

dentsu

TRACKING

Dentsu Aegis Network
LIST OF SPECIFICATIONS v1.4.4

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	Clerical changes
15.06.2021	1.4.4	Dentsu Aegis Network	Clerical changes

Distribution

Date	Version	Submitted to
05.02.2019	0.2	Mail to stakeholder
21.02.2019	1.0	Published
08.03.2019	1.1	Published
28.03.2019	1.2	Published
16.09.2019	1.3	Published
16.10.2019	1.4	Published
17.10.2019	1.4.1	Published

20.12.2019	1.4.2	Published
31.10.2020	1.4.3	Published
15.04.2021	1.4.4 DRAFT	Mail to Primary Providers and ID Issuer
21.05.2021	1.4.4 DRAFT2	Mail to Primary Providers and ID Issuer
15.06.2021	1.4.4	Published

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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 Implementing Regulation (EU) 2018/574.

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.

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

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.

Facility is any location, building or vending machine where tobacco products are manufactured, stored, 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.

Machine is the equipment used for the manufacture of tobacco products which is integral to the manufacturing process.

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.

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.

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 be 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.

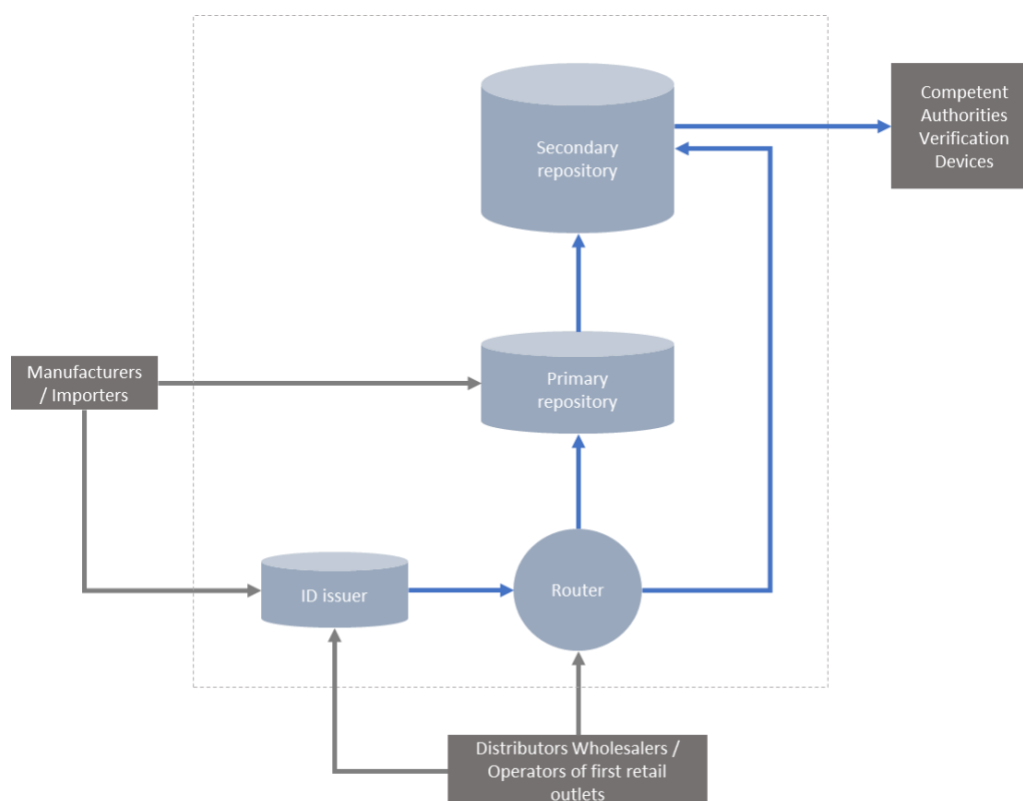


Figure 1 Overall system interconnection

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.

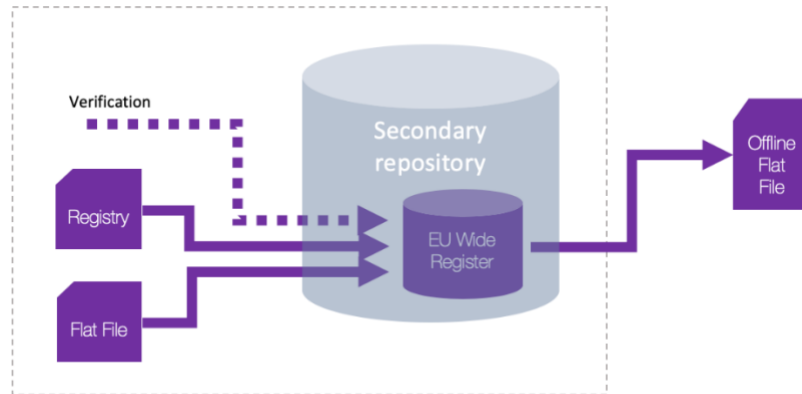


Figure 2 EU Wide Register

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 and Machines

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 or a Machine.

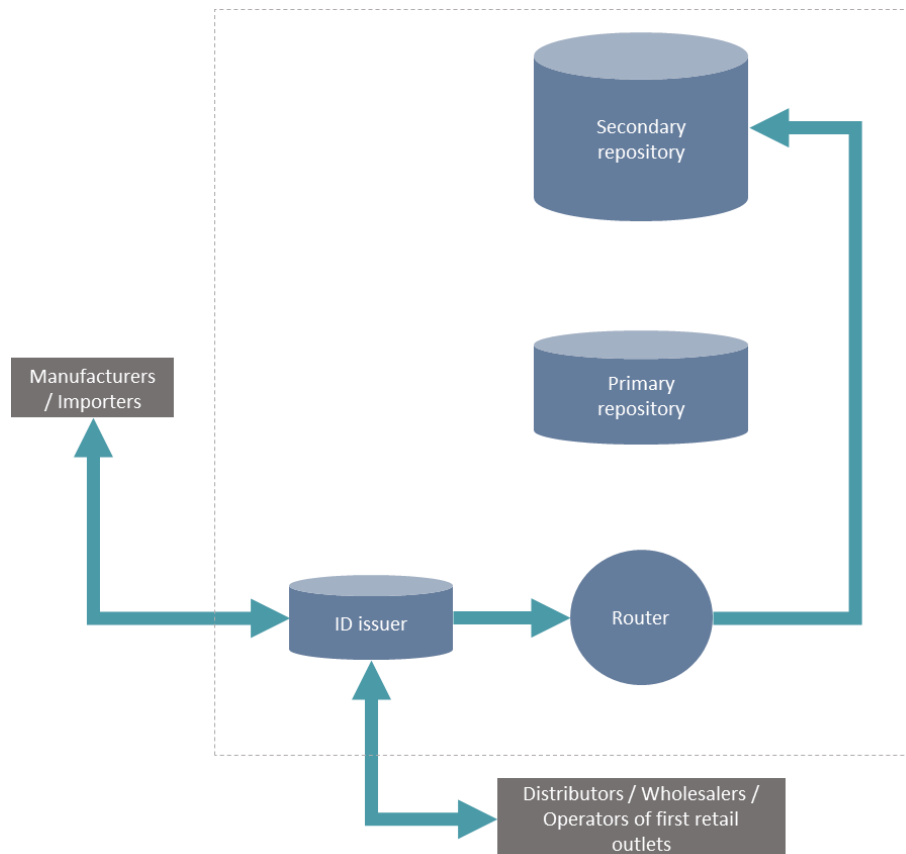


Figure 3 Identifier codes general data flow

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.

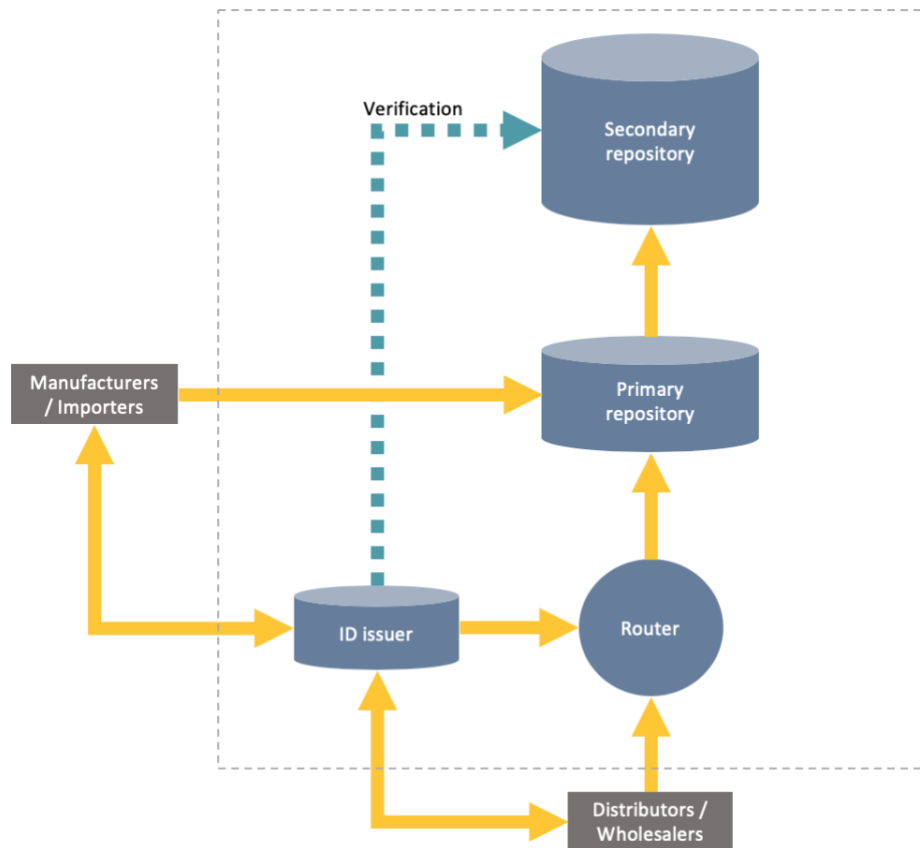


Figure 4 Unique identifier (UI) general data flow

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).

