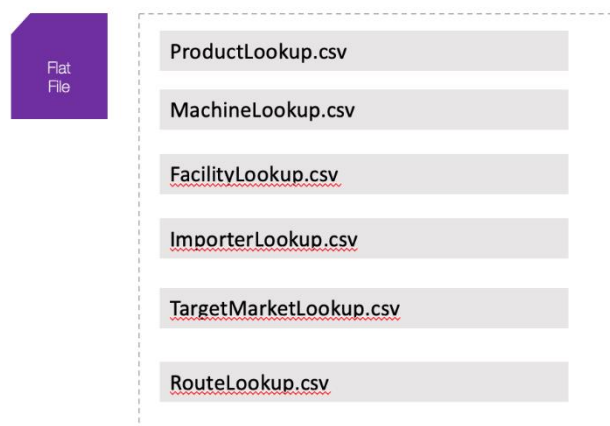
Figure 58 Granular Flat File Structure

Filename	Description
ProductLookup.csv	Product based lookup data provides • the product description;
MachineLookup.csv	Machine based lookup data provides • the machine and the machine parts used to manufacture the tobacco products referred to in Article 18;
FacilityLookup.csv	Facility based lookup data provides • the place of manufacturing; • the manufacturing facility referred to in Article 16;
ImporterLookup.csv	
TargetMarketLookup.csv	Target Market based lookup data provides • the intended market of retail sale;
RouteLookup.csv	Route based lookup data provides • the intended shipment route;

5.3.4 ULO - Full Flat-file and Registry upload

5.3.4.1 Flat file and Registry interface to upload from the ID Issuers
A webservice will be exposed on the Router endpoint. This endpoint will be secured with the same authentication rules as the Router, in that a valid Router OAuth token will be required, linked to an EOID.

The first request will return the upload URL that will be used to upload the file.

In the call definition of the call made to get the upload link, the caller needs to specify if they would like to upload a "Registry" file or a "Flat file". This is defined in the Data Dictionary. This first call is performed using a POST method.

5.3.4.2 Asynchronous Flat file and Registry processing and notification

An HTTP PUT call on the upload URL is performed to upload the file. The files are sent by the ID issuer to the Router. The Router validate the format and the content of the file. If there is an error, the file is rejected, an error message is sent and the ID issuer has to resubmit the corrected file. The data will NOT be loaded into the EU Wide Register. The processing result is logged in the audit trail and a notification will be transmitted to the initiator of the request.

Once validated, the file is uploaded in the EU Wide Register. A notification email is sent to the ID Issuer.

5.3.4.3 Asynchronous Flat file and Registry optional call-back

In order to automate the integration, a call-back can be used to communicate the status of the file processing.
The call-back interface will implement the requirements defined in the Secondary repository and Router interface.

5.3.4.4 Files format

The file must be sent in a zip format and adhere to the following standards:

		Description
CSV separator	;	(semicolon)
File text encoding	UTF-8	
CSV text symbol	"	(double quotes) • All "characters in the text need to be escaped using double quotes. Ex: "Text abc; continued";123;4567;"TextColumn4 with a ""quoted note"" here";"LastColumn" • Each of the embedded double-quote characters must be represented by a pair of double-quote characters.
Optional field		Optional field should be filled with "N/A"

5.3.4.5 Upload file size

Files must not be larger than 2 GB per ID issuer.

5.3.5 PLO - Incremental Flat file and Registry upload

5.3.5.1 Overview

This optional interface allows the ID issuer to update the Flat-file and the Register incrementally and in a synchronous call.
Note that incremental updates only add and update information.

5.3.5.2 Processing

The validation on the PLO call will be done synchronously and the response will be transmitted directly to the requestor.

Once validated, the file is uploaded in the EU Wide Register.

