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TRACKING

Dentsu Aegis Network
LIST OF SPECIFICATIONS v1.4 FOR ECONOMIC OPERATORS

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

Summary of changes

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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 publication 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 objective of this document is to communicate to the Traceability system stakeholders the list of specifications required to allow the data exchanges with the Secondary repository. The technical descriptions of data entities

The document is structured as follows:
- **Section 2 – Definitions.** The description of the key concepts as defined in the EU Regulation.
- **Section 3 – Repositories system overview.** A general description of the Repositories 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 of the 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 various components.

- **Section 6 – Unique Identifiers.** Description of the decoding requirements to allow authorized third parties to decode the codes.
- **Section 7 – Router**. Brief summary of the component in charge of routing information from ID Issuers and Supply Chain to related Manufacturer's Primary Systems.
- **Section 8 – Messages validation**. Brief description of the validation mechanisms that the overall system should ensure to meet Regulation purposes.

Note: for the detailed and technical description of the data base entities and flows, operational and transactional method, security edge case, router definition, error messages, registration process 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. In parenthesis, the message type reference of the Annex II of the Commission Implementing Regulation (EU) 2018/574 will be indicated.

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 classified 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 Repositories sprefix
ystem.

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

Registry means 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 composed of the following sub-systems: Primary repositories, Secondary repository, Router. The sub-systems shall be fully interoperable with one another, irrespective 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 shall be forwarded to the Secondary repository instantaneously.
- Economic operators other than Manufacturers and Importers shall send the information recorded to the Router, which shall transfer it to the Primary repository serving the Manufacturer or Importer whose tobacco products are concerned. A copy of those data shall be transferred instantaneously to the Secondary repository.
- ID issuers shall 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.
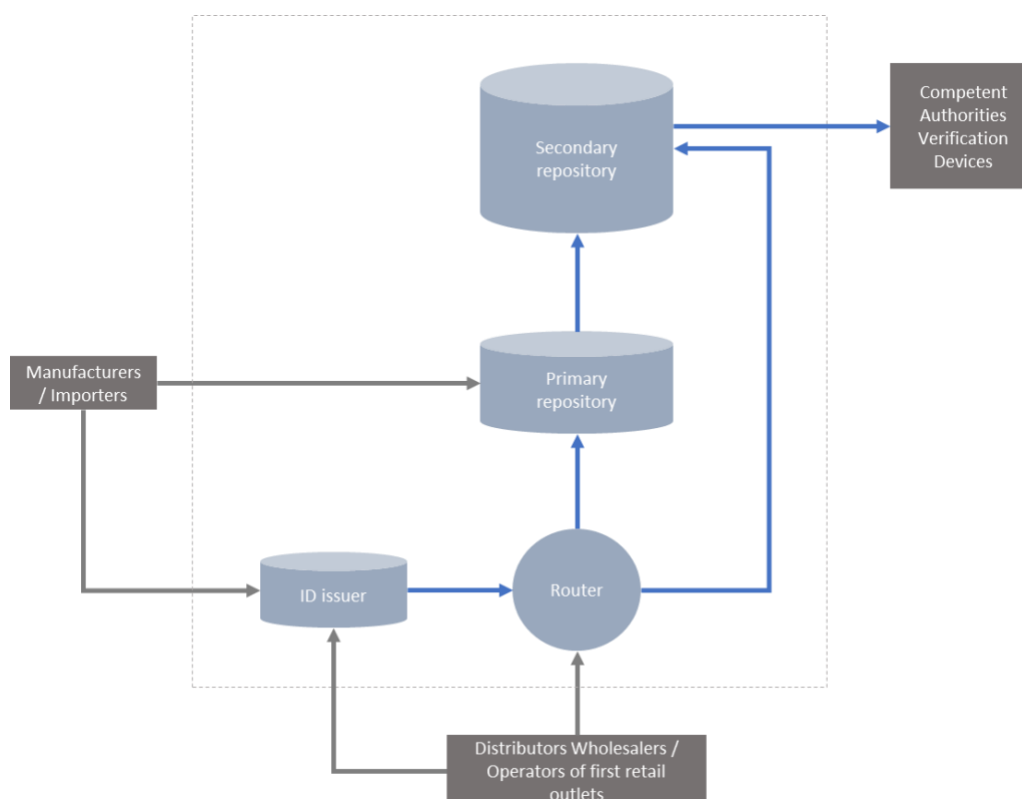
Figure 1 Overall system interconnection

3.2.1 The Primary repositories

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

3.2.2 Event The Router

The Router dispatches the 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 the "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.

The Secondary repository holds the EU Wide register
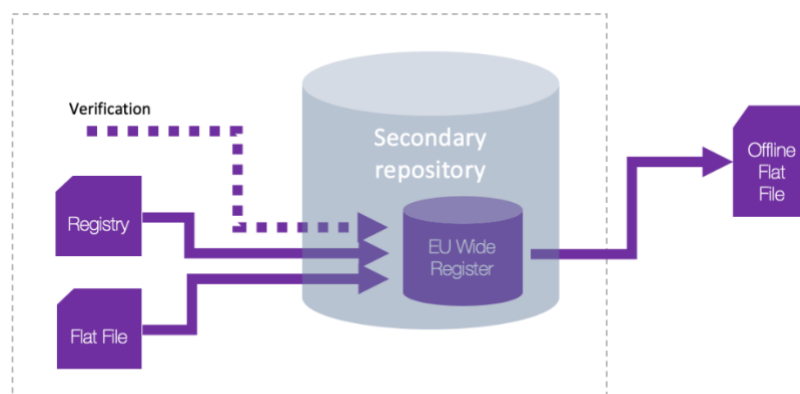
Figure 2 EU Wide Register

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 to 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.
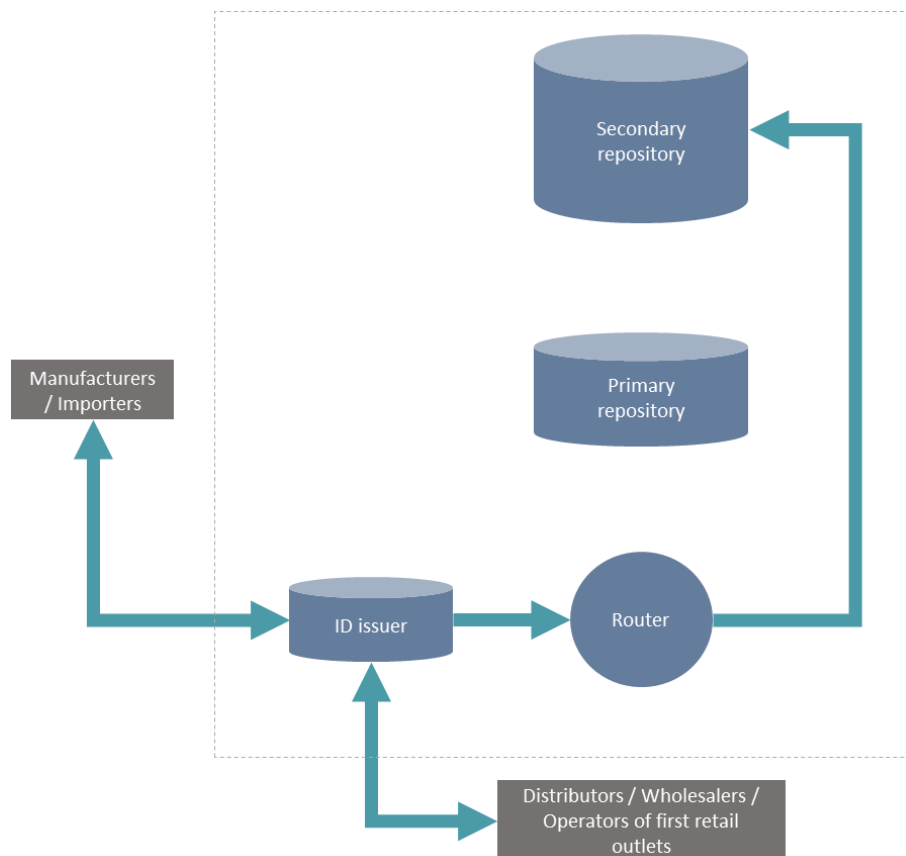
Figure 3 Identifier codes general data flow