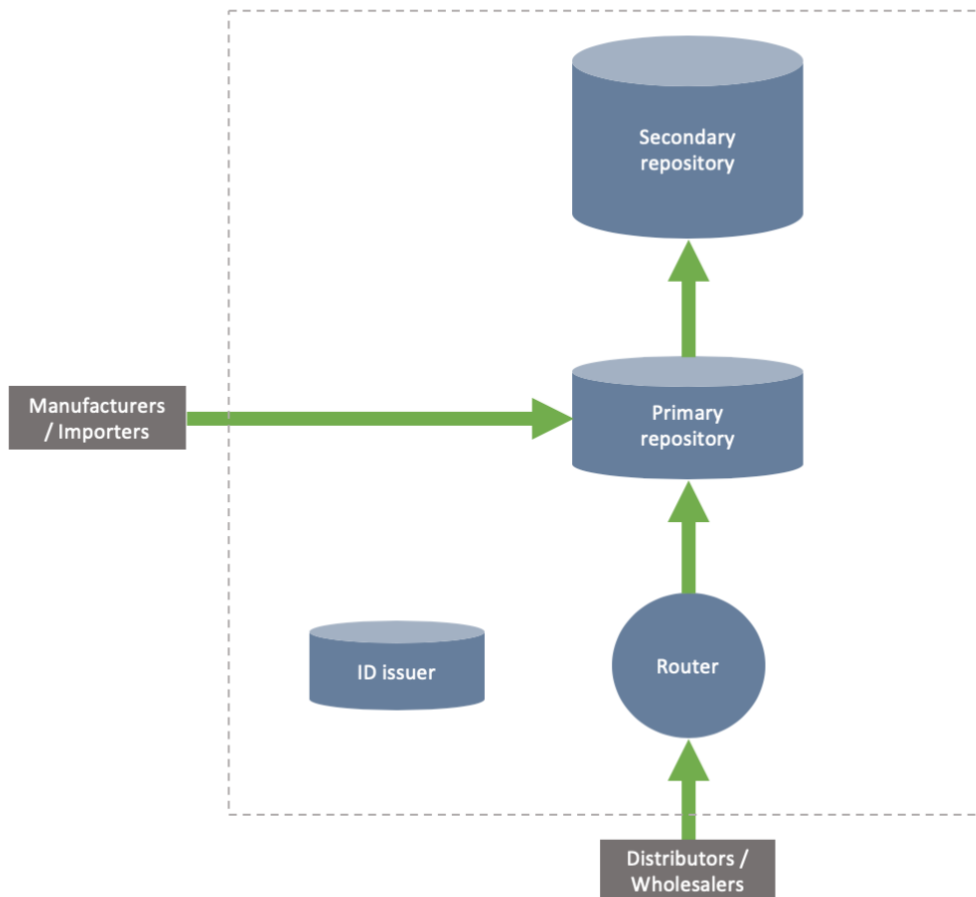


Figure 5 Product movement data flow

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).

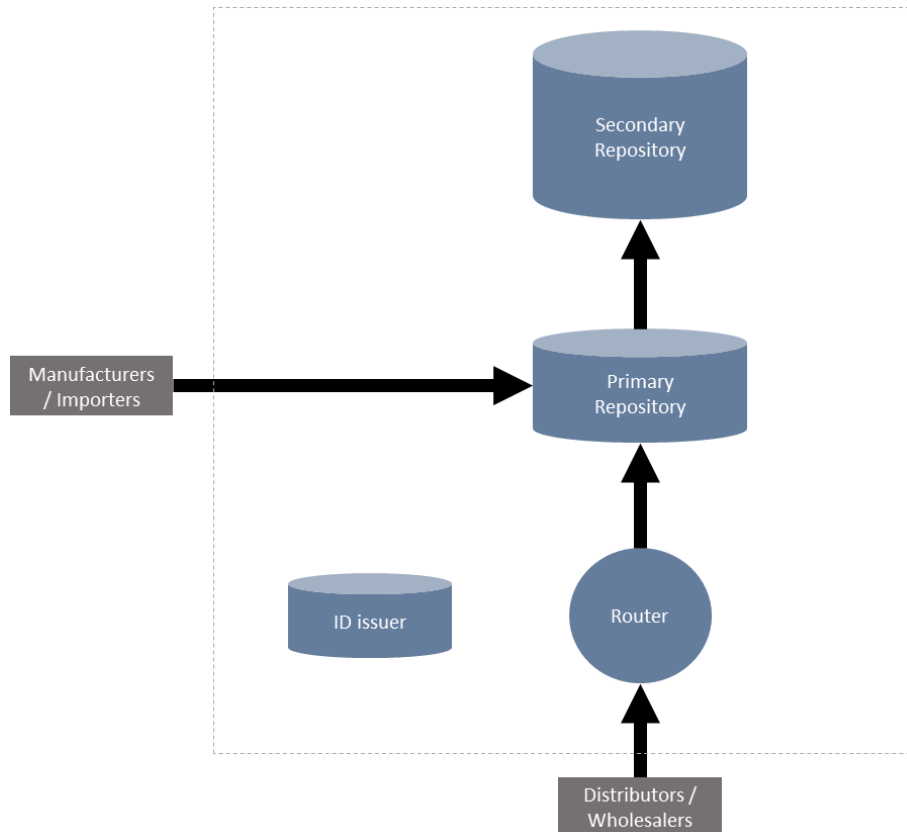


Figure 6 Transaction general data flow

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 make 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.

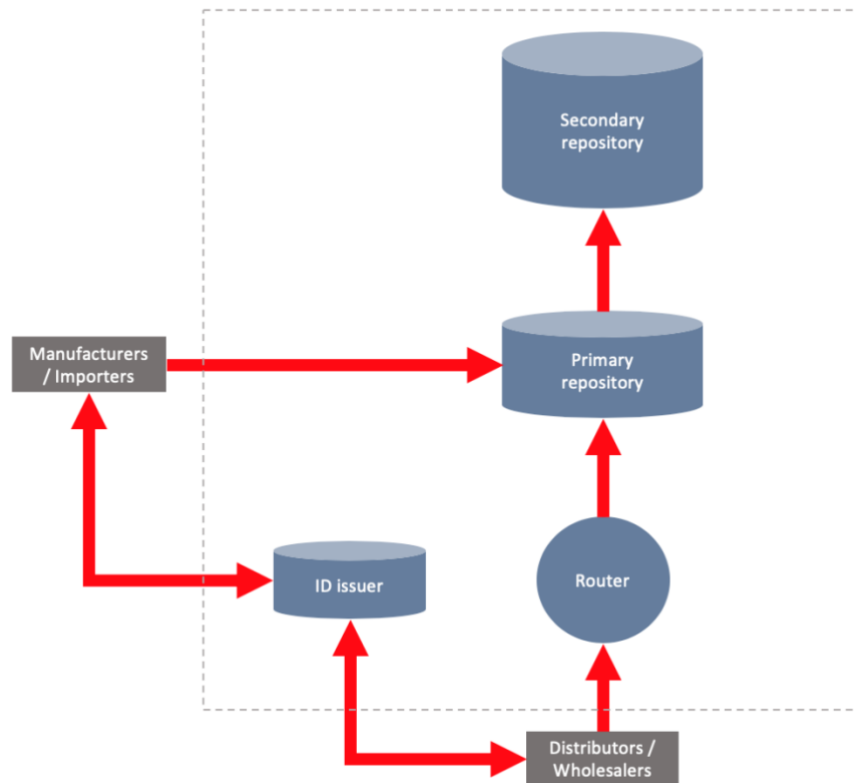


Figure 7 Recalls general data flow

3.4 System Architecture

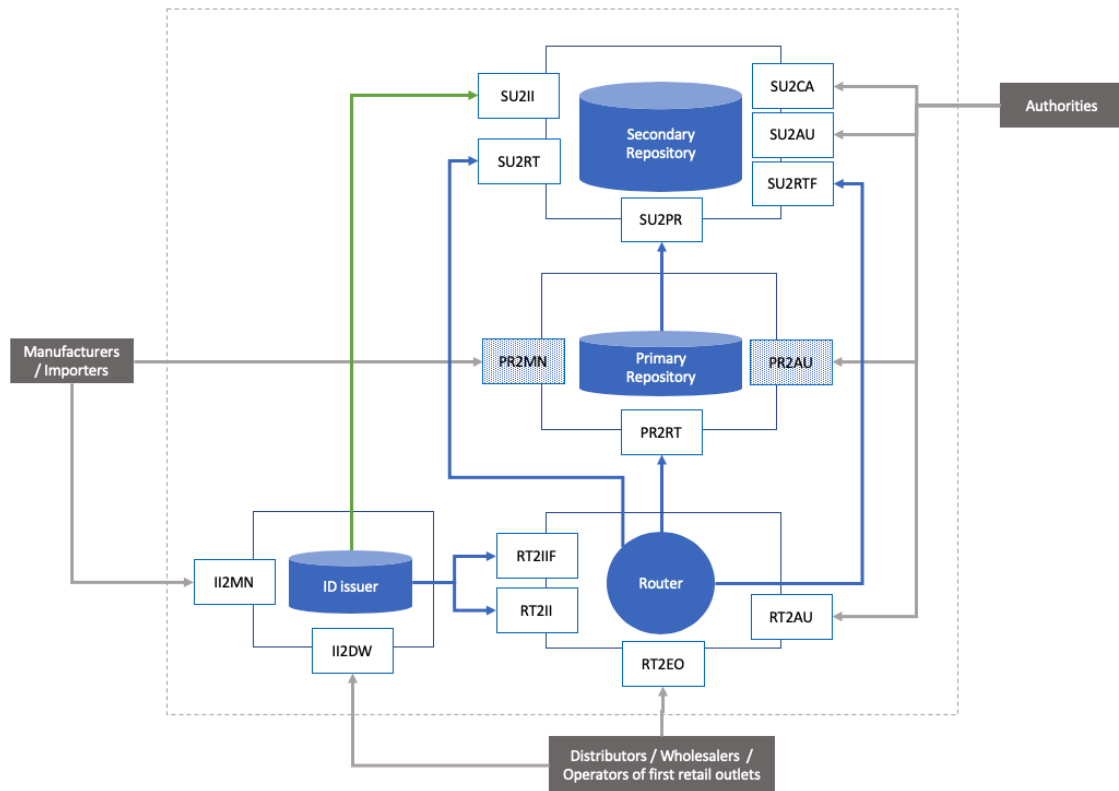


Figure 8 System Interfaces and Connections

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 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.