5.3.6 Offline Flat-files

5.3.6.1 Content and Structure
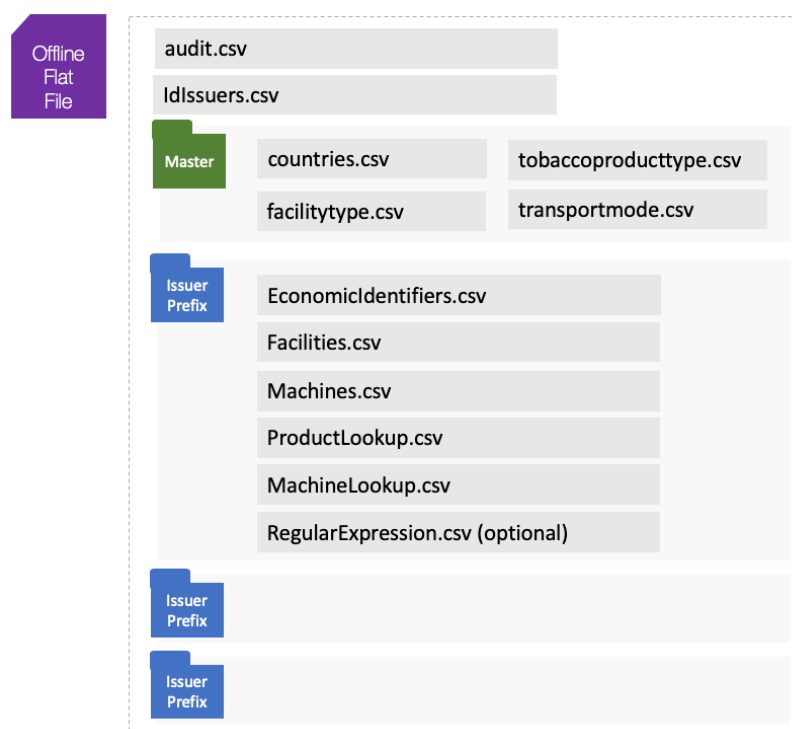
Figure 59 Offline Flat-file structure

Filename	Path	Description
audit.csv	/	Contains technical audit information
idissuers.csv	/	Contains the ID Issuer Unique Identification Code along with the corresponding information
Countries.csv	/Master	Contains list of country codes
Facilitytype.csv	/Master	Contains list of facility types
Tobaccoproducttype.csv	/Master	Contains list of Tobacco product Type
Transportmode.csv	/Master	Contains list of Transport modes
EconomicIdentifiers.csv	/<< issuer prefix >>	Contains the Economic operators Identifier codes along with the corresponding information
Facilities.csv	/<< issuer prefix >>	Contains the Facility Identifier codes along with the corresponding information
Machines.csv	/<< issuer prefix >>	Contains the Machine Identifier codes along with the corresponding information. Machine Identifer Codes may refer to full machines or machine parts.
Flat File type I		
Productlookup.csv	/<< issuer prefix >>	Contains the flat-file lookup product information

Machinelookup.csv	/<< issuer prefix >>	Contains the flat-file lookup machine and machine parts information
RegularExpression.csv	/<< issuer prefix >>	Optional file containing the Regular Expression.
Flat File type II		
Productlookup.csv	/<< issuer prefix >>	Contains the flat-file lookup product information
Machinelookup.csv	/<< issuer prefix >>	Contains the flat-file lookup machine and machine parts information
FacilityLookup.csv	/<< issuer prefix >>	Contains the flat-file lookup facility information
ImporterLookup.csv	/<< issuer prefix >>	Contains the flat-file lookup importer information
TargetMarketLookup.csv	/<< issuer prefix >>	Contains the flat-file lookup target market information
RouteLookup.csv	/<< issuer prefix >>	Contains the flat-file lookup route information

5.3.6.2 Audit file

For technical purposes, the Offline Flat-file contains the audit.csv file.
The file contains the following information
* Version
* Timestamp of the generation
* UUID (file identification number)

5.3.6.3 Access Security

A webservice will be exposed on the Router endpoint. This endpoint will be secured with the same authentication rules as the Router.

5.3.6.4 Offline Flat File Security

Due to the sensitive nature of the content of the offline flat file, the file is encrypted, and password protected.
Credentials are provided when the file is requested.

5.4 Identifier Code Verification Service

5.4.1 Overview

The purpose of this service is to allow the ID Issuers and Primary Repositories to check:
* the validity of the EOID, FID and MID.
* the validity of the relation between EOID, FID and MID, or EOID and FID.

5.4.2 Interface

Interface acronym	Hosting system	Description
SU2II	Secondary repository	Secure interface published by the Secondary repository for Identifier Code verification purposes

5.4.3 Verification Result

The service validates the existence and the validity of the EOID, FID and the MID. Note that the Validity is only available to the ID Issuers

- If the EOID, FID and MID are defined in the EU Wide Register and marked as active, the response value will be true.
- If the EOID, FID and MID are not defined in the EU Wide the response value will be false.

The service validates the relationship of the EOID, FID and the MID.

- If the EOID, FID and the MID are valid and if the relation between the EOID, FID and the MID is defined in the EU Wide Register, the response will be true.

5.5 Unique Issuer Message Delivery Verification Service

5.5.1 Overview

The purpose of this service is to allow ID Issuers to check if a UI issue message IRU (response to the message 2.1 described in Annex 2) has been successfully delivered to the repository.

The ID Issuer will be able to receive the delivery status for any generated IRU based on the RecallCode.

5.5.2 Interface

Interface acronym	Hosting system	Description
SU2II	Secondary repository	Secure interface published by the Secondary repository

5.5.3 Verification Result

This service validates whether IRU messages are successfully delivered or not, based on their RecallCode.

- Success: the IRU message has been delivered.
- Failure: the IRU message has not been delivered.

5.6 Query API

5.6.1 Overview

The purpose of this service is to allow ID Issuers, Primary Repositories and Member States via Competent Authorities to access data in the Secondary repository.

ID Issuers and Primary Repository providers will be able to access the data of the registries as per Article 27(10)(subparagraph 2) of Implementing Regulation (EU) 2018/574.

Member States via Competent Authorities will have access to the same information as ID Issuers / Primary Providers and in addition traceability data.

5.6.2 Interface

Interface acronym	Hosting system	Description
SU2CA	Secondary repository	Secure interface published by the Secondary repository for Competent Authorities

5.6.3 Offline Flat File download API

This service provides offline flat-files.

5.7 Primary repository endpoint

5.7.1 Overview

The Primary repository should expose an endpoint that will be used by the Router to transmit the described messages. All messages follow the specifications detailed in the List of specifications and Data dictionary documents.

5.7.2 Methods of interaction

The Primary repository will present an http based RestAPI with JSON parameters.
HTTP POST method is used for all calls.