The Economic operators exchange the necessary information with the ID issuer. The ID issuer issues the Identifier codes to the requesting Economic operators, and transfers offline flat-files and registries directly to the Secondary repository through 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 whereby 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.
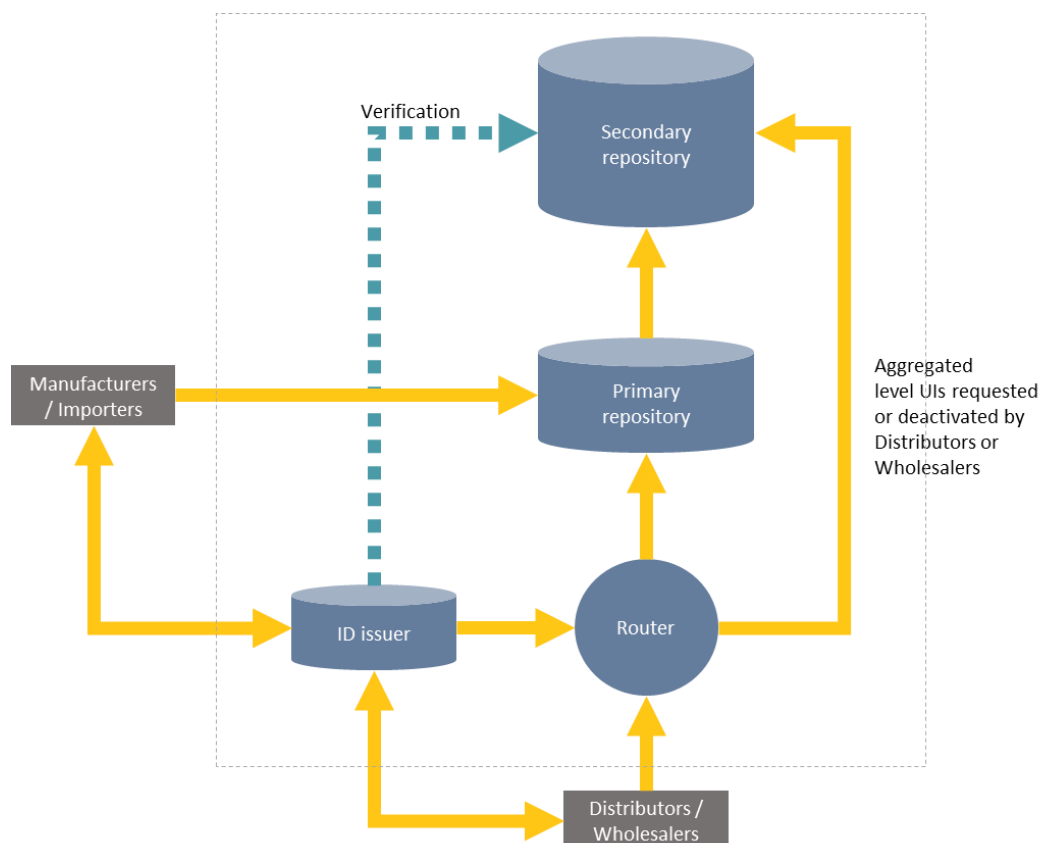
Figure 4 Unique identifier (UI) general data flow

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 requesting Economic operators. The Primary repositories instantaneously 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 whereby 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).
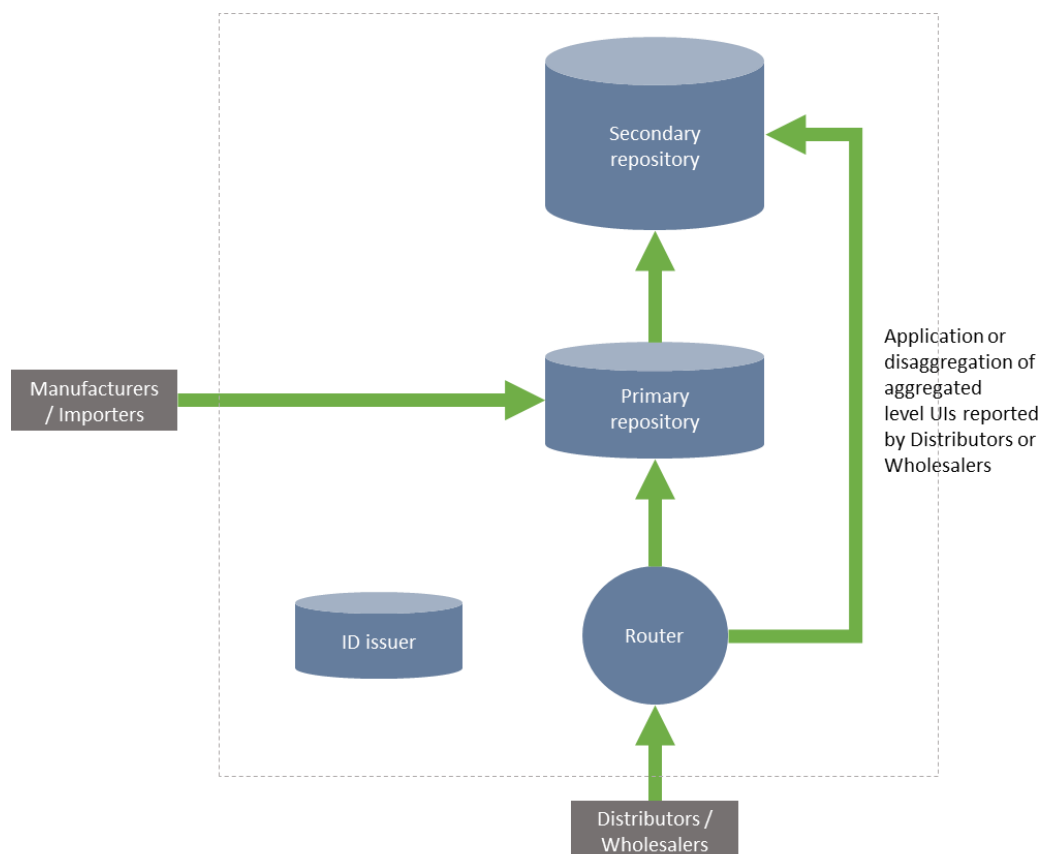
Figure 5 Product movement data flow

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 instantaneously forward the data to the Secondary repository. For the events related to the application or disaggregation of aggregated level UIs by Distributors and Wholesalers, those are reported directly to the Secondary repository via the Router.

3.3.4 Report on Transactional events

The following diagram describes the key data flows whereby 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).
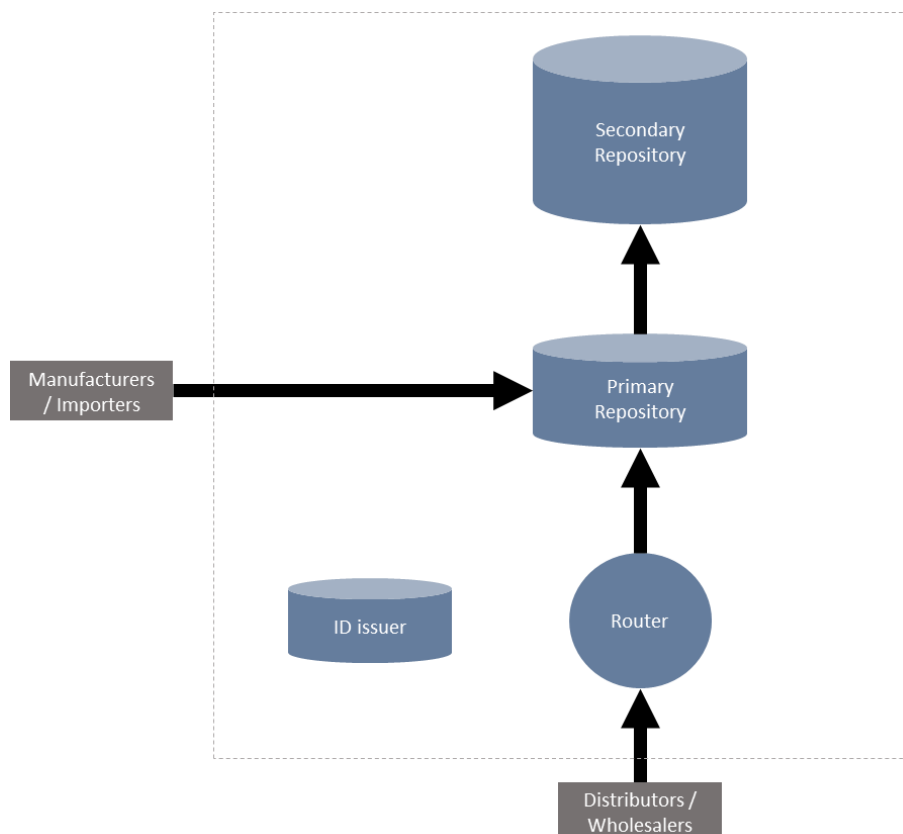
Figure 6 Transaction general data flow

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 instantaneously forward the data to the Secondary repository.

3.3.5 Recalls

Recalls are to be delivered in the following flow. 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 facilitate it, it is the point of entry of the system that must generate the recall code.