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.

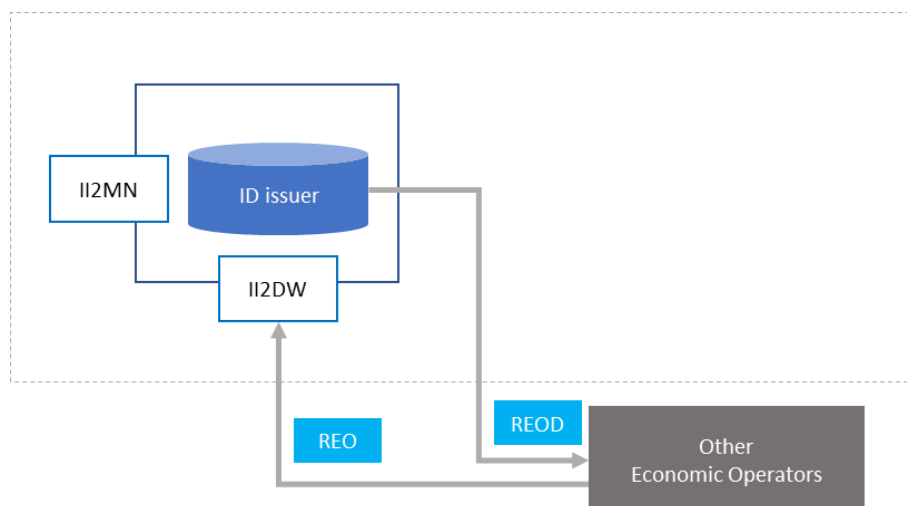


Figure 9 Data Flow Diagram – Issuing of an Economic operator Identifier code

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

Message code	Message description	From		To	
		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	
REOD	Issuing the Economic operator Identifier code	ID issuer		Economic operators (Manufacturers, Importers, Distributors, Wholesalers, Transport Companies, Providers of courier services) Operators of first retail outlets	

4.1.1.3 Messages – Issuing of an Economic operator Identifier code

The table below summarizes the messages and interfaces for the process through which the ID Issuer issues an Economic operator and issues an Economic operator Identifier code.

Process	Message code	Interface
Registration of an Economic operator	REO (1.1)	II2MN II2DW
	REOD	II2MN II2DW

4.1.1.2 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.

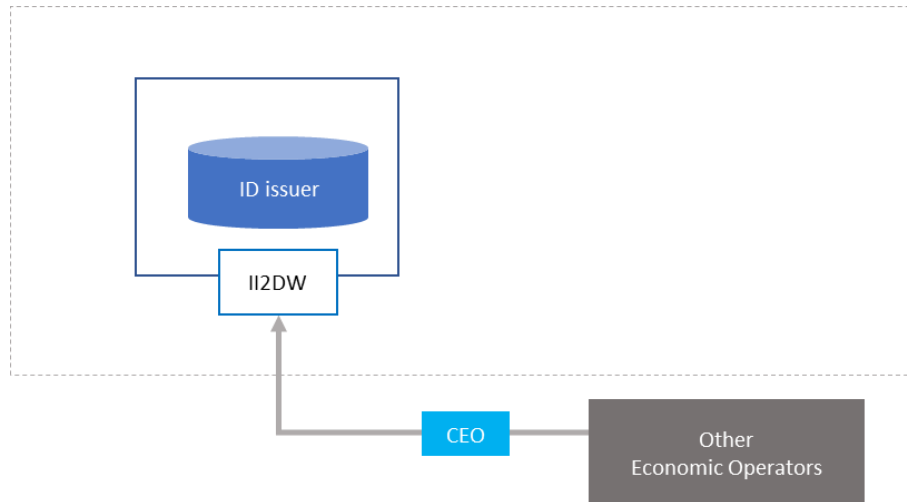


Figure 10 Correction of Information concerning an Economic operator

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

Message code	Message description	From		To	
		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	

4.1.2.3 Messages – Correction of Information concerning an Economic operator

The table below summarizes the messages and interfaces for the process through which the ID issuer corrects information concerning an Economic operator or an Operator of first retail outlet.

Process	Message code	Interface
Correction of information concerning an Economic operator or an Operator of first retail outlet.	CEO (1.2)	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 this case, this must lead to the automatic deactivation of related Facility Identifier codes and Machine Identifier codes.

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.

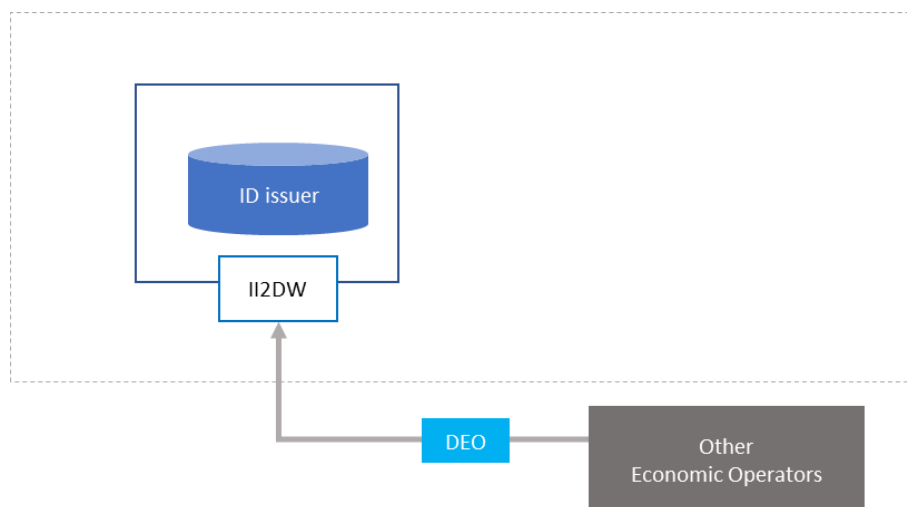


Figure 11 De-registration of an Economic operator

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

Message code	Message description	From		To	
		Entity	System	Entity	System
DEO (1.3)	Request for the de-registration of an	Economic operators (Manufacturers, Importers,		ID issuer	

	Economic operator	Distributors, Wholesalers, Transport Companies, Providers of courier services), Operators of first retail outlets Competent Authorities of Member States			
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4.1.3.3 Messages – De-registration of Economic operator Identifier code

The table below summarizes the messages and interfaces for the process through which ID Issuer de-registers an Economic operator or an Operator of a first retail outlet.

Process	Message code	Interface
De-registration of an Economic operator or an Operator of first retail outlet.	DEO (1.3)	II2MN II2DW
De-registration of related Facilities	DFA (1.6)	II2MN II2DW
De-registration of related Machines	DMA (1.9)	II2MN

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.

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.

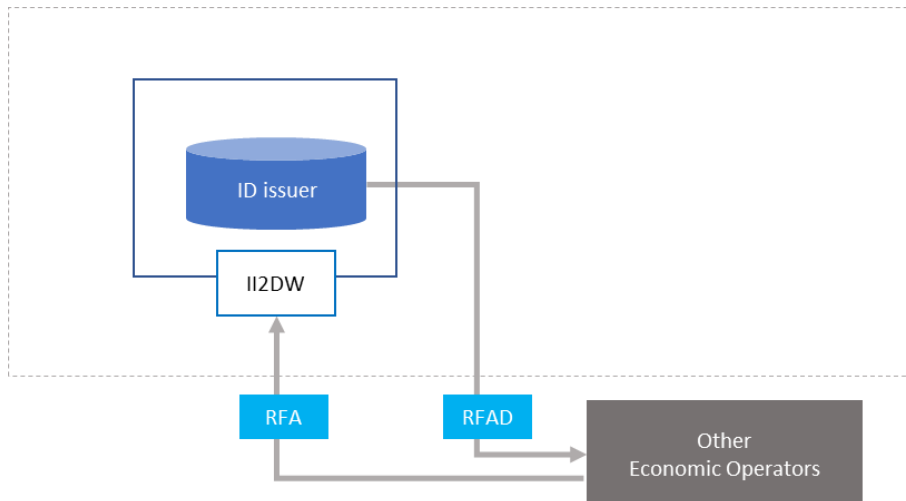


Figure 12 Issuing of a Facility Identifier code

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

Message code	Message description	From		To	
		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	
RFAD	Response issuing the Facility Identifier code	ID issuer		Economic operators (Manufacturers, Importers,	

				Distributors, Wholesalers, Transport Companies, Providers of courier services) Operators of first retail outlets	
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4.1.4.3 Messages – Issuing of a Facility Identifier code

The table below summarizes the messages and interfaces for the process through which the ID issuer issues a Facility Identifier code.

Process	Message code	Interface
Registration of a Facility	RFA (1.4)	II2MN II2DW
	RFAD	

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.

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.