5.7.3 Message format

The message format is described in the Data Dictionary document, along with some message examples.

5.7.4 Message response

All messages responses must follow the format described in the Secondary repository and Router interface.

5.7.5 Endpoint

Only one endpoint is expected, so all messages are transmitted to that single endpoint

5.7.6 Secured communication

The Primary repository system uses basic authentication or OAuth 2.0 to authorize access to the web service methods.

5.7.7 RecallCode management

RecallCodes must be supported according to the description provided in the Interface section of this document.

5.7.8 Message integrity and hash

The Primary repository system will verify the message checksum to ensure that the data has not tampered with between parts of the whole Repository system as described in the Secondary repository and Router interface.

5.8 II2MN II2DW interfaces

5.8.1 Overview

The ID Issuer defines the communication between the EO and the ID issuer corresponding to interfaces II2MN and II2DW.

5.8.2 Interface

Interface acronym	Hosting system	Description
II2MN	ID issuer System	Secure interface published to Manufacturers and Importers
II2DW	ID issuer System	Secure interface published to Distributors and Wholesalers

5.8.3 Synchronous and asynchronous support

The interface allows implementing a synchronous version, where the ID Issuer system will return the result of a request within the same call. This approach is recommended when the business process and the internal validation are fully automated.
The interface also allows implementing an asynchronous version, where the initial call will trigger a request. The ID Issuer system will return a request code for each of these requests and then send a message to transmit the response to the original request.

5.8.4 Extensibility

The interface presents an extensibility field in all messages corresponding to interfaces II2MN and II2DW.

5.8.5 Reclaim of identifier codes

ID issuers will provide a secure online service for economic operators and operators of first retail outlets allowing them to consult the registries referred to their own Economic Operator, Facility and machine identifier codes and information referred to in Articles 14(2), 16(2) and 18(2).

6 Unique Identifier

6.1 Clarification on Structure of unit-level unique identifiers

6.1.1 Clarification on Structure of unit-level unique identifiers (after encoding into a data carrier)

The purpose of this section is to clarify the use of data qualifiers as part of the UI, considering the Implementing Regulation 2018/574 and the applicable international ISO norms.
Please see the following table illustrating the structure of the UI (after encoding it into a data carrier), and the roles of ID issuers and Economic operators in generating and/or applying different data elements and, where applicable, data qualifiers.
Whenever possible ID issuers are requested not to use upper-case letter "O" (Oscar) and lower-case letter "l" (lima) as well as upper-case letter "I" (India) in order to avoid confusions with digits "0" (zero) and "1" (one), respectively.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Unique Identifier	Symbology Identifier	Mandatory Data Qualifier	ID Issuer Identification Code	Optional Data Qualifier	Serial Number	Optional Data Qualifier	Product Code	Optional Data Qualifier	Timestamp
Type	Qualifier	Qualifier	String (data Element)		String (data Element)		String (data Element)		String (data Element)
Position within the unique identifier	Fixed	Fixed	Fixed	Free	Free	Free	Free	Fixed	Fixed
Regulated by	Art. 21(1) and ID issuer's coding structure	Art.3(4), Art.8(1)(a), Art. 21(1) and ID issuer's coding structure	Art.3(4) and Art.8(1)(a)	Art. 21(1) and ID issuer's coding structure	Art.8(1)(b)	Art. 21(1) and ID issuer's coding structure	Art.8(1)(c)	Art. 21(1), Art. 21(4) and ID issuer's coding structure	Art.8(1)(d) and Art.21(4)
Applicable international standards	ISO/IEC 16022:2006, or ISO/IEC 18004:2015, or ISS DotCode Symbology Spec.	ISO 15459-2:2015 and ISO 15459-3:2014	ISO 15459-2:2015 and ISO 15459-3:2014						
Process	Applied by EO	Applied by EO	Generated by ID issuer	Applied by EO	Generated by ID issuer	Applied by EO	Generated by ID issuer	Applied by EO	Applied by EO
Transmission to repositories systems	No	No	Yes	No	Yes	No	Yes	No	Yes

1) Following Article 8(1)(a)-(c) of Implementing Regulation 2018/574, the following data elements (strings) should form part of the UI, as generated by the appointed ID issuer:
- ID issuer identification code (subject to ISO 15459-2 and 3);
- Serial number;
- Product code.

2) Following Articles 8(1)(d) and 21(4) of Implementing Regulation 2018/574, manufacturers and importers must add the time stamp in the last position to the code generated by the ID issuer. The time stamp can be either encoded into the data carrier or be added separately from the data carrier as a human-readable format. The time stamp format must be YYMMDDhh. Regardless of its format, the time stamp remains a part of the UI in the sense of Article 8 of Implementing Regulation.

3) Following Article 3(4) of Implementing Regulation 2018/574, the ID issuer identification code should be assigned considering ISO/IEC 15459-2 and the latter should be read in conjunction with ISO/IEC 15459-3 laying down common rules on unique identification and data capture techniques. Similarly, the ID issuer identification code must always be preceded by a data qualifier, which must consist of digits and upper cases only. Said data qualifier must be applied, as part of the encoding process, by the Economic operator observing the corresponding coding structure published by the ID issuer along with its Issuing Agency.