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 does 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 method the entry system must use to send the generated recall id is via the "code" property in the json payload.
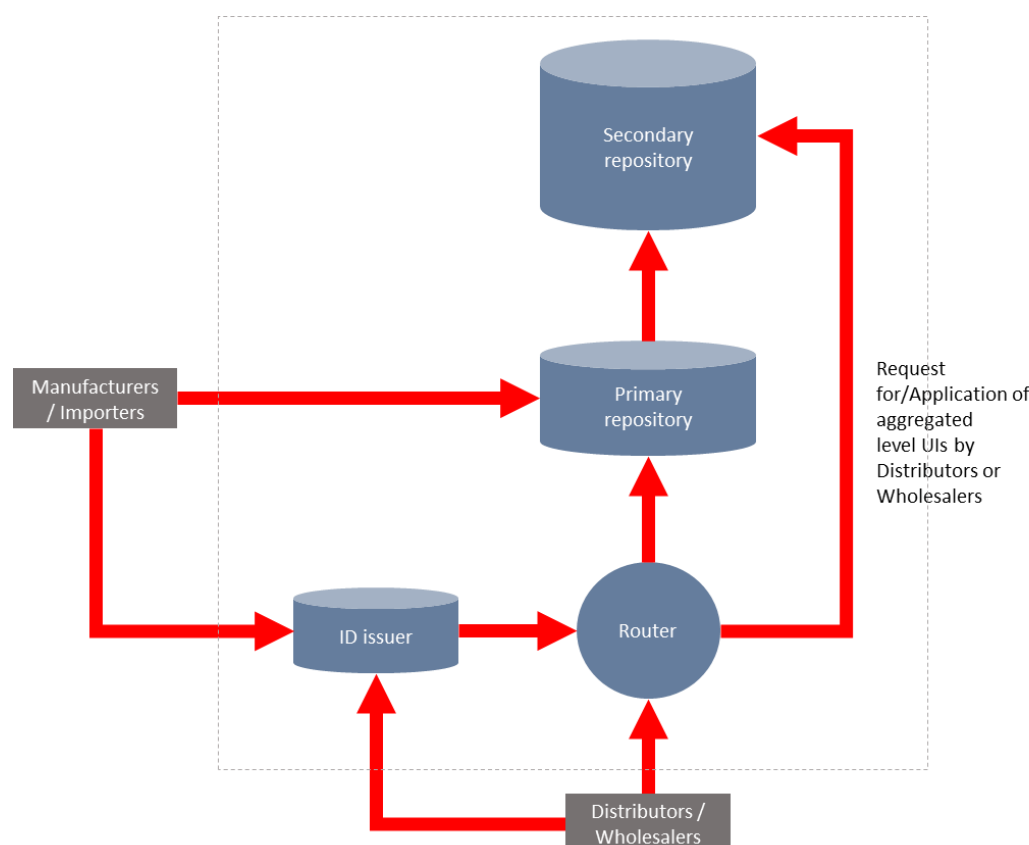
Figure 7 Recalls general data flow

3.4 System Architecture
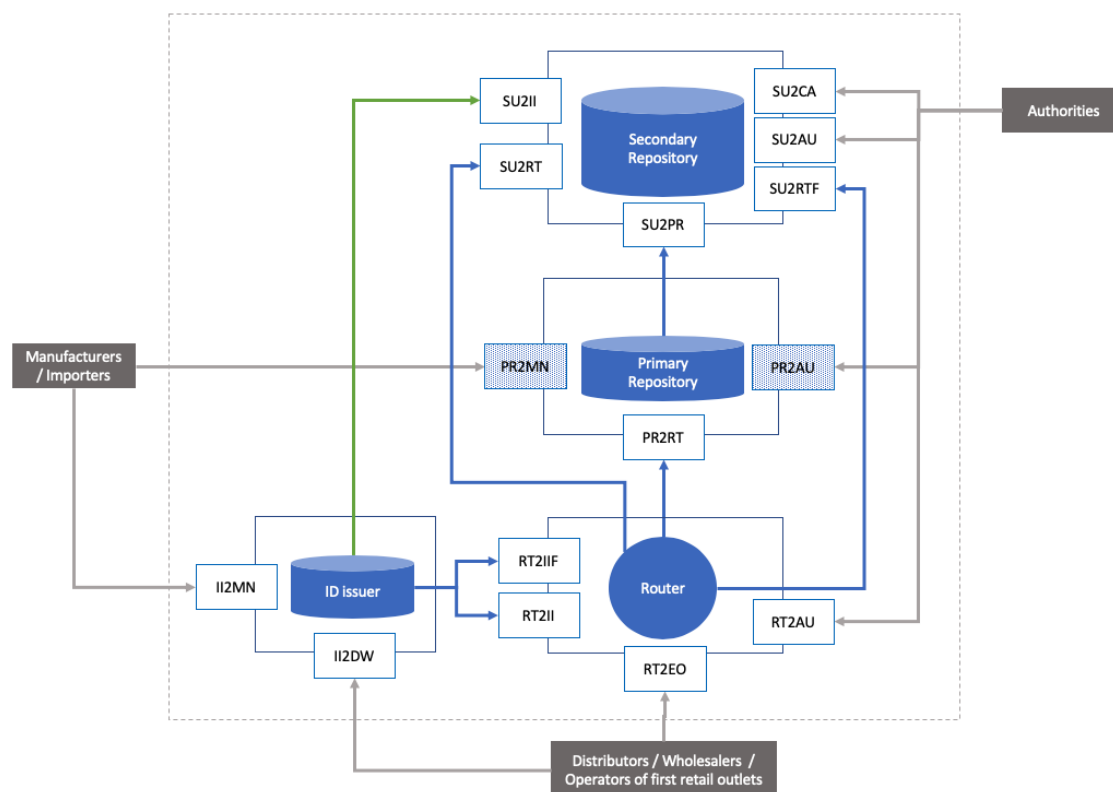
Figure 8 System Interfaces and Connections

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

System	Description
Primary repository	Primary repository is a repository storing traceability data relating exclusively to the products of a given Manufacturer or Importer.
Secondary repository	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 describes in details 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 Issuing 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 shall request Economic operator Identifier codes to the competent ID Issuers. The ID Issuers shall transmit the Identifier codes to the requesting Economic operators within two working days.

4.1.1.2 Data Flow Diagram – Issuing of an Economic operator Identifier code
The diagram below depicts the data flows related to the process whereby 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	Economic operators (Manufacturers, Importers,		ID issuer	

	Identifier code	Distributors, Wholesalers, Transport Companies, Providers of courier services), Operators of first retail outlets			
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 related to the process whereby 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

4.1.2 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.

4.1.2.2 Data Flow Diagram – Correction of Information concerning an Economic operator

The diagram below depicts the data flows related to the process whereby 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 related to the process whereby 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 shall 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 related to the process whereby 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			

4.1.3.3 Messages – De-registration of Economic operator Identifier code

The table below summarizes the messages and interfaces related to the process whereby the 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 shall 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 shall request Facility Identifier codes to the competent ID Issuer. The ID issuers shall transmit the Identifier codes to the requesting 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.
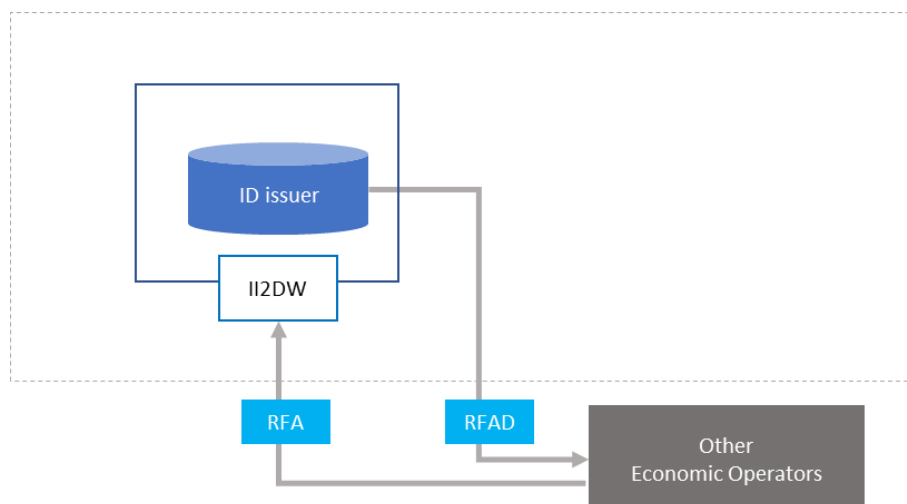
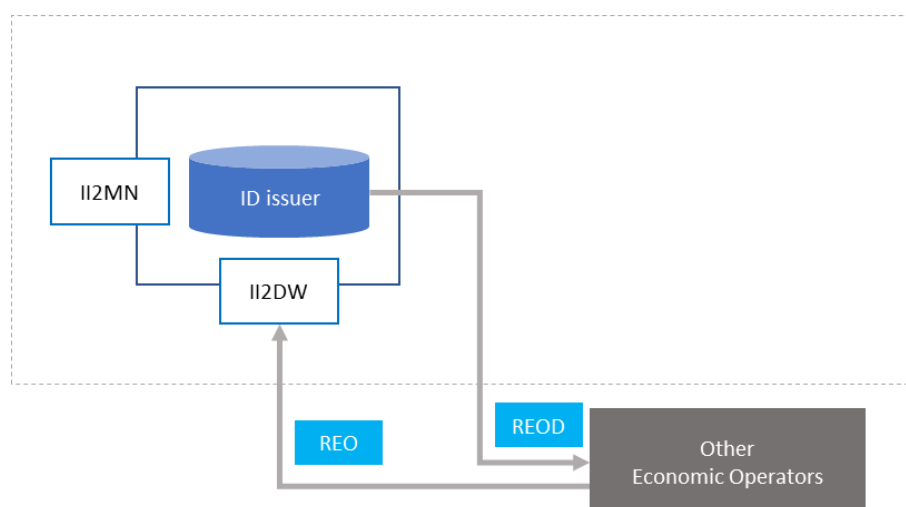*Figure 12 Issuing of a Facility Identifier code*

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	ID issuer		Economic operators	

Facility Identifier code			(Manufacturers, Importers, Distributors, Wholesalers, Transport Companies, Providers of courier services) Operators of first retail outlets	