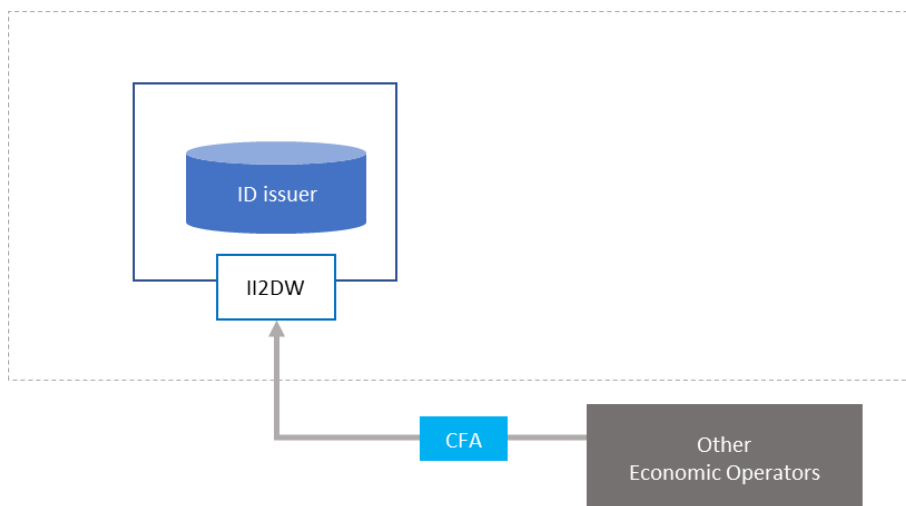


Figure 13 Correction of Information concerning a Facility

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

Message code	Message description	From		To	
		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	

4.1.5.3 Messages – Correction of Information concerning a Facility Identifier Code

The table below summarizes the messages and interfaces the process through which the ID issuer corrects information concerning a Facility.

Process	Message code	Interface
Correction of information concerning a Facility	CFA (1.5)	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. In this case, this must lead to the automatic deactivation of related Machine Identifier codes.

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.

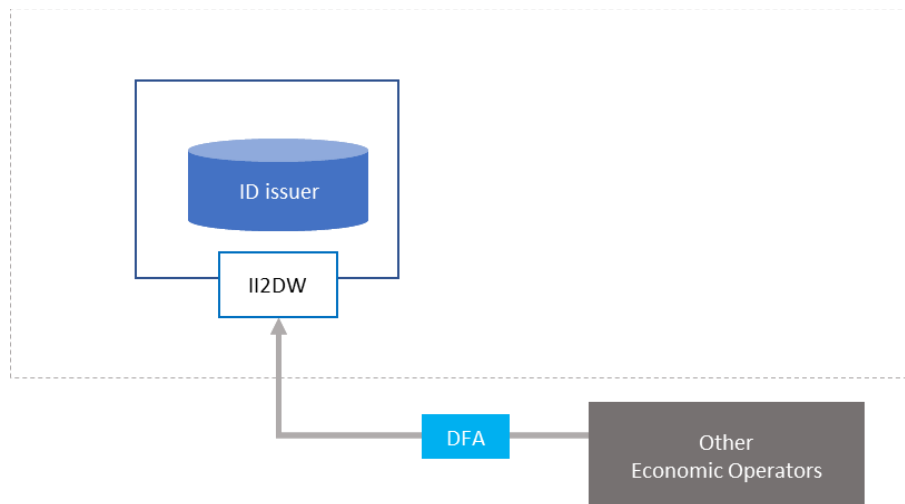


Figure 14 Data Flow Diagram – De-registration of a Facility

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

Message code	Message description	From		To	
		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	
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4.1.6.3 Messages – De-registration of a Facility Identifier code

The table below summarizes the messages and interfaces related to the process whereby the ID issuer de-registers a Facility.

Process	Message code	Interface
De-registration of a Facility	DFA (1.6)	II2MN II2DW
De-registration of related Machines	DMA (1.9)	II2MN

4.2 Issuing Unique identifiers (UIs)

4.2.1 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.

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

4.2.1.1.1 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”.

4.2.1.1.2 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.

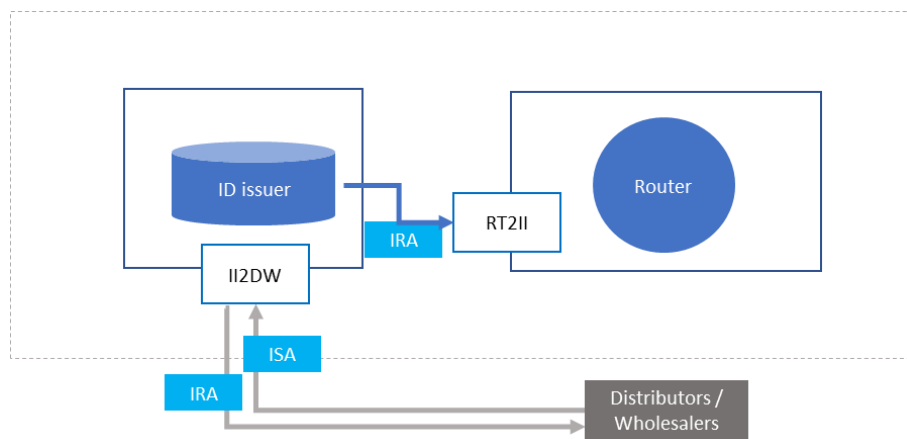


Figure 15 Data Flow Diagram – Issuing of aggregated level Unique identifiers (aUIs) for Aggregated packaging – Request from Manufacturers and Importers

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

Message code	Message description	From		To	
		Entity	System	Entity	System
ISA (2.2)	Request for aggregated level UIs	Economic operators: Manufacturers, Importers		ID issuer	
IRA	Reporting of aggregated level UIs generated	ID issuer			Router
IRA	Issuing of aggregated level UIs	ID issuer		Economic operators: Manufacturers, Importers	

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

The table below summarizes the messages and interfaces related to the process whereby the ID issuer issues aggregated level UIs for Aggregated packaging, after a request is made by Manufacturers or Importers.

Process	Message code	Interface
Issuing of aggregated level Unique identifiers (aUIs) for Aggregated packaging – Request from Manufacturers and Importers	ISA (2.2)	II2MN
	IRA	
	IRA	RT2II

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

4.2.1.2.1 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”.

4.2.1.2.2 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.

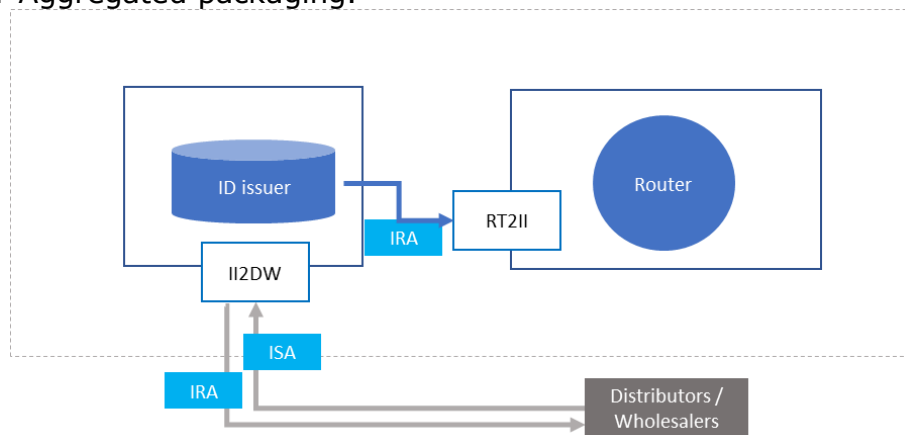


Figure 16 Data Flow Diagram – Issuing of aggregated level Unique identifiers (aUIs) for Aggregated packaging – Request from Distributors and Wholesalers

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

Message code	Message description	From		To	
		Entity	System	Entity	System
ISA (2.2)	Request for aggregated level UIs	Economic operators: Distributors / Wholesalers		ID issuer	
IRA	Reporting of aggregated level UIs generated	ID issuer			Router
IRA	Issuing of aggregated level UIs if message validated by the Router	ID issuer		Economic operators: Distributors / Wholesalers	

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

The table below summarizes the messages and interfaces related to the process whereby the ID issuer issues aggregated level UIs for Aggregated packaging, after a request is made by Distributors or Wholesalers.

Process	Message code	Interface
Issuing of aggregated level Unique identifiers (aUIs) for Aggregated packaging – Request from Distributors and Wholesalers	ISA (2.2)	II2DW
	IRA	
	IRA	RT2II

4.2.2 Deactivation of unit level Unique identifiers (upUIs)

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

4.2.2.1.1 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.

4.2.2.1.2 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).

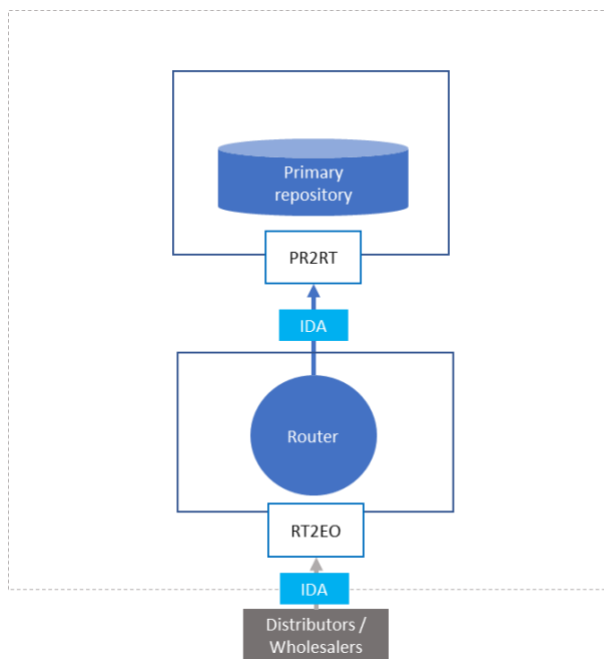


Figure 17 Data Flow Diagram – Deactivation of unit level Unique identifiers (upUIs) – Request from Distributors and Wholesalers

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

Message code	Message description	From		To	
		Entity	System	Entity	System
IDA (2.3)	Request deactivation of unit level UIs	Economic operators: Distributors, Wholesalers			Router
IDA (2.3)	Routing request deactivation of unit level UIs		Router		Primary repository

4.2.2.1.3 Messages – Deactivation of an aggregated Unique identifiers (aUIs) – Request from Distributors and Wholesalers

The table below summarizes the messages and interfaces related to the process whereby Distributors and Wholesalers deactivate aggregated level Unique identifiers (aUIs) in the corresponding Primary repository via the Router.