4) Economic operators may be asked to apply additional ISO/IEC 15459-3 data qualifiers to the code generated by the ID issuer as part of the encoding process into the allowed types of data carriers. The use of these optional data qualifiers should observe the corresponding coding structure published by the ID issuer along with its Issuing Agency. To that end, it is important to take into account that the use of data qualifiers may depend on the symbology identifier that is applied following Article 21(1) of the Implementing Regulation 2018/574 (and the ISO norms referred therein). The coding structure of the ID issuer should address this possible interdependency and provide for adequate guidance to Economic operators.

5) The potential use of a data qualifier preceding the time stamp will also depend on whether an economic operator decides to rely on Article 21(4) of Implementing Regulation 2018/574 or not. The application of said data qualifier should take place in accordance with the applicable coding structure published by the ID issuer in cooperation with its Issuing Agency.

6) To ensure positive validation by the repositories system, only the following data elements (strings), excluding the symbology identifier and any data qualifiers, should be transmitted by economic operators as part of their recording activity to the repositories system:
- ID issuer identification code (without mandatory data qualifier)
- Serial number
- Product code
- Time stamp

7) For the purpose of the explanation above, group separators (/FNC1) are considered in the same manner as optional data qualifiers. Their use depends on the coding structure published by the ID issuer.

6.1.2 Clarification on Structure of aggregated-level unique identifiers (after encoding into a data carrier)

6.1.2.1 Aggregated UIs generated and issued by competent ID issuers
For aggregated UIs generated and issued by competent ID issuers, the rules on the use of data qualifiers explained in point 6.1.1 apply by analogy.

6.1.2.2 Self-generated aggregated UIs
Self-generated UIs must only provide for unique identification of the traceable item. Therefore, any additional information added to the aggregated level UI, as provided for in Article 11(4) of Implementing Regulation 2018/574, must not be transmitted by Economic operators as part of their recording activity to the repositories system.

Example 1: GS1 DataMatrix encoding Global Trade Item Number with Serial Number (SGTIN)
Aggregate Unique Identifier for standard trade item grouping using GS1 Application Identifiers (01) for GTIN and (21) for Serial Number.

	(1)	(2)	(3)	(4)	(5)
Unique Identifier	Symbology Identifier	Data Qualifier	GTIN	Data Qualifier	Serial Number
Position within the unique identifier	**Fixed**	**Fixed**	**Fixed**	**Fixed**	**Fixed**
Applicable international standards:	ISO/IEC 16022:2006, ISO/IEC 18004:2015, or ISO/IEC 15417:2007	ISO 15459-2:2015, ISO 15459-3:2014, ISO/IEC 15459-4: 2014 Section 4.1.2 (normative), ISO/IEC 15459-6:2014 Section 5 (normative) and Annex B (informative), and the GS1 General Specifications V.19 (or latest equivalents)			
Values	]d2	01	01234567891231	21	456FGRD66
Process	□ Applied by EO □ Symbology Identifiers are transmitted by scanners based on 'start character patterns' that must be followed when printing the barcode. See barcode specifications for specific patterns required to signal GS1 formatted data.				
Transmission to repositories systems	No	No	Yes	No	Yes
aUI			01234567891231		456FGRD66

Example 2: GS1 DataMatrix encoding SGTIN (required for aUI) with additional information permitted, but not required.
Aggregate level Unique Identifier for standard trade item grouping adding GS1 Application Identifier (240) Additional Product ID assigned by the manufacturer to Example 1.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Unique Identifier	Symbology Identifier	Data Qualifier	GTIN	Data Qualifier	Serial Number	Character required by GS1 after variable length fields	Data Qualifier for optional attribute added by the manufacturer	Additional product identification assigned by the manufacturer
Position within the unique identifier	**Fixed**	**Fixed**	**Fixed**	**Fixed**	**Fixed**	Per rules within GS1 General Specifications V19 or latest equivalent		
Applicable international standards:	ISO/IEC 16022:2006, 18004:2015, or 15417:2007	ISO 15459-2:2015, ISO 15459-3:2014, ISO/IEC 15459-4: 2014 Section 4.1.2 (normative), ISO/IEC 15459-6:2014 Section 5 (normative) and Annex B (informative), and the GS1 General Specifications V.19 (or latest equivalents)						
Values	]d2	01	01234567891231	21	456FGRD66	FNC1 or <GS>	240	ED1234
Process	□ Applied by EO □							
Transmission to repositories systems	No	No	Yes	No	Yes	No	No	No
aUI			01234567891231		456FGRD66			

Example 3: GS1-128 encoding Serial Shipping Container Code (SSCC)
Aggregate level Unique Identifier for transport (logistic) units using GS1 Application Identifier (00) SSCC.

	(1)	(2)	(3)
Unique Identifier	Symbology Identifier	Data Qualifier	SSCC
Position within the unique identifier	**Fixed**	**Fixed**	**Fixed**
Applicable international standards:	ISO/IEC 16022:2006, ISO/IEC 18004:2015, or ISO/IEC 15417:2007	ISO 15459-2:2015, ISO 15459-3:2014, ISO/IEC 15459-1: 2014 Section 4 (normative) and Annexes A and B (informative), and the GS1 General Specifications V.19 (or latest equivalents)	
Values	]C1	00	123456789123456789
Process	□ Applied by EO □		
Transmission to repositories systems	No	No	Yes
aUI			123456789123456789

Example 4: Code 128 bar code symbol with the qualifier of ASC MH10 Data Identifier "J" .
As defined in ISO/IEC 15459-1:2014 Annex A (informative) Unique identification for transport units section A.3 ASC MH10 unique identification for transport units.