4.1.4.3 Messages – Issuing of a Facility Identifier code

The table below summarizes the messages and interfaces related to the process whereby 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 related to the process whereby an Economic operator or operator of first retail outlets requests the correction of information submitted in the initial application form for Facility Identifier codes.
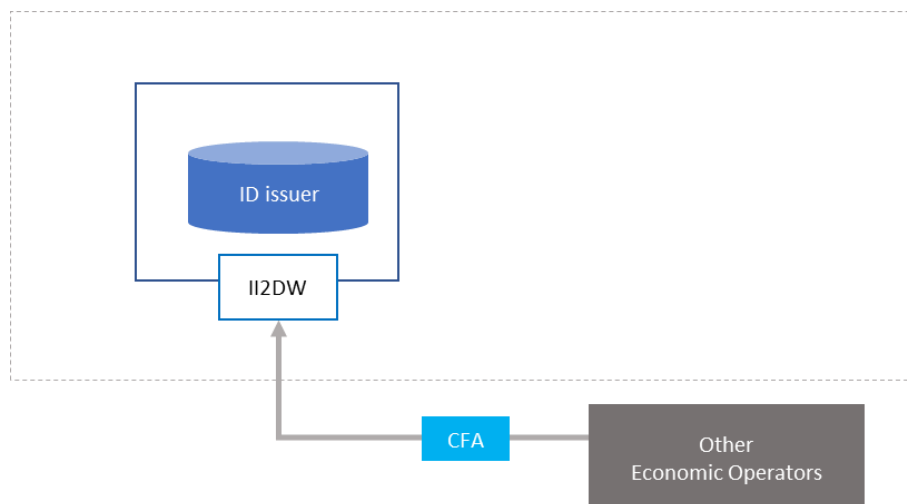
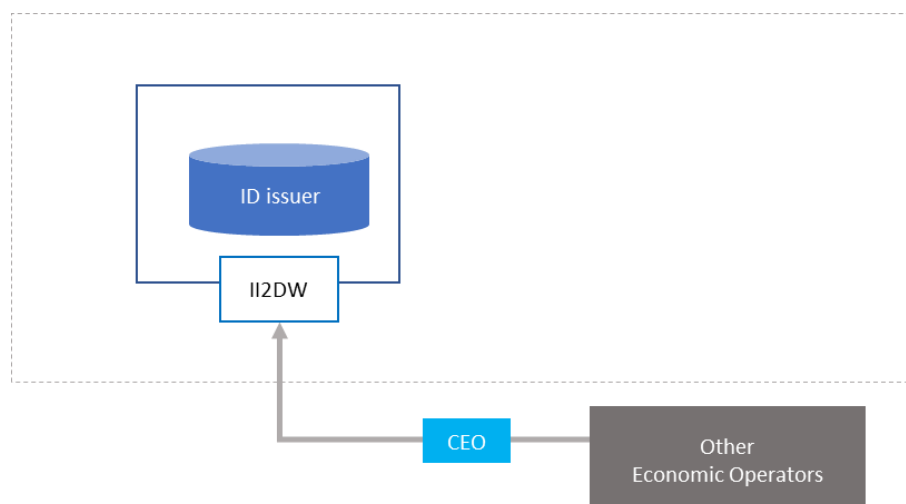*Figure 13 Correction of Information concerning a Facility*

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 related to the process whereby 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 shall 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 related to the process whereby the ID issuer de-registers a Facility.
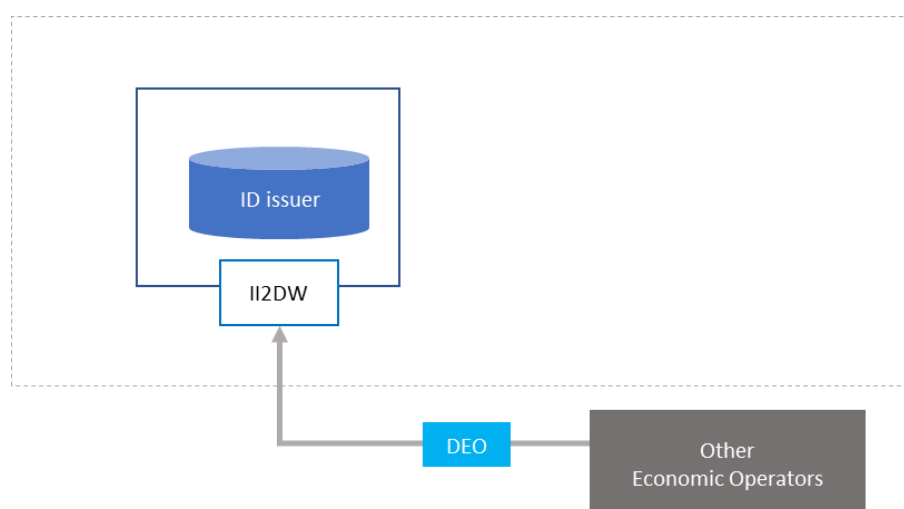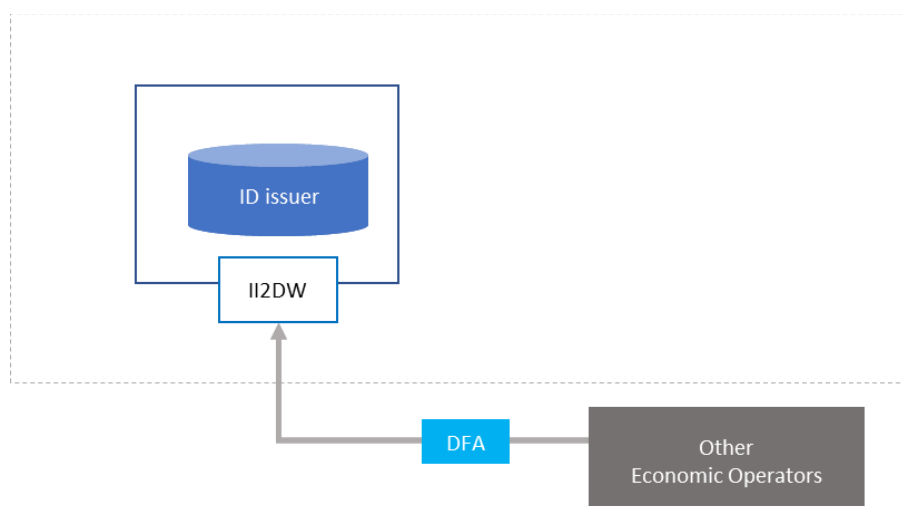

Figure 14 Data Flow Diagram – De-registration of a Facility

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

				ID issuer	
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	

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, such as SSCC in accordance with ISO15459-1. The following section describes the process whereby the 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 Distributors and Wholesalers

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

Each Aggregated packaging of tobacco product shall be marked with an aggregated level Unique identifier (aUI). Distributors and Wholesalers shall 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 shall, 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".

4.2.1.1.2 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.
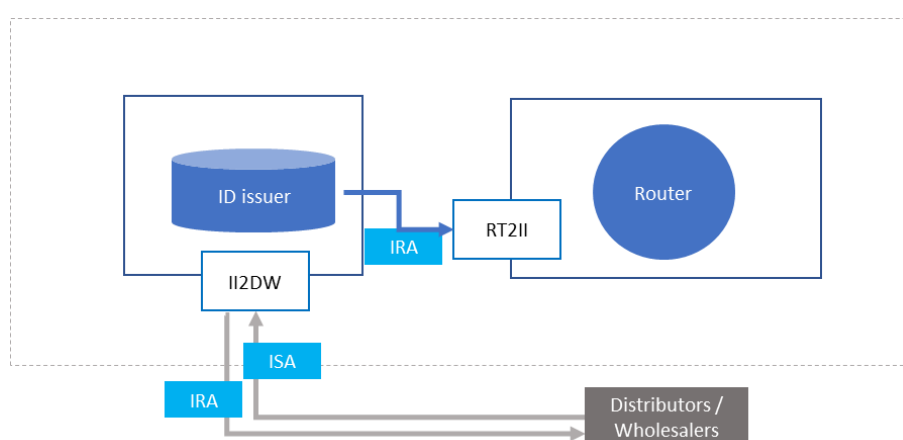
Figure 15 Data Flow Diagram – Issuing of aggregated level Unique identifiers (aUIs) for Aggregated packaging – Request from Distributors and Wholesalers

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	ID issuer		Economic operators: Distributors	

	validated by the Router			, Wholesalers	

4.2.1.1.3 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 shall 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).
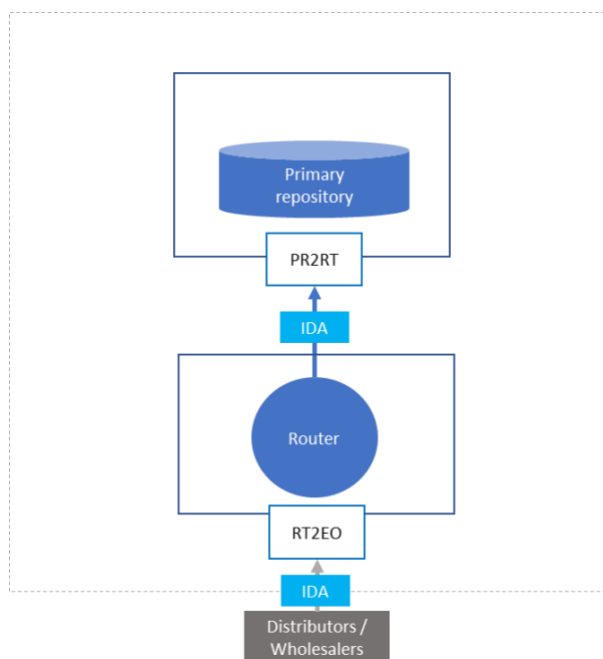
Figure 16 Data Flow Diagram – Deactivation of unit level Unique identifiers (upUIs) – Request from Distributors and Wholesalers

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

4.2.3 Deactivation of aggregated level Unique identifiers (aUIs)

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

4.2.3.1.1 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 shall 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.