Process	Message code	Interface
	IDA (2.3)	RT2EO

Deactivation of unit level Unique identifiers (uUIs) – Request from Distributors and Wholesalers	IDA (2.3)	PR2RT
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4.2.3 Deactivation of aggregated level Unique identifiers (aUIs)

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

4.2.3.1.1 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.

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

4.2.3.2.1 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.

4.2.3.2.2 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).

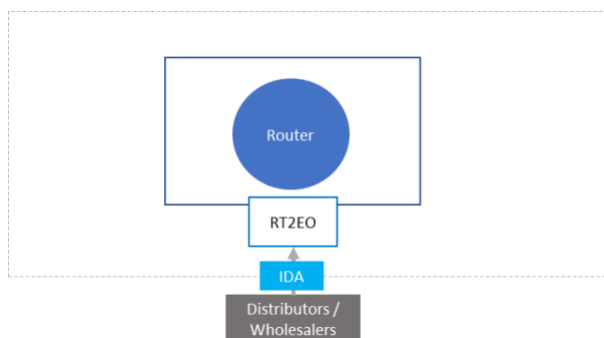


Figure 18 Data Flow Diagram – Deactivation of aggregated level Unique identifiers (aUIs) – Request from Distributors and Wholesalers

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

Message code	Message description	From		To	
		Entity	System	Entity	System
IDA (2.3)	Request deactivation of aggregated level UIs	Economic operators: Distributors, Wholesalers			Router

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

The table below summarizes the messages and interfaces related to the process whereby Distributors and Wholesalers deactivate aggregated level Unique identifiers (aUIs) via the Router.

Process	Message code	Interface
Deactivation of aggregated level Unique identifiers (aUIs) – Request from Distributors and Wholesalers	IDA (2.3)	RT2EO

4.2.4 Automatic deactivation of Unique Identifiers

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

4.3 Reporting operational events (product movement information)

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

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

4.3.1.1.1 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.

4.3.1.1.2 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.

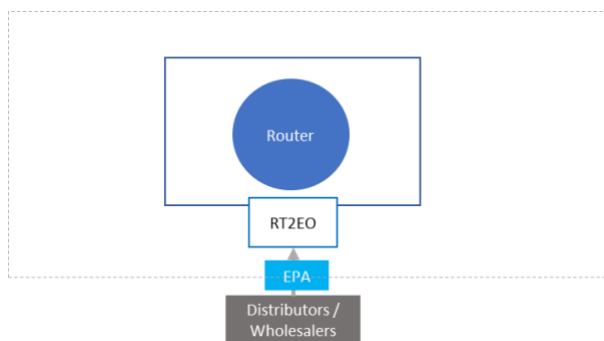


Figure 19 Data Flow Diagram – Application of aggregated level UIs on Aggregated packaging by Distributors and Wholesalers

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

Message code	Message description	From		To	
		Entity	System	Entity	System
EPA (3.2)	Report the application of aggregated level UIs on Aggregated packaging	Economic operators: Distributors , Wholesalers			Router

4.3.1.1.3 Messages – Application of aggregated level Unique identifiers (aUIs) on Aggregated packaging by Distributors and Wholesalers

The table below summarizes the messages and interfaces related to the process whereby Distributors and Wholesaler report the application of aggregated level Unique identifiers (aUIs) on Aggregated packaging.

Process	Message code	Interface
Application of aggregated level Unique identifiers (aUIs) on Aggregated packaging – Report from Distributors and Wholesalers	EPA (3.2)	RT2EO

4.3.2 Dispatch of tobacco products from a Facility

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

4.3.2.1.1 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.

4.3.2.1.2 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.

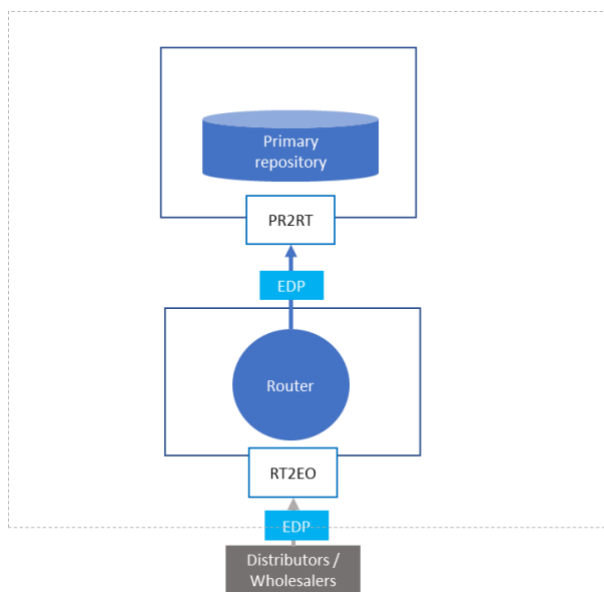


Figure 20 Data Flow Diagram – Dispatch of tobacco products from a Facility – Report from Distributors and Wholesalers

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

Message code	Message description	From		To	
		Entity	System	Entity	System
EDP (3.3)	Report the dispatch of tobacco	Economic operators: Distributors			Router

	products form a Facility	, Wholesalers			
EDP (3.3)	Route the information on the dispatch of tobacco products form a Facility, if message validated by the Router		Router		Primary repository

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

The table below summarizes the messages and interfaces related to the process whereby Distributors and Wholesalers report the dispatch of tobacco products from a Facility.

Process	Message code	Interface
Dispatch of tobacco products from a Facility – Report from Distributors and Wholesalers	EDP (3.3)	RT2EO
	EDP (3.3)	PR2RT

4.3.3 Arrival of tobacco products at a Facility

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

4.3.3.1.1 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.

4.3.3.1.2 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.

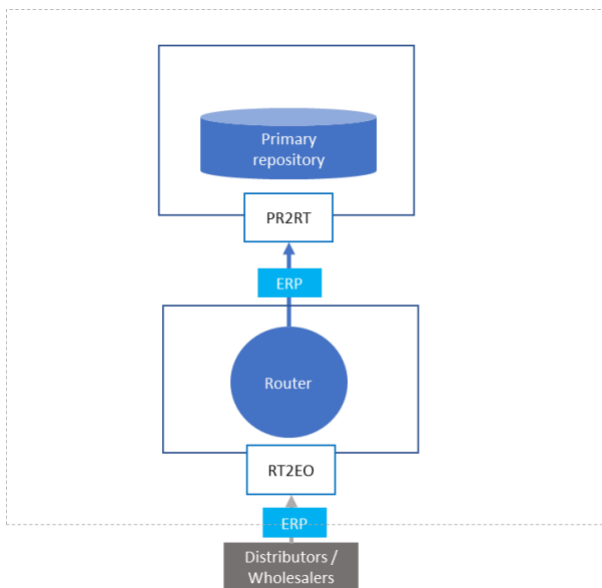


Figure 21 Data Flow Diagram – Arrival of tobacco products at a Facility – Report from Distributors and Wholesalers

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

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

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

The table below summarizes the messages and interfaces related to the process whereby Distributors and Wholesalers report the arrival of tobacco products at a Facility.

Process	Message code	Interface
Dispatch of tobacco products from a Facility – Report from Distributors and Wholesalers	ERP (3.4)	RT2EO
	ERP (3.4)	PR2RT

4.3.4 Trans-loading

4.3.4.1 Trans-loading – Report from Distributors and Wholesalers

4.3.4.1.1 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.

4.3.4.1.2 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.

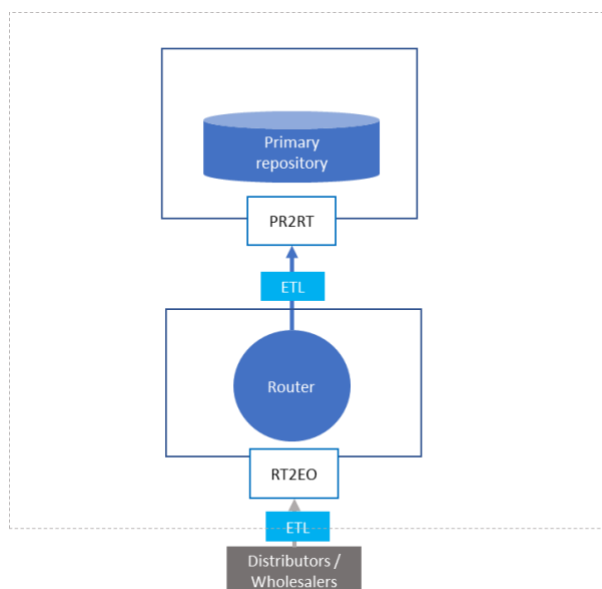


Figure 22 Data Flow Diagram – Trans-loading of tobacco products – Report from Distributors and Wholesalers

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

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

4.3.4.1.3 Messages- Trans-loading – Report from Distributors and Wholesalers

The table below summarizes the messages and interfaces related to the process through which Distributors and Wholesalers report the trans-loading of tobacco products.