	(1)	(2)	(3)
Unique Identifier	Symbology Identifier	ASC MH 10 Data Identifiers	
Values	]C0	J	JNLY1234567890
Process	Applied by EO	Applied by EO	Applied by EO
Transmission to repositories systems	No	No	Yes
aUI			JNLY1234567890

6.2 Clarification on the Human readable

As described in Annex II Chapter I Section 1 of the Implementing Regulation, the upUI(s) is the UI made visible in the human readable format on the unit packets.
The upUI(s) must be unique and it is composed by the **ID issuer's prefix** and a **serialisation element**.
This serialisation element provides the unicity of the human readable code.
The serialisation elements is composed by a 'Serial Number' (Art.8 (b)) and under certain circumstances by the 'Product Code' (Art.8 (b)).
The 'Product Code' is required when the 'Serial Number' is not unique across all product codes. In other words when the ID issuer produces the same Serial Number for multiple product codes.

It is therefore the responsibility of the ID Issuer to establish the structure of the upUI(s) between the following formats
- upUI(s) = ID Issuer Prefix + Serial Number
- upUI(s) = ID Issuer Prefix + Serial Number + Product Code

The decision should consider the unicity of the Serial Number for all Product Codes.

As of the revision of the Implementing Regulation, the ID issuer shall generate the codes referred to in Article 8(2) and the corresponding human-readable codes of Article 23, and transmit them to the requesting manufacturer or importer (Which means that ID Issuer shall transmit upUI(s) and upUI(i) to the manufacturer or importer, where previously only upUI(i) were transmitted).

6.3 Decoding UI

In order to decode the content of the UI, the Secondary repository requires the implementation of the different ID issuers decoding algorithm. These algorithms combined with the EU Wide Register will allow the decoding.

6.3.1 Algorithm

The ID issuer must provide the algorithm to the Secondary repository.

6.3.2 Decoding Activities

6.3.2.1 Off line validation

Specific offline validation could be performed on the UI.

6.3.2.2 Routing

The decoding of the UI could be required during the routing and splitting of the messages.

7 Router

7.1 Overview

The Router is responsible for:
- Validating data that is sent from the ID Issuer and the Economic operators.
- Sending data that it is sent from the Economic operators through web calls and flat-files, to the Secondary repository checking that the message received is valid.
- Splitting and distributing operational and transactional messages coming in from the distribution chain to the relevant Primary repository.
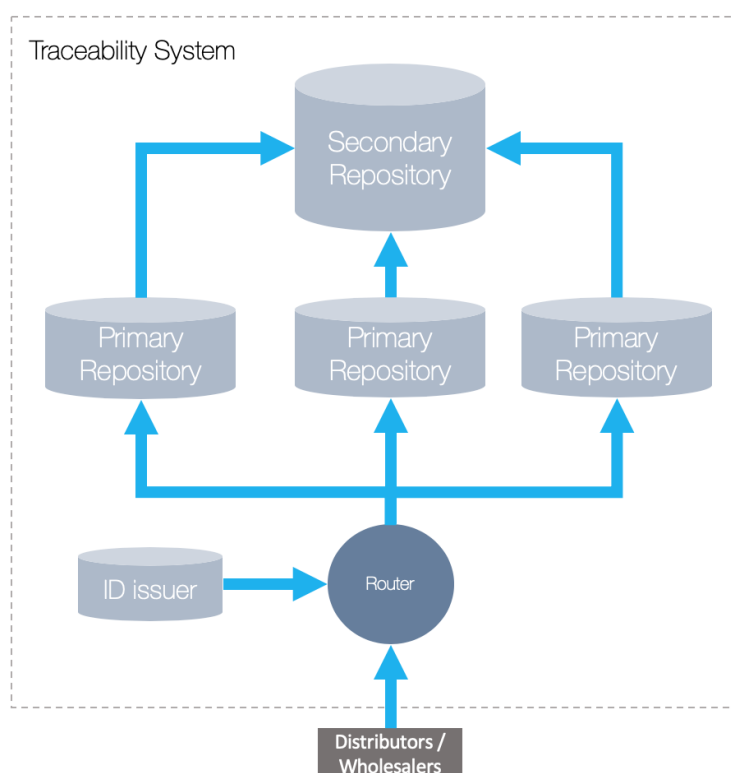

Figure 60 Router Data Flow

7.2 Routing rules

The Router dispatches traceability data from Wholesalers, Distributors, Transport companies or Providers of courier services to the Primary repository of the Manufacturer or Importer of the dispatched tobacco products.

The message must be split when it contains information related to products from various Manufacturers.

7.2.1 Routing of UI

Case 1: When all UIs are related to the same Manufacturer or Importer, the message is forwarded to the relevant Primary repository.
Case 2: When UIs are related to several Manufacturers or Importers, the message is split by Manufacturer and/or Importer and the separate messages are sent to their corresponding Primary repository.

7.2.2 Routing of Transactional data

Transactional Information associated to products from several Manufacturers or Importers should be sent to all relevant Primary repositories with no split. UIs will be split by relevant Primary repository.