4.2.3.1.2 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).
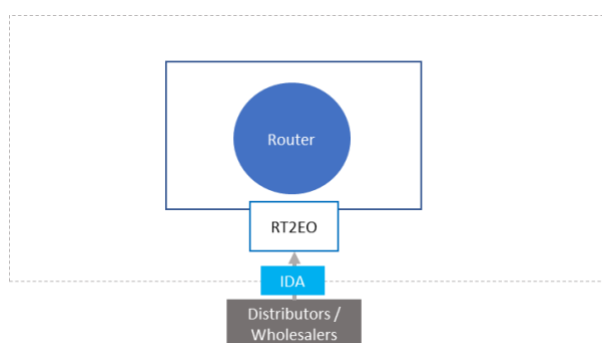
Figure 17 Data Flow Diagram – Deactivation of aggregated level Unique identifiers (aUIs) – Request from Distributors and Wholesalers

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

		From	**To**

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

4.2.3.1.3   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 be performed on the Primary repository or the Distributors and Wholesalers. The deactivation messages will be sent to the Secondary repository or the Router.

4.3 Reporting operational events (product movement information)

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

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

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

4.3.2.1.1   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 shall 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 shall deactivate the corresponding aggregated level UIs. When the Data Carriers are readable, Distributors and Wholesalers shall validate them and report the aggregated level UIs to the Secondary repository via the Router, as described below. The report shall contain the list of all Unique identifiers (UIs) that are subject to aggregation, both at Unit packet and Aggregated packaging levels.

4.3.2.1.2 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.
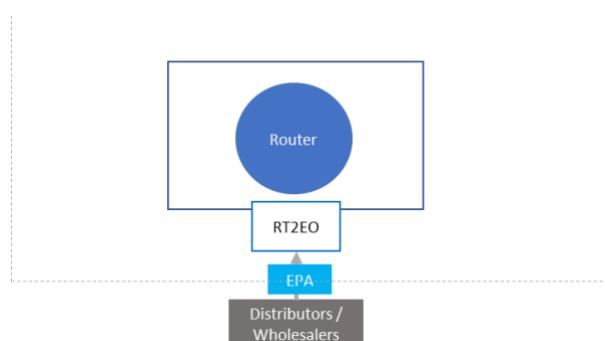
Figure 18 Data Flow Diagram – Application of aggregated level UIs on Aggregated packaging by Distributors and Wholesalers

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

4.3.2.1.3 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

4.3.3 Dispatch of tobacco products from a Facility

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

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

Distributors and Wholesalers shall 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 shall be transferred instantaneously from the Primary repository to the Secondary repository.

4.3.3.1.2 Data Flow Diagram – Dispatch of tobacco products from a Facility – Report from 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.
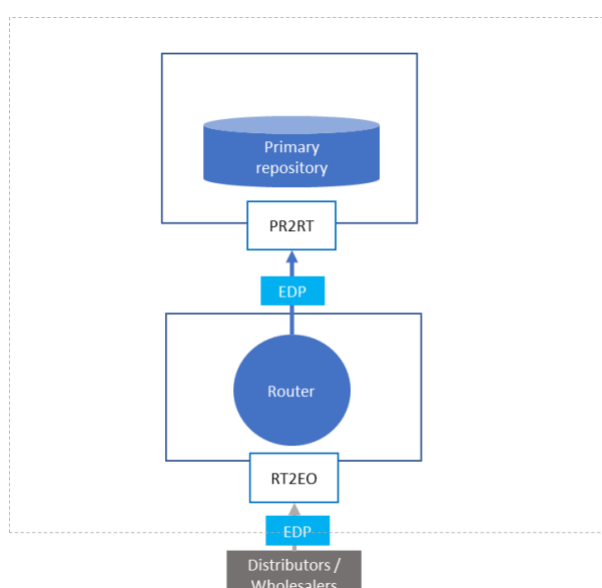
Figure 19 Data Flow Diagram – Dispatch of tobacco products from a Facility – Report from Distributors and Wholesalers

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

4.3.3.1.3 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

4.3.4 Arrival of tobacco products at a Facility

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

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

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

4.3.4.1.2 Data Flow Diagram – Arrival of tobacco products at a Facility – Report from 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 20 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		Router		Primary repository

	by the Router				

4.3.4.1.3 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

4.3.5 Trans-loading

4.3.5.1 Trans-loading – Report from Distributors and Wholesalers

4.3.5.1.1 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 shall 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 shall be transferred instantaneously from the Primary repository to the Secondary repository.

4.3.5.1.2 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 21 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

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

The table below summarizes the messages and interfaces related to the process whereby 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

4.3.6 Disaggregation of aggregated level Unique identifier (UI)

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

4.3.6.1.1   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 shall report the disaggregation of aggregated level UIs to the Secondary repository via the Router.

4.3.6.1.2   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 22 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	Economic operators: Distributors			Router

Process	Message code	Interface
aggregated level UIs	, Wholesalers				

4.3.6.1.3   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

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

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

4.3.7.1.1   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 shall report these events to the corresponding Primary repository via the Router. A copy of those data shall be transferred instantaneously from the Primary repository to the Secondary repository.

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

The diagram below depicts the data flow interaction related to the process whereby Distributors and Wholesalers report to the corresponding Primary repository via the Router the trans-loading of tobacco products.
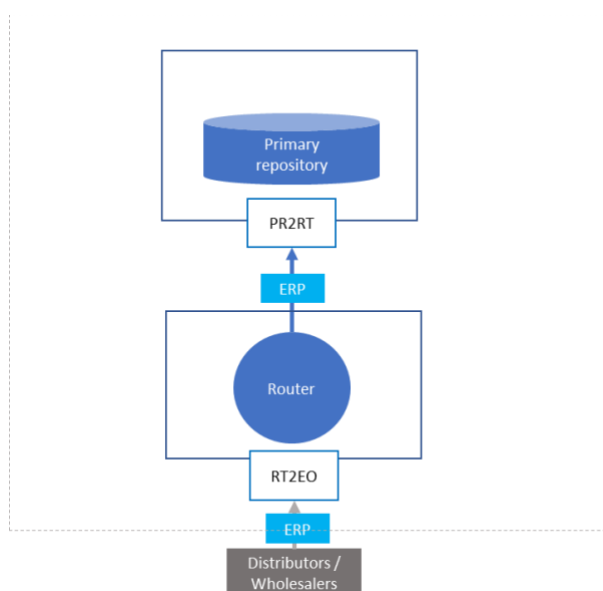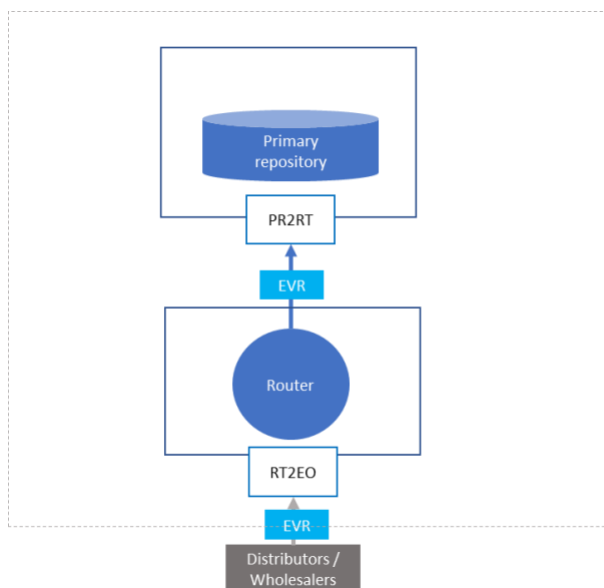
*Figure 23 Data Flow Diagram – Delivery carried out with a vending van to multiple retail outlets –
Report from Distributors and Wholesalers*

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

4.3.7.1.3   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 shall report the issuing of invoice to the corresponding Primary repository via the Router. A copy of those data shall 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.
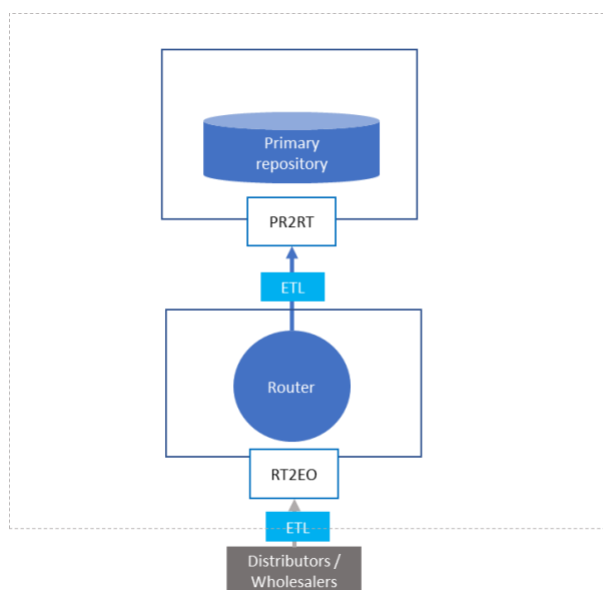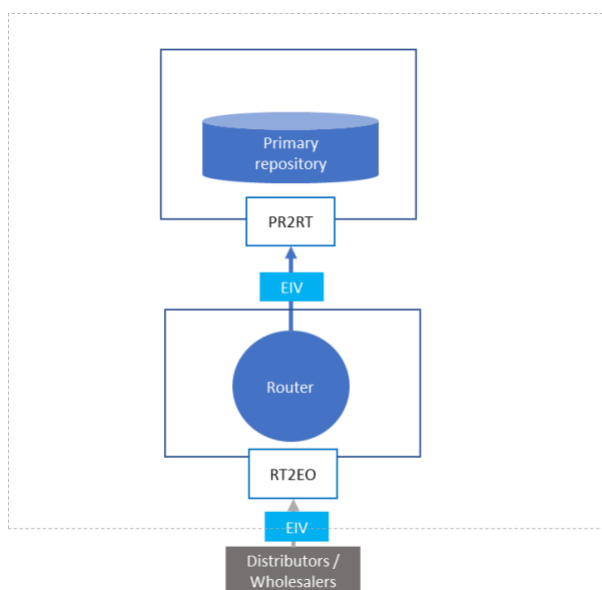
Figure 24 Data Flow Diagram – Issuing of invoice – Report from Distributors and Wholesalers