Process	Message code	Interface
Trans-loading of tobacco products – Report from Distributors and Wholesalers	ETL (3.5)	RT2EO
	ETL (3.5)	PR2RT
	ETL (3.5)	SU2PR

4.3.5 Disaggregation of aggregated level Unique identifier (UI)

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

4.3.5.1.1 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.

4.3.5.1.2 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.

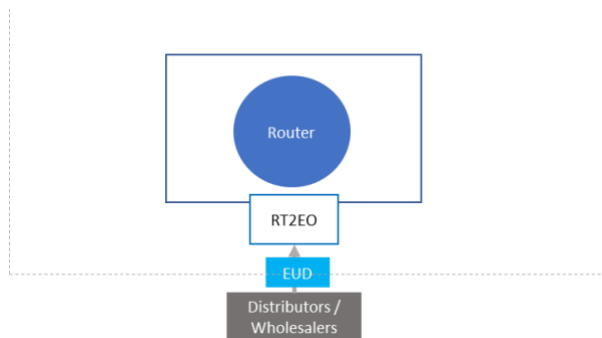


Figure 23 Data Flow Diagram – Disaggregation of aggregated level UIs – Report from Distributors and Wholesalers

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

Message code	Message description	From		To	
		Entity	System	Entity	System
EUD (3.6)	Report the disaggregation of aggregated level UIs	Economic operators: Distributors , Wholesalers			Router

4.3.5.1.3 Messages – Disaggregation of aggregated level UIs – Report from Distributors and Wholesalers

The table below summarizes the messages and interfaces related to the process whereby Distributors and Wholesalers report the disaggregation of aggregated level UIs.

Process	Message code	Interface
Disaggregation of aggregated level UIs – Report from Distributors and Wholesalers	EUD (3.6)	RT2EO

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

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

4.3.6.1.1 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.

4.3.6.1.2 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

4.3.6.1.3 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.

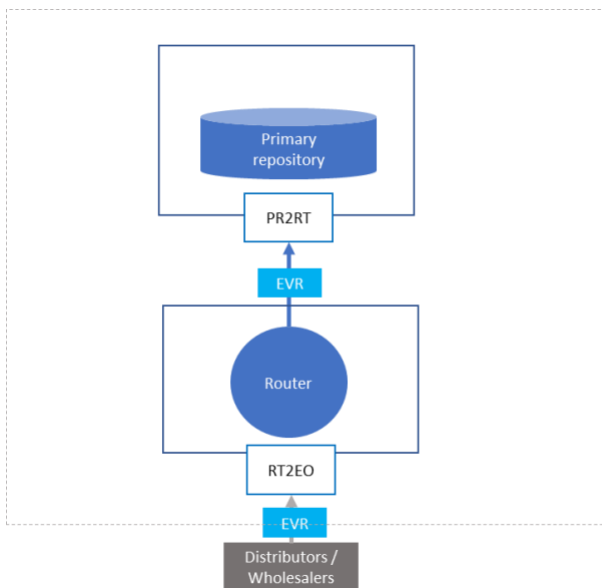


Figure 24 Data Flow Diagram – Delivery carried out with a vending van to multiple retail outlets – Report from Distributors and Wholesalers

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

Message code	Message description	From		To	
		Entity	System	Entity	System
EVR (3.7)	Report a delivery carried out with a vending van to multiple retail outlets	Economic operators: Distributors, Wholesalers			Router
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

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

The table below summarizes the messages and interfaces related to the process whereby Distributors and Wholesalers report a delivery carried out with a vending van to multiple retail outlets.

Process	Message code	Interface
Delivery carried out with a vending van to multiple retail outlets – Report from Distributors and Wholesalers	EVR (3.7)	RT2EO
	EVR (3.7)	PR2RT

4.4 Reporting transactional events (trade information)

4.4.1 Issuing of the invoice

4.4.1.1 Issuing of invoice – Report from Distributors and Wholesalers

4.4.1.1.1 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.

4.4.1.1.2 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.

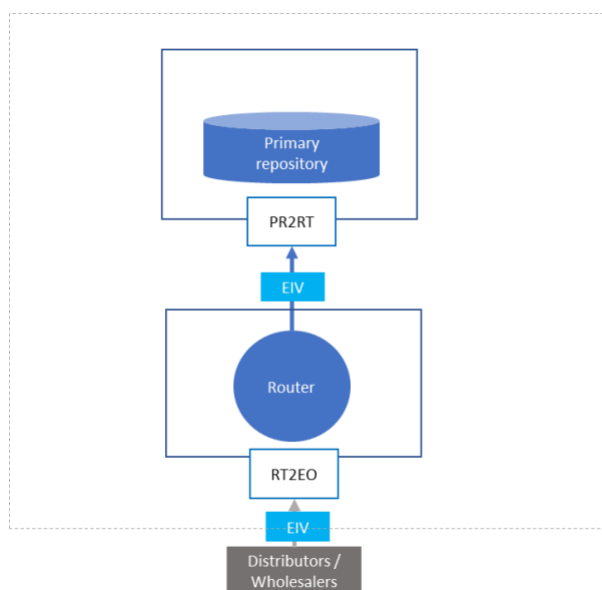


Figure 25 Data Flow Diagram – Issuing of invoice – Report from Distributors and Wholesalers

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

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

4.4.1.1.3 Messages – Issuing of invoice – Report from Distributors and Wholesalers

The table below summarizes the messages and interfaces related to the process whereby Distributors and Wholesalers report the issuing of invoice to the corresponding Primary repository.

Process	Message code	Interface
Issuing of invoice – Report from Distributors and Wholesalers	EIV (4.1)	RT2EO
	EIV (4.1)	PR2RT

4.4.2 Issuing of the order number

4.4.2.1 Issuing of order number – Report from Distributors and Wholesalers

4.4.2.1.1 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.

4.4.2.1.2 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.

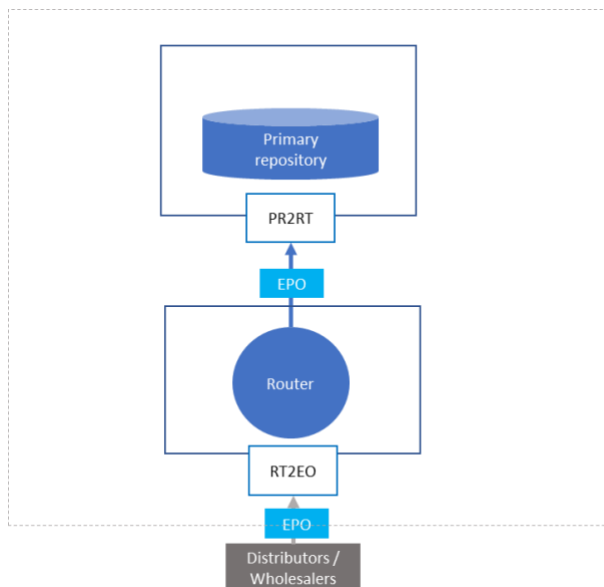


Figure 26 Data Flow Diagram – Issuing of order number – Report from Distributors and Wholesalers

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

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

4.4.2.1.3 Messages – Issuing of order number – Report from Distributors and Wholesalers

The table below summarizes the messages and interfaces related to the process whereby Distributors and Wholesalers report the issuing of order number to the corresponding Primary repository.

Process	Message code	Interface
Issuing of order number – Report from Distributors and Wholesalers	EPO (4.2)	RT2EO
	EPO (4.2)	PR2RT

4.4.3 Receipt of the payment

4.4.3.1 Receipt of payment – Report from Distributors and Wholesalers

4.4.3.1.1 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.

4.4.3.1.2 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.

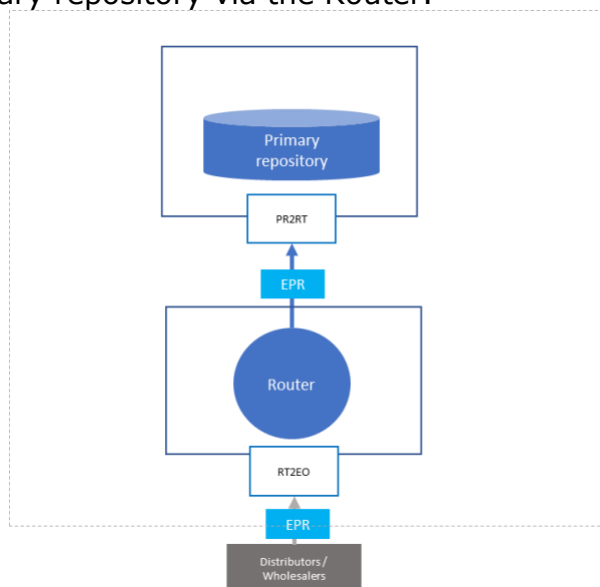


Figure 27 Data Flow Diagram – Receipt of payment – Report from Distributors and Wholesaler

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

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

4.4.3.1.3 Messages – Receipt of the payment – Report from Distributors and Wholesalers

The table below summarizes the messages and interfaces related to the process whereby Distributors and Wholesalers report the receipt of payment to the corresponding Primary repository.

Process	Message code	Interface
Receipt of payment – Report from Distributors and Wholesalers	EPR (4.3)	RT2EO
	EPR (4.3)	PR2RT

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 Distributors and Wholesalers

4.5.1.1.1 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.

4.5.1.1.2 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.