7.3 Recall Management

The router will propagate the recall messages following the initial routing and splitting.
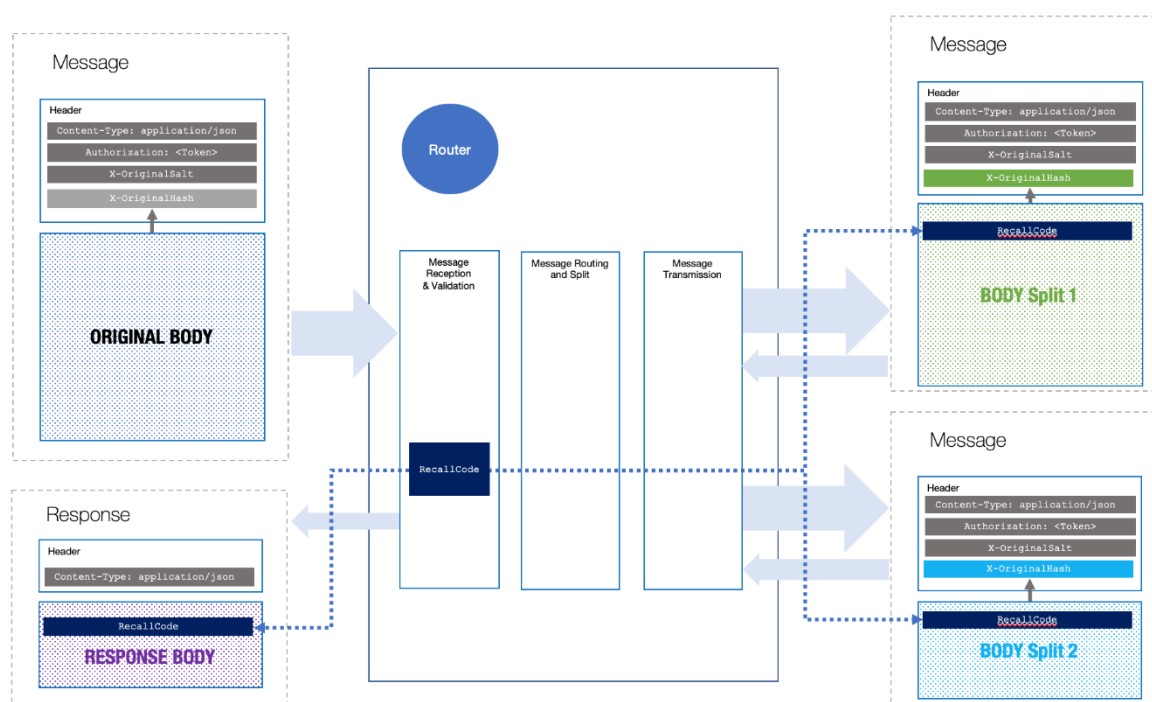

Figure 61 Recall Flow

8 Sign up Process

8.1 Overview

The purpose of the signup process is to connect the ID Issuer, Economic operator and Primary repository to the Secondary repository.
All parties must have valid credentials to call the Router or the Secondary repository. The following flow diagram gives an overview of how these credentials are obtained.

8.2 Overall flow
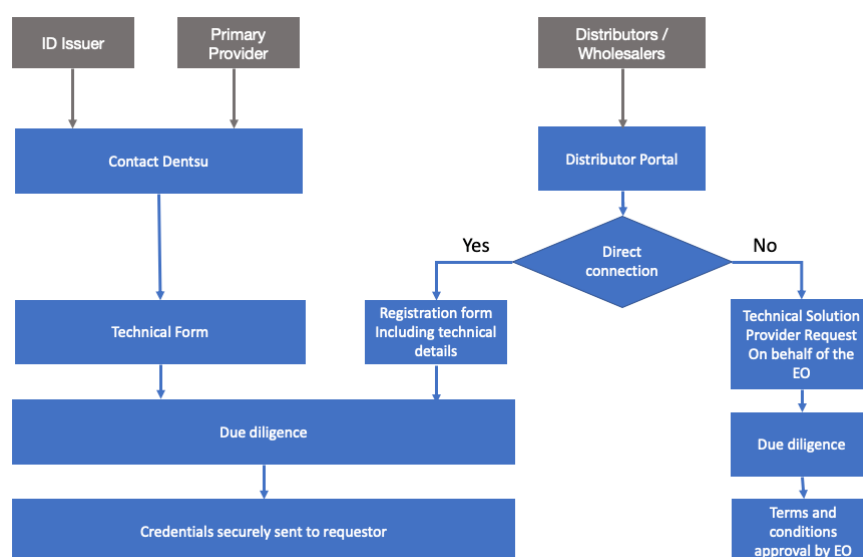
Figure 62 Overall Flow

8.2.1 ID Issuer and Primary repositories providers

The ID Issuers and Primary repositories providers will contact the Secondary repository provider with all technical details.
After the due diligence process, the credentials will be securely sent to the requestor.

8.2.2 Technical Solution Provider

Distributors / Wholesalers can either use a Technical Solution Provider to connect to the Router or connect to it directly.

When connecting through a Technical Solution Provider the Distributors / Wholesalers will need to sign a terms and conditions agreement before enabling the solution.