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 shall report the issuing of order number to the corresponding Primary repository via the Router. A copy of those data shall 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.
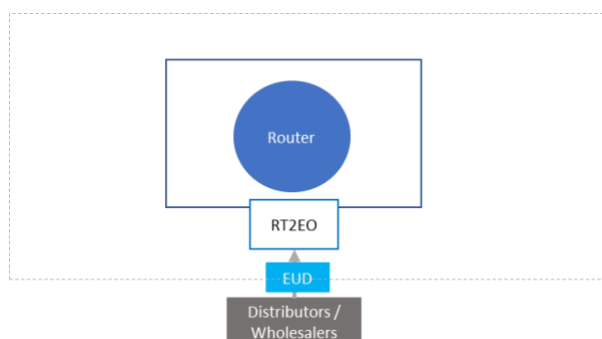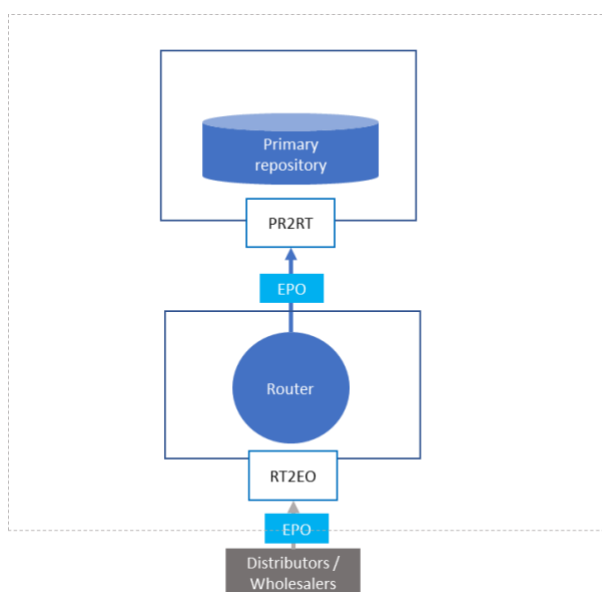

Figure 25 Data Flow Diagram – Issuing of order number – Report from Distributors and Wholesalers

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			Router

		, Wholesalers			
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 shall report the receipt of payment to the corresponding Primary repository via the Router. A copy of those data shall 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.
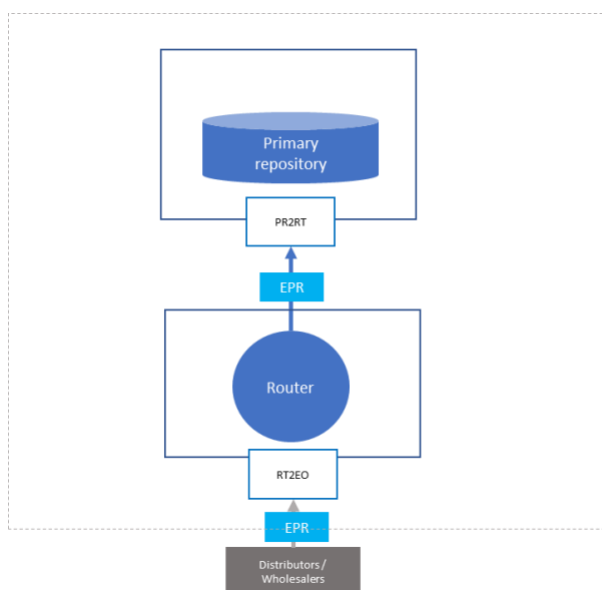
Figure 26 Data Flow Diagram – Receipt of payment – Report from Distributors and Wholesaler

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

4.5.1.1 Recalls of requests for aggregated level Unique identifiers (aUIs) – Recalls from Distributors and Wholesalers

4.5.1.1.1   Description – Recalls of requests for aggregated level Unique identifiers (aUIs) – Recalls from Distributors and Wholesalers

In order to recall a request concerning the issuing of aggregated level Unique identifiers (aUIs), Distributors and Wholesalers shall send a recall message to the ID issuer, within one working day. The ID issuer shall report the recall to the Secondary repository via the Router.

Note: Those recall messages differ from the requests for deactivation of which are messages that can't be cancelled. Recall messages also differ from the process of deactivation of Economic operators, Facility and Machines Identifier codes.

4.5.1.1.2 Data Flow Diagram – Recalls of requests for aggregated level Unique identifiers (aUIs) – Recalls from Distributors and Wholesalers

The diagram below depicts the data flow interaction related to the process whereby Distributors and Wholesalers recall a request of aggregated level Unique identifiers (aUIs) with an ID issuer.
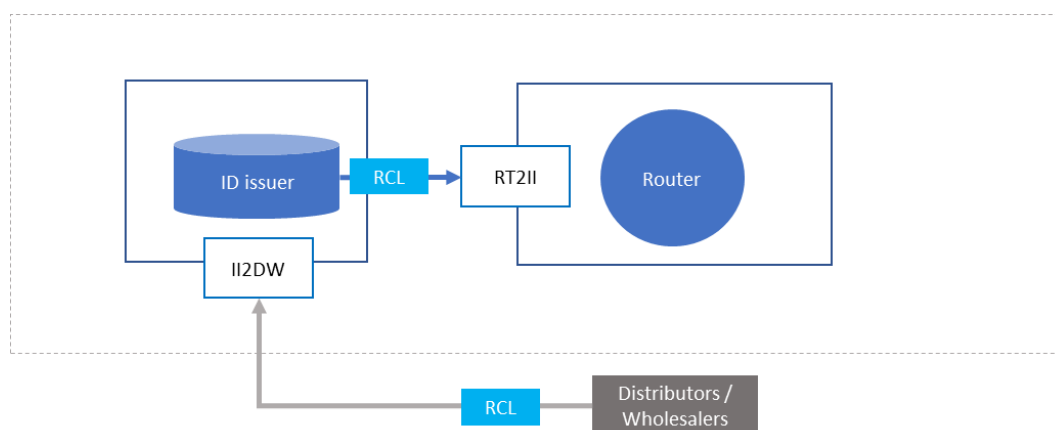
Figure 27 Data Flow Diagram – Recalls of requests for aggregated level Unique identifiers (aUIs) – Recalls from Distributors and Wholesalers

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 a request for aggregated level UIs	Economic operators: Distributors, Wholesalers			ID issuer
RCL (5)	Reporting of a request for aggregated level UIs	ID issuer			Router

4.5.1.1.3 Messages – Recalls of requests for aggregated level Unique identifiers (aUIs) – Recalls from Distributors and Wholesalers

The table below summarizes the messages and interfaces related to the process whereby Distributors and Wholesalers recall a request for aggregated level Unique identifiers (aUIs) to an ID issuer.

Process	Message code	Interface
Recalls of requests for aggregated level Unique identifiers (UIs) – Recalls	RCL (5)	II2DW
	RCL (5)	RT2II

from Distributors and Wholesalers		

4.5.2 Recalls of operational and transactional messages

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

4.5.2.1.1   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 shall send a recall message to the Router, including the Message Recall Code previously transmitted by the Router. The Router shall report the recall to the corresponding Primary repository. A copy of those data shall 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.