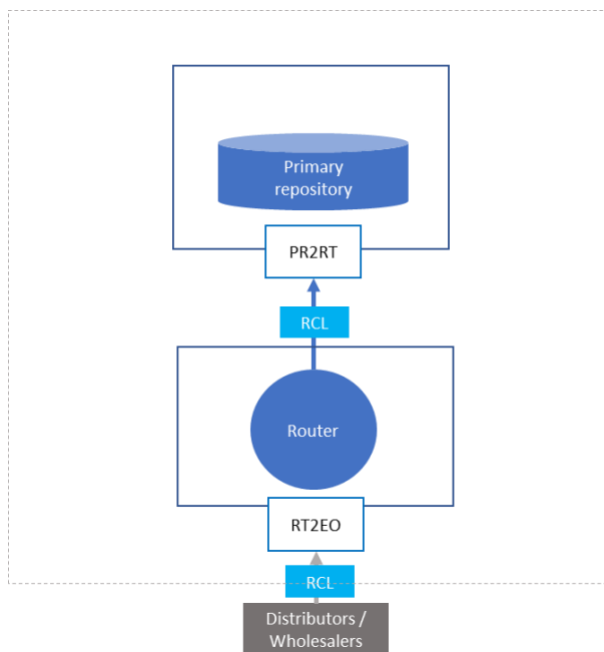


Figure 28 Data Flow Diagram – Recalls of operational and transactional messages – Recalls from Distributors and Wholesalers

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

Message code	Message description	From		To	
		Entity	System	Entity	System
RCL (5)	Recall of operational and transactional event message	Economic operators: Distributors and Wholesalers			Router
RCL (5)	Route the Recall of operational and transactional event message, if message validated		Router		Primary repository

	by the Router				
--	---------------	--	--	--	--

4.5.1.1.3 Messages – Recalls of operational and transactional messages – Recalls from Distributors and Wholesalers

The table below summarizes the messages and interfaces related to the process through which Distributors and Wholesalers recall an operational or transactional message to the Router.

Process	Message code	Interface
Recall of operational and transactional event message – Recalls from Distributors and Wholesalers	RCL (5)	RT2EO
	RCL (5)	PR2RT

4.6 Importer Scenario

4.6.1 Identifier Code request

The economic operator should request the EOID FID MID to the ID Issuer. For factories outside the EU, it is recommended to request new FID and MID independently of the fact that the factory and machine have already been registered by another economic operator.

4.6.2 Unique Identifier request

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

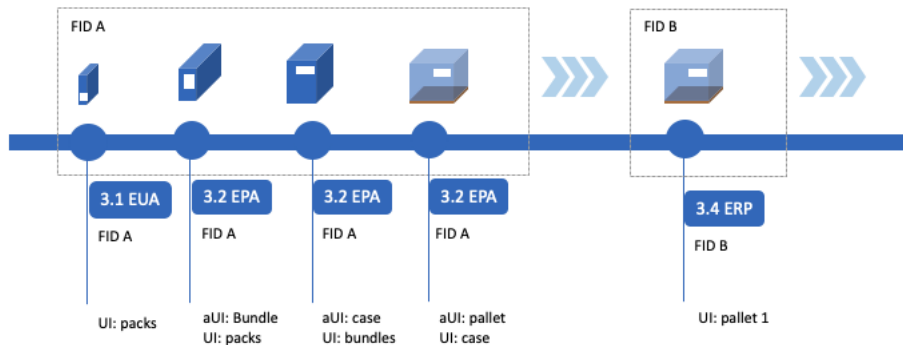
4.6.3 Reporting through a primary repository

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.



4.7 Third Party Logistic Operator Scenario

4.7.1 Overview

Third-party logistics (abbreviated as 3PL, or TPL) in logistics and supply chain management is an organization's use of third-party businesses to outsource elements of its distribution, warehousing, and fulfillment services.

In principle, there is nothing in the legislation that would prevent a third party (operator A) from providing a service and reporting into the system on behalf of another economic operator (operator B).

4.7.2 Reporting EOID, FID and MID

It is important that the identifications (i.e. EOID, FIDs and MIDs) of operator B are used for reporting purposes, since operator A acts as a mere service provider. Operator B also remains legally responsible for the correctness and completeness of reports

4.7.3 Reporting through a primary repository

In case the economic operator (operator B) is a manufacturer or an importer, the reporting of events for the service provider (operator A) must be done using a primary repository (operator B). The Primary repository forwards the reported events to the Secondary repository.

5 Interfaces

5.1 Overview

The interfaces of the Traceability System are as follows:

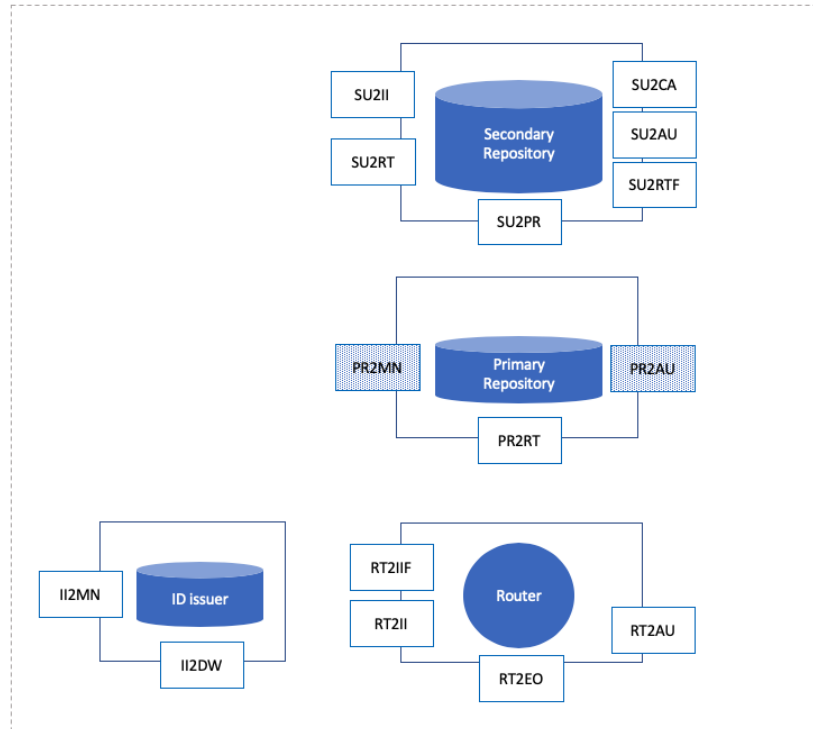


Figure 29 System interfaces and endpoints

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 two 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)

The GUI is used for reporting purposes and some entity sign up processes.

All of the GUIs offered rely on browser-based html/JavaScript technics and support current browsers from major browser suppliers (e.g. Google Chrome, Internet Explorer, Firefox, Opera)

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).

5.2.2.2 WSDL/SOAP interface

The Eu Secondary and router, in addition of the supporting JSON interfaces, supports GS1 EPCIS version 1.2 XML data binding and a WSDL/SOAP web services binding for a number of messages.

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 TLS 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 backward compatibility

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

Example URL: <https://{seconardayUrl}/v1>

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.

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 EPCIS eventID and RecallCode

In the case of the EPCIS interface, the EPCIS 1.2 protocol doesn't allow the transmission of the identification information back to the sender. The eventID field provided by the sender will be used as RecallCode.

5.2.7.3 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

5.2.7.4 RecallCode structure

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

5.2.7.5 Messages

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

	Annex II Reference	
<i>ISU</i>	<i>(2.1)</i>	<i>Request for unit level UIs</i>
<i>IRU</i>		<i>Data Request for unit level UIs</i>
<i>ISA</i>	<i>(2.2)</i>	<i>Request for reporting the issuance of Unique Identifiers at aggregated level</i>
<i>IRA</i>		<i>Data Request for reporting the issuance of Unique Identifiers at aggregated level</i>
<i>EUA</i>	<i>(3.1)</i>	<i>Application of unit level UIs on unit packets</i>
<i>EPA</i>	<i>(3.2)</i>	<i>Application of aggregated level UIs on aggregated packaging</i>
<i>EDP</i>	<i>(3.3)</i>	<i>Dispatch of tobacco products from a facility</i>
<i>ERP</i>	<i>(3.4)</i>	<i>Arrival of tobacco products at a facility</i>
<i>ETL</i>	<i>(3.5)</i>	<i>Trans-loading</i>
<i>EUD</i>	<i>(3.6)</i>	<i>Disaggregation of aggregated level UIs</i>
<i>EVR</i>	<i>(3.7)</i>	<i>Report of delivery carried out with a vending van to retail outlet</i>
<i>EIV</i>	<i>(4.1)</i>	<i>Issuing of the invoice</i>
<i>EPO</i>	<i>(4.2)</i>	<i>Issuing of the order number</i>
<i>EPR</i>	<i>(4.3)</i>	<i>Receipt of the payment</i>

5.2.7.6 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.

5.2.7.7 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 an 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.

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	1234567890abcdefghijklmnopqrstuvxyz
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)
IDA	(2.3)	Request for deactivation of UIs	50 000
EUA	(3.1)	Application of unit level UIs on unit packets	50 000
EPA	(3.2)	Application of aggregated level UIs on aggregated packaging	50 000
EDP	(3.3)	Dispatch Event	50 000
ERP	(3.4)	Reception event	50 000
ETL	(3.5)	Trans-loading event	50 000
EUD	(3.6)	Message to report an UID disaggregation	50 000
EVR	(3.7)	Report the delivery carried out with a vending van to retail outlet	50 000
EIV	(4.1)	Message to report an invoice	50 000
EPO	(4.2)	Purchase order	50 000
EPR	(4.3)	Payment record	50 000

5.2.12 Number of simultaneous connections

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

5.2.13 Message Sequence

Message sequence must comply with the corresponding regulation.

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

Note: If the primary repository reports two messages affecting the same group of UIs without waiting for the acknowledgment from the Secondary repository, 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.

5.3 EPCIS and EDI Support

5.3.1 Overview

GS1 EPCIS and EDI provide optional message formats, which deliver equivalent data when used with GS1 aggregate level or aggregate and unit level identifiers. This permits one message to support traditional retail supply chain business or end-to-end traceability requirements and to support EU 2018/574 reporting.