8.2.3 Economic Operator Validation

The Economic Operator must be defined in the EU Wide Register.

9 Migrations of primary repositories

This section outlines technical aspects related to the migration of primary repositories to another provider ('replacement provider'). The processes detailed herein takes into account technical experience gained in previous migration activities.

9.1 Routing credentials transition process during a change in Primary Repository services provider

In the event of a replacement of provider of Primary Repository services, the new provider shall undertake certain actions toward both Dentsu, as provider of the Secondary Repository and Router, and the European Commission. In accordance with Implementing Regulation (EU) 2018/574, the replacement provider must be part of the list of third parties notified and approved by the Commission to operate a Primary Repository. To facilitate the migration process in terms of data exchange with the Secondary Repository, the manufacturer/importer shall initially submit to the Commission:

- The final contract between Primary Repository service provider and manufacturer/importer including signatures from both parties, in accordance with paragraph 7 of Part A of Annex I to Implementing Regulation (EU) 2018/574.
- Date on which the migration activity will start.
- Date on which the new Primary Repository will be ready to send and receive messages to and from the Secondary Repository and Router (respectively).
- Date on which the incumbent provider will cease their services.

On the date of the migration, the replacement provider shall open a request for Primary Repository creation to Dentsu via the Service Now platform, which, once approved, will allow the replacement provider to self-generate routing credentials. Provided that the above requirements are met, Dentsu shall approve the replacement provider's Primary Repository creation request and update the routing algorithms to send messages to the new Primary Repository, which shall follow the principles laid down in the List of Specifications and Data Dictionary as applicable. The new provider may issue a request to Dentsu for pre-production/QA credentials before the official date of the migration to facilitate testing activities, starting from the date of the Commission's approval of the draft data storage contract.

The routing credentials belonging to the incumbent provider will be revoked on the migration date as communicated by the manufacturer/importer to the Commission.

9.2 Technical aspects to consider.

From a technical standpoint, only a single primary repository can transmit messages to the Secondary Repository on behalf of a manufacturer/importer, as dual reporting from two Primary Repositories for the same manufacturer/importer is prohibited.

Thus, the cut-over process and credential management (outlined in the previous section) are critical for a compliant and successful migration.

On the cut-over day, manufacturers / importers and their replacement providers must ensure:
- The outgoing Primary Repository transmits all pending messages to the Secondary Repository before being decommissioned.
- Dentsu is notified in writing of this decommissioning, so it can revoke the credentials for the outgoing Primary Repository. Dentsu then confirms the revocation and enables credentials for the new Primary Repository.
- The replacement Primary Repository provider updates the Routing table via the Dentsu Self-Service portal, ensuring future messages, including those from ID Issuers (IRU/IRA) and subsequent Router messages, are routed to the new system.

Key Points:
1. Messages that were previously directed to the primary repository operated by the incumbent provider will now be routed to the new one.
2. The concept of a manufacturer/importer entity does not exist within the technical framework of the Secondary Repository; it only recognizes Primary Repositories in line with the framework established by the Implementing Regulation. Thus, products initially activated by the former primary repository remain associated in the Secondary Repository to the initial submitting Primary Repository. Any messages whose routing requires to send the message to the initial Primary Repository will be routed to the replacement Primary Repository instead.

Practical Implications:

Over time, as products activated by the replacement Primary Repository enter the market, there may be instances where the Router evaluates that a given distribution message (e.g., a Dispatch) contains products that were activated by both the former and replacement Primary Repository of a manufacturer/importer. This happens when the product hierarchy contains upUIs activated by the former and the replacement Primary Repository. The replacement Primary Repository consequently will receive two messages with the same recall code. One, corresponding to the products activated by the former Primary Repository, and another, corresponding to the products activated by the new Primary Repository. The messages may or may not contain the same payload depending on the hierarchy of the aUIs explicitly declared in the original message transmitted to the Router. Providers should prepare their systems to handle this scenario, as the Secondary Repository accepts such duplicate routed messages with the same recall code by design. This ensures it holds copies of

both the original message transmitted to the Router by the Economic Operator and the sub-messages (split messages) transmitted to all the Primary Repositories of the different manufacturers/importers whose products are concerned, which then transmit the message to the Secondary Repository.

Practical example 1:

In this example, Primary Repository A represents the former provider and Primary Repository B represents the replacement provider.

- Primary Repository A reports activation for upUI1, upUI2
- Primary Repository A reports aggregation for upUI1, upUI2 into aUI1
- Primary Repository B reports activation for upUI3, upUI4
- Primary Repository B reports aggregation for upUI3, upUI4 into aUI2
- Primary Repository A reports dispatch of aUI1 to Economic Operator C
- Primary Repository B reports dispatch of aUI2 to Economic Operator C
- Economic Operator C reports aggregation of aUI1, aUI2 into aUI3
  => The router accepts the message with Recall_Code1, then evaluates the aggregation and generates 3 split messages:
    1. With Recall_Code1 and transmits it to Primary Repository A "Aggregation of aUI1 into aUI3"
    2. With Recall_Code1 and transmits it to Primary Repository B "Aggregation of aUI2 into aUI3"
    3. With Recall_Code1 and transmits it to the Secondary Repository "Aggregation of aUI1, aUI2 into aUI3"
- Primary Repository A receives a message with Recall_Code1 "Aggregation of aUI1 into aUI3" and transmits it to the Secondary Repository.
- Primary Repository B receives a message with Recall_Code1 "Aggregation of aUI2 into aUI3" and transmits it to the Secondary Repository
- The Secondary Repository receives successfully the messages from the Router, the Primary Repository A and the Primary Repository B, therefore the Secondary Repository stores the following:
    1. The original message transmitted to the Router by the Economic Operator (full message)
    2. The split message transmitted by the Router to the Primary Repository A with the products activated by its associated manufacturer/importer
    3. The split message transmitted by the Router to the Primary Repository B with the products activated by its associated manufacturer/importer