4.5.2.1.2   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.
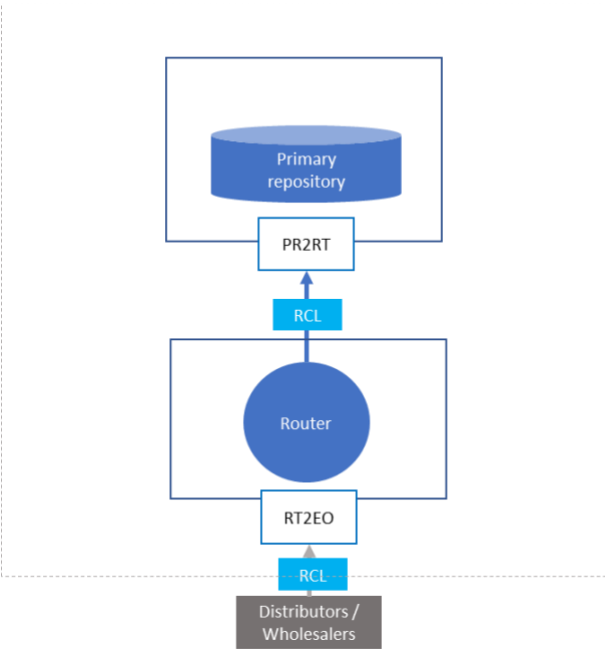
Figure 28 Data Flow Diagram – Recalls of operational and transactional messages – Recalls from Distributors and Wholesalers

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 by the Router		Router		Primary repository

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

The table below summarizes the messages and interfaces related to the process whereby 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

5 Interfaces

5.1 Overview

The interfaces of the Traceability System are as follows:
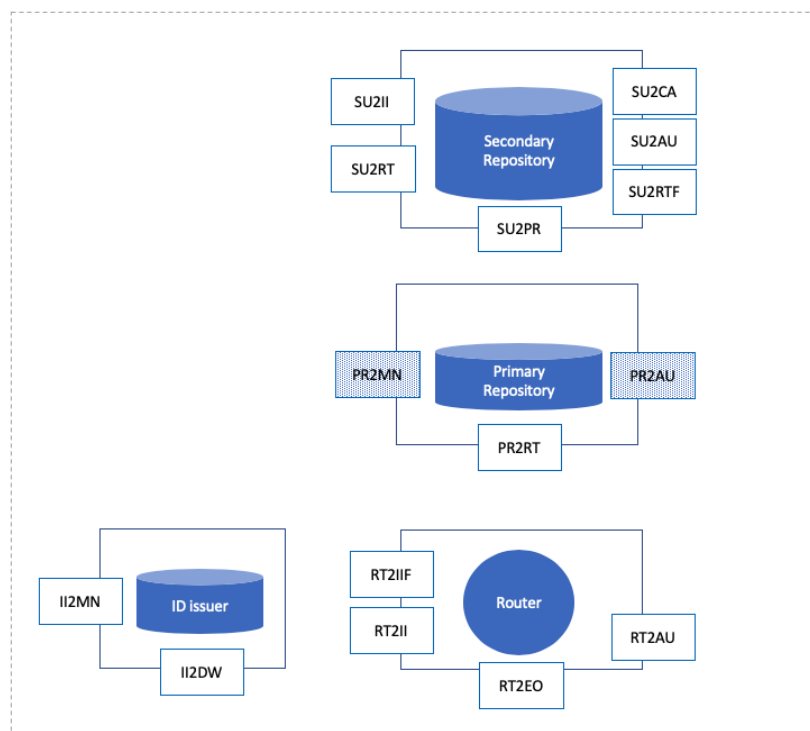
Figure 29 System interfaces and endpoints

5.2 Secondary repository and Router interface

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 TSL 1.2 encryption AES256 cypher. Cypher suites that are less secure are not supported. If the TLS version or cypher used proves to be corroded or vulnerable, Dentsu Aegis reserves the right to replace the affected item with a state-of-the-art item after prior announcement.

The repository system uses OAuth 2.0 to authorize access to the web service methods. OAuth 2.0 is the industry-standard protocol for authorization. OAuth 2.0 supersedes the work done on the original OAuth protocol created in 2006. OAuth 2.0 focuses on client developer simplicity while providing specific authorization flows for web applications, desktop applications and server to server communication.

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

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

5.2.5 Version and 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 Message identification and RecallCode

5.2.6.1 Overview

The traceability system and more precisely the entry point systems (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.

5.2.6.2 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.

5.2.6.3 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

5.2.6.4 RecallCode structure

UUID version 5

5.2.6.5 Messages

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

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

5.2.6.6 Recall Process

The recall must include the message recall code provided to the message sender in the acknowledgement of the original message to be recalled and 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.

5.2.6.7 RecallCode Field

Technically the recall code is gained 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 recall id.

5.2.7 Message response

5.2.7.1 Successful response sample

HTTP Status 202

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

5.2.7.2 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"
}
```

5.2.8 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.

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 Identifier validation
- section Identification Code validation
- section Message Event Time 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.

5.2.8.1 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

5.2.8.2 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"
        }
        ]
    }
}
```

5.2.9 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 shall not be accepted.

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

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

Message Header

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

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

5.2.10 Message size

5.2.10.1 Message size

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

5.2.10.2 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

5.2.11 Number of simultaneous connections

No limit defined on simultaneous connections for the Router and the Secondary Repository.

5.2.12 Message Sequence

Message sequence must be respected as per regulation.

5.2.13 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.

5.2.14 Message Retransmission limitation

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

5.2.15 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

5.2.16 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.

5.2.16.1   New Message validation
Upon reception of a message, the first entry point (the EU Router or the Primary Repository) validates the messages and assign a unique RecallCode.

If the message passes the validation and is accepted (returning a success 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.

5.2.16.2   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
EPO	(4.2)	Purchase order	EDI: Order
EPR	(4.3)	Payment record	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.

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)

Clarification on the use of data qualifiers as part of the UI, taking into account Implementing Regulation 2018/574 and the applicable international ISO norms. To facilitate this explanation, please see attached a 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 / applying the 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) Pursuant to 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 competent ID issuer:
- ID issuer identification code (subject to ISO 15459-2 and 3);
- Serial number;
- Product code.

2)   Pursuant to Articles 8(1)(d) and 21(4) of Implementing Regulation 2018/574, manufacturers and importers shall 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 correspond to YYMMDDhh. Regardless of its format, the time stamp remains a part of the UI in the sense of Article 8 of Implementing
Regulation.

3)   Article 3(4) of Implementing Regulation 2018/574 requires that the ID issuer identification code should be assigned in line with 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. Accordingly, the ID issuer identification code always must be preceded by a data qualifier, which shall consist of digits and upper cases only. That data qualifier shall be applied, as part of the encoding process, by the economic operator in accordance with the applicable coding structure published by the ID issuer in cooperation 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 permitted types of data carriers. The use of these optional data qualifiers should be in line with the applicable coding structure published by the ID issuer in cooperation 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 in accordance with Article 21(1) of 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. The application of such 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 1.1 above apply by analogy.

6.1.2.2 Self-generated aggregated UIs

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

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

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

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

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Unique Identifier	Symbology Identifier	Data Qualifier	GTIN	Data Qualifier	Serial Number	Character required by GS1 after variable	Data Qualifier for optional attribute	Additional product identification assigned

						length fields	added by the manufacturer	by the manufacturer
Position within the unique identifier	**Fixed**	**Fixed**	**Fixed**	**Fixed**	**Fixed**	Per rules within GS1 General Specifications V19 or latest equivalent		
Applicable international standards:	ISO/IEC 16022:2006, 18004:2015, or 15417:2007	ISO 15459-2:2015, ISO 15459-3:2014, ISO/IEC 15459-4: 2014 Section 4.1.2 (normative), ISO/IEC 15459-6:2014 Section 5 (normative) and Annex B (informative), and the GS1 General Specifications V.19 (or latest equivalents)						
Values	]d2	01	01234567891231	21	456FGRD66	FNC1 or <GS>	240	ED1234
Process	☐ Applied by EO ☐							
Transmission to repositories systems	No	No	Yes	No	Yes	No	No	No
aUI			01234567891231		456FGRD66			

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

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

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

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

6.2 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.

6.2.1 Algorithm

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

6.2.2 Decoding Activities

6.2.2.1 Off line validation

Specific offline validation could be performed on the UI.

6.2.2.2 Routing

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

7 Router

7.1 Overview

The Router is responsible for:

- Validating data that is sent from the ID Issuer and the Economic operators.
- Sending data that it is sent from the Economic operators as web call 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.
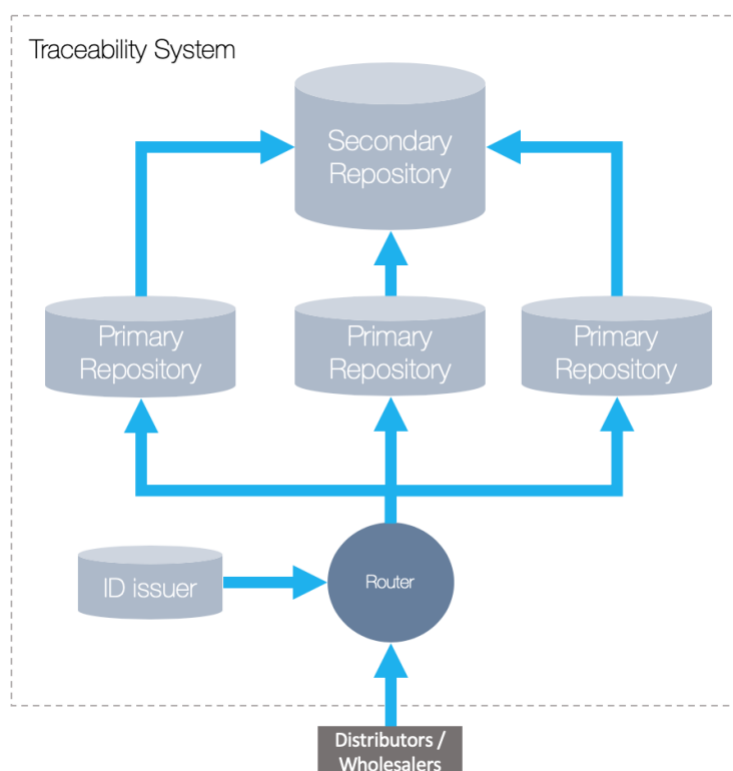
Figure 30 Router Data Flow

7.2 Routing rules

The Router dispatches the 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 Message shall 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 as-is to the relevant Primary repository.

Case 2: When UIs are related to various Manufacturers or Importers, the message will be split by Manufacturer and/or Importer together with the related UIs and resulting messages forwarded to the relevant Primary repository.

7.2.2 Routing of Transactional data

Transactional Information associated to products from various Manufacturer or Importer should be fully 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.

![dentsu TRACKING]
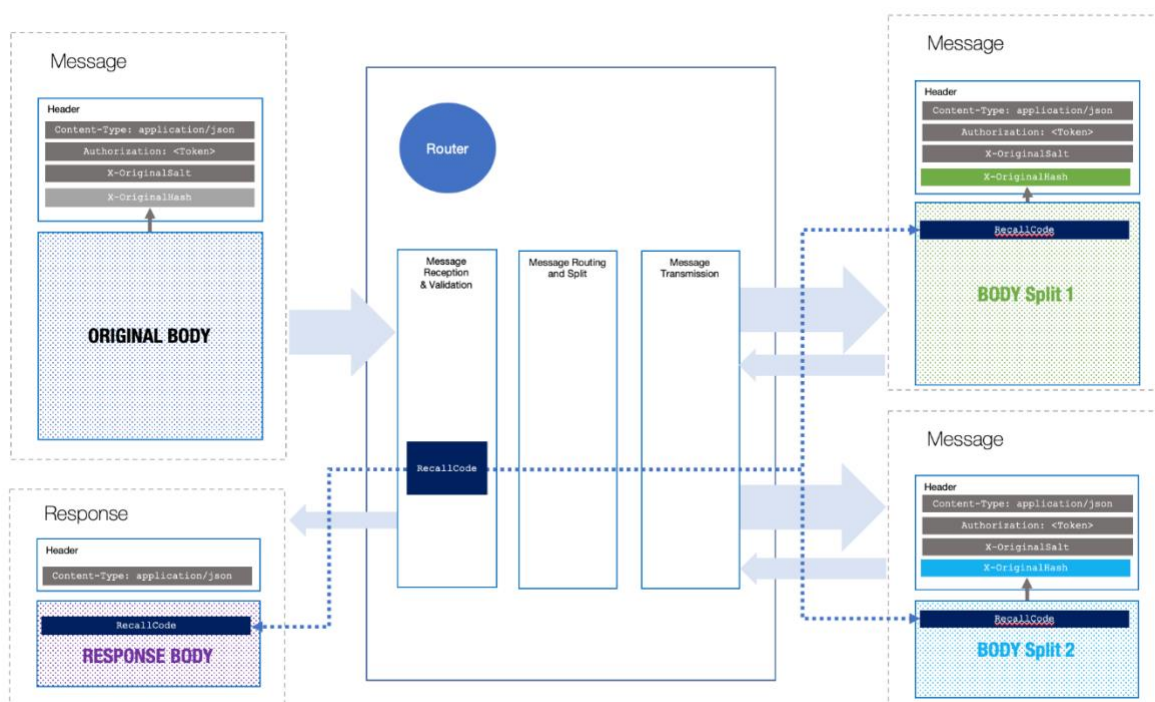
8 Message Validation

8.1 Overview

Validation is the process to accept or reject an incoming message.

8.1.1 Principle: No duplication of validation

The complete traceability system should be considered as one system and the validation is performed at the first component of the system.

- Messages processed by the Router and transmitted to the Primary repository, should not be validated at the Primary repository level.
- Messages processed by the Primary repository and transmitted to the Secondary repository, should not be validated at the Secondary repository level.
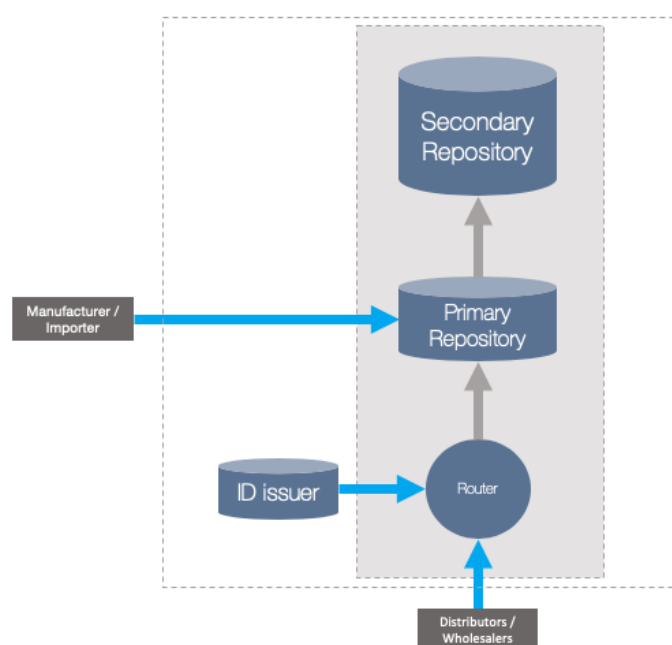
Figure 31 Validation Overview

8.1.2 Technical and business validation

The validation process is composed by a technical aspect and business validation. The technical validation ensures that the message follows the general format and messages structure including field availability and predefined values. This validation is performed on all components.
The business validation is performed after the technical validation and focuses on the state of business data.

8.2 Type of validation

8.2.1 Security validation

The security validation is the first part of the technical validation ensuring that connecting systems are authenticated and authorized to transmit data to the traceability system.

Control	Description	Scope
VAL_SEC_HASH	Integrity check of the checksum	All messages
VAL_SEC_TOKEN	Oauth Security Token validation	All messages

8.2.2 Message Structure validation

The technical validation ensures that the messages are following the technical guidelines and allows the system to successfully access the message data accurately.

Control	Description	Scope
VAL_MSG_JSON	JSON structure validation	All JSON messages
VAL_MSG_XML	XML structure validation	All EPCS EDI messages
VAL_MSG_TYPE	Message type validation	All messages
VAL_FIE_MAN	Mandatory Field validation (per message type)	All messages
VAL_FIE_FORMAT	Field format validation	All messages
VAL_FIE_REF	Existence of correctly reference enumerations. (As defined in data dictionary)	All messages

8.2.3 Message Transmission validation

The transmission controls are established in order to prevent technical duplication and processing of messages.

Control	Description	Scope
VAL_MSG_DUPLICATE	Message payload already processed successfully by the Router or Primary should be rejected.	*IRU - IDA – EUA – EPA – EDP – ERP- ETL- EUD- EVR – EIV – EPO – EPR*
VAL_MSG_CODE_DUPLICATE	Message identified by a Recallcode that has already been processed successfully should be rejected.	All messages

8.2.4 Unique Identifiers validation

The following validations are performed on each UI that is present in a message.

8.2.4.1 Message level validation

The UI present in a message should be present only once. If the UI is present multiple times, the message will be rejected as non-compliant.

Control	Description	Scope

VAL_UI_MULT_MSG	Multiple duplicate UI present in the messages. For EPA (message 3.2), the validation on the parent UI should also be performed in order to avoid first level cyclical reference.	*IRU - IDA – EUA – EPA – EDP – ERP- ETL- EUD-EVR – EIV – EPO - EPR*

8.2.4.2 Application Validation
Validation that he upUI(s) is only applied once to a upUI(L)

Control	Description	Scope
VAL_UI_EXIST_APP	UI validity Exists without Timestamp in the repository. (has never been applied). This validation fails if the upUIs is not found and has not been reported.	*EUA*
VAL_UI_DUPLICATE_APP	UI validity Check if the upUIs has already been applied to a upUI(L)	*EUA*
VAL_UI_FID_APP	Validation of the FID defined in the IRU message (2.1).	*EUA*

8.2.4.3 Existence
The following control ensures that the UI (upUI and aUI) comply with the regulation and could participate in product movement or transaction event reporting.

Control	Description	Scope
VAL_UI_EXIST_TIME	UI validity upUI exists and Active (the UI has not been part of any deactivation message) in the repository.	*IDA – EUA – EPA (Children) – EDP – ERP- ETL-EUD- EVR – EIV – EPO*
VAL_UI_EXIST_AUI	aUI validity aUI has been aggregated (part of an EPA) and has not been disaggregated nor deactivated.	*IDA – EUA – EPA (Children) – EDP – ERP- ETL-EUD- EVR – EIV – EPO*

8.2.4.4 upUI Expiration

As per the regulation, the upUI(s) that are issued by the ID Issuer and reported in the IRU messages have a limited application period.

Control	Description	Scope
VAL_UI_EXPIRY	Validation that the application or the aggregation date doesn't exceed the 6 months period after the code has been issued.	*EUA*

8.2.5 UI level Message sequence validation

8.2.5.1 Application and deactivation sequence validation

Control	Description	Scope
VAL_UI_ORD_REACTIVATION	upUI(s) that has been deactivated should not allow any application event (EUA).	*EUA*
VAL_UI_ORD_DEACTIVATED	UI – presence of UI in a message after being deactivated.	*EPA – EDP – ERP- ETL- EUD- EVR – EIV – EPO – EPR - IDA*

8.2.5.2 Aggregation and Disaggregation Validation

Principle 1: All aggregation events are full aggregation. Once the aUI is aggregated, a subsequent aggregation event on the same parent aUI should be rejected.

Principle 2: All disaggregation events are full disaggregation. Once the aUI is disaggregated, no movement should be reported on that aUI (until the next disaggregation and aggregation event are reported.).

Principle 3: Implicit disaggregation. Disaggregation event reporting is mandatory only when the aUI is reused in a subsequent aggregation event (as a parent aUI). The implicit disaggregation is detected when at least one child UI is is reported in an aggregation or product movement. The parent aUI