At

https://www.gs1.org/docs/epc/FightingIllicitTradeEPCIS_Application_Standard.pdf, GS1 has published a GS1 EPCIS Application Standard for Fighting Illicit Trade, particularly in the context of EU 2018/574.

5.3.2 PRODUCT MOVEMENT EVENTS

Ref	Ref	Description	EPCIS
EUA	(3.1)	Application of unit level UIs on unit packets	EPCIS Object Event (business step "Commissioning")
EPA	(3.2)	Application of aggregated level UIs on aggregated packaging	EPCIS Aggregation Event (business step "Packing")
EDP	(3.3)	Dispatch Event	EPCIS Object Event (business step "Shipping")
ERP	(3.4)	Reception event	EPCIS Object Event (business step "Arriving")
ETL	(3.5)	Trans-loading event	EPCIS Object Event (business step "transloading")
EUD	(3.6)	Message to report an UID disaggregation	EPCIS Aggregation Event (business step "Unpacking")
EVR	(3.7)	Report the delivery carried out with a vending van to retail outlet	EPCIS Object Event (business step "Arriving")

5.3.3 TRANSACTIONAL EVENTS

Ref	Ref	Description	EDI
EIV	(4.1)	Message to report an invoice	EDI: Invoice

<i>EPO</i>	<i>(4.2)</i>	<i>Purchase order</i>	EDI: Order
<i>EPR</i>	<i>(4.3)</i>	<i>Payment record</i>	EDI: Settlement

5.3.4 ERROR HANDLING MESSAGE

Ref	Ref	Description	EPCIS
RCL	(5.0)	Recall messages	

5.3.5 EPCIS Recall Management

EPCIS negation of a previous event by means of a subsequent, identical event that contains an ErrorDeclaration, and whose eventID is equal to the eventID of the prior (erroneous/recalled) event.

5.4 Identifier Code Verification Service

5.4.1 Overview

The purpose of this service is to allow the ID Issuers and manufacturers 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.

- 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 Register or marked as inactive, 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 Primary repository endpoint

5.5.1 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.

5.5.2 Methods of interaction.

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

5.5.3 Message format.

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

5.5.4 Message response

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

5.5.5 Endpoint

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

5.5.6 Secured communication

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

5.5.7 RecallCode management

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

5.5.8 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.

5.6 II2MN II2DW interfaces

5.6.1 Overview

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

5.6.2 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

5.6.3 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.

5.6.4 Extensibility

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

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.

	(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	jd2	01	01234567891231	21	456FGRD66
Process	<input type="checkbox"/> Applied by EO <input type="checkbox"/> 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	Data Qualifier for optional	Additional product identification

						variable length fields	attribute added by the manufacturer	n 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	<input type="checkbox"/> Applied by EO <input type="checkbox"/>							
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	<input type="checkbox"/> Applied by EO <input type="checkbox"/>		
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.

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 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.

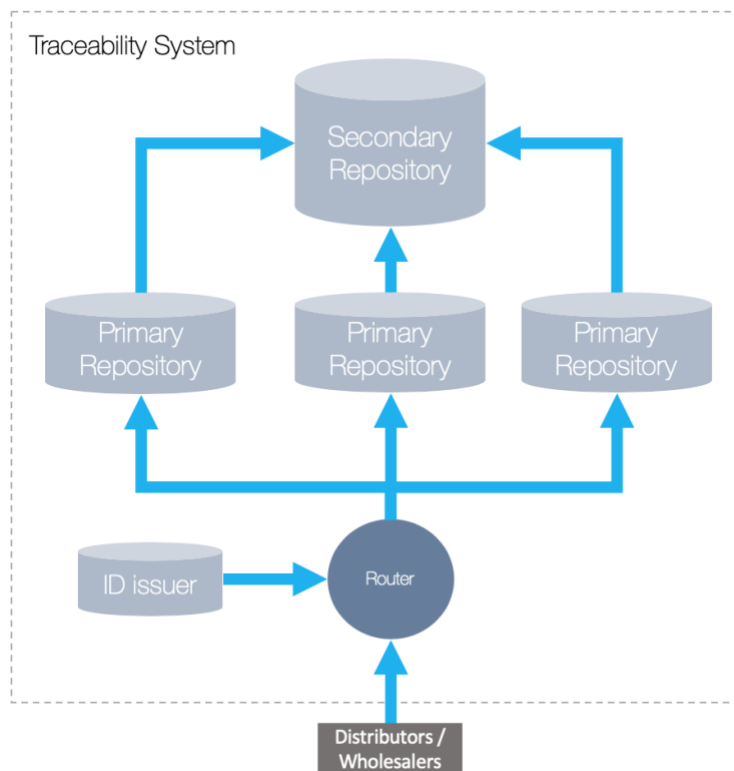


Figure 30 Router Data Flow

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.

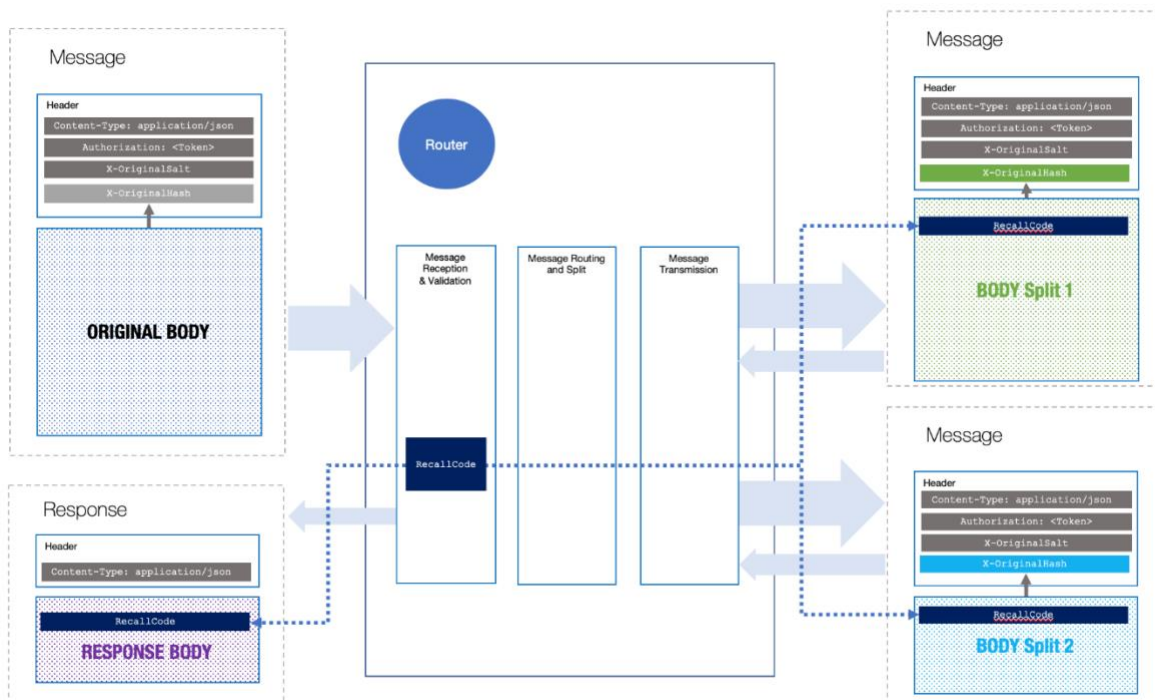
Case 2: When UIs are related to several Manufacturers or Importers, the message is split by Manufacturer and/or Importer and the separate messages are sent to their corresponding Primary repository.

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.



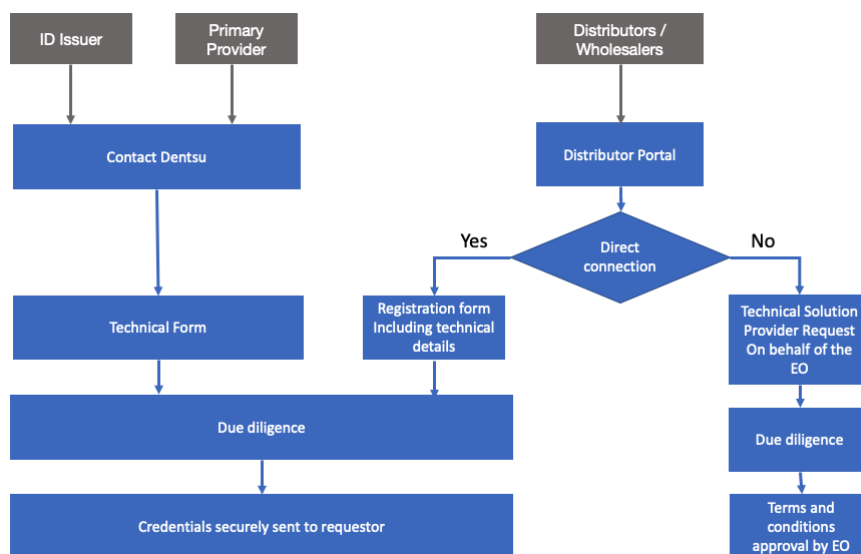
8 Sign up Process

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



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 Endpoints

< BASE_URL > : base url = .eu.tobaccotracing.com

< BASE_XML_URL > : base xml url = .xml.tobaccotracing.com

example:

< ENV > : environment name

		URL
Router		
Router	Authentication endpoint	https://< ENV >.auth.< BASE_URL >
Router	Resource endpoint	https://< ENV >.router.< BASE_URL >
EPCIS/EDI	EPCIS/EDI resource endpoint	https://< ENV >.router.< BASE_XML_URL >
Secondary Repository		
Secondary Repository	Identifier Code Verification	https://< ENV >.verification.< BASE_URL >/lookup

10 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	GS1 EPC Information Services (EPCIS) standard	https://www.gs1.org/standards/fighting-illicit-trade
5	UUID	https://www.ietf.org/rfc/rfc4122.txt

11 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