Key points of the example:

- The PAYLOAD (Message content) of the split message sent to Primary Repository A and Primary Repository B are different in this scenario
- The Recall_Code1 is set by the first entry point into the system (Router) and is kept when transmitting to Primary Repository A and Primary Repository B
- The Secondary Repository needs to be able to manage 3 different representations of the same message with the same Recall_Code1 to be able to meet its regulatory obligations.
- **In the context of a Migration from Primary Repository A to Primary Repository B, Primary Repository B would receive the 2 split messages with the same recall code but different payloads**

Practical example 2:

Assuming the steps of the example 1 have already taken place:

(In this example, Primary Repository A represents the former provider and Primary Repository B represents the replacement provider)

- Economic Operator C reports dispatch of aUI3 to a given destination => The Router accepts the message with Recall_Code2, then evaluates the products contained into aUI3 and generates 3 split messages:
    1. With Recall_Code2 and transmits it to Primary Repository A, "Dispatch of aUI3 to Destination"
    2. With Recall_Code2 and transmits it to Primary Repository B, "Dispatch of aUI3 to Destination"
    3. With Recall_Code2 and transmits it to the Secondary Repository, "Dispatch of aUI3 to Destination"
- Primary Repository A receives a message with Recall_Code2 "Dispatch of aUI3 to Destination" and transmits it to the Secondary Repository.
- Primary Repository B receives a message with Recall_Code2 "Dispatch of aUI3 to Destination" and transmits it to the Secondary Repository
- The Secondary Repository receives successfully the messages from the Router, the Primary Repository A and the Primary Repository B, therefore the Secondary Repository stores the following:
    1. The original message transmitted to the Router by the Economic Operator (full message)
    2. The split message transmitted by the Router to the Primary Repository A with the products activated by its associated manufacturer/importer. In this case **the split message is the same as the full message.**
    3. The split message transmitted by the Router to the Primary Repository B with the products activated by its associated

==manufacturer/importer. In this case **the split message is the same as the full message.**==

==Key points of the example:==

- ==The PAYLOAD (Message content) of the split message sent to Primary Repository A and Primary Repository B are **the same as the original message** in this scenario==
- ==The Recall_Code2 is set by the first entry point into the system (Router) and is kept when transmitting to Primary Repository A and Primary Repository B==
- ==The Secondary Repository needs to be able to manage 3 different representations of the same message with the same Recall_Code2 **and the same PAYLOAD** to be able to meet its regulatory obligations.==
- ==**In the context of a Migration from Primary Repository A to Primary Repository B, Primary Repository B would receive the 2 split messages with the same recall code and the same payload.**==

10 Endpoints

< BASE_URL > : base url = .eu.tobaccotracing.com
example:
< ENV > : environment name

		URL
Router		
Router	Authentication endpoint	https://< ENV >.auth.< BASE_URL >
Router	Resource endpoint	https://< ENV >.router.< BASE_URL >
Router	Flat file upload	https://< ENV >.registry.< BASE_URL >/lookup
Secondary Repository		
Secondary Repository	Identifier Code Verification	https://< ENV >.verification.< BASE_URL >/lookup
Secondary Repository	Resource endpoint	https://< ENV >.secondary.< BASE_URL >/operational https://< ENV >.secondary.< BASE_URL >/transactional https://< ENV >.secondary.< BASE_URL >/recall
Secondary Repository	Offline flat file download	https://< ENV >.flatfile.< BASE_URL >/lookup

11 List of standards

1	OAuth 2	https://www.oauth.com/oauth2-servers/access-tokens/client-credentials/
2	ISO/IEC 9834-8:2014 Information technology -- Procedures for the operation of object identifier registration authorities -- Part 8: Generation of universally Unique identifier (UI) (UUIDs) and their use in object identifiers	https://www.iso.org/standard/62795.html
3	The JavaScript Object Notation (JSON) Data Interchange Format Internet Engineering Task Force (IETF) Request for Comments: 8259	https://tools.ietf.org/html/rfc8259
4	UUID	https://datatracker.ietf.org/doc/html/rfc8259

12 References

1	COMMISSION IMPLEMENTING REGULATION (EU) 2018/574 of 15 December 2017 on technical standards for the establishment and operation of a traceability system for tobacco products https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:32018R0574&from=GA
2	DIRECTIVE 2014/40/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 3 April 2014 https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:32014L0040&from=EN
3	COMMISSION IMPLEMENTING REGULATION (EU) 2023/448 of 1 March 2023 amending Implementing Regulation (EU) 2018/574 on technical standards for the establishment and operation of a traceability system for tobacco products https://eur-lex.europa.eu/eli/reg_impl/2023/448/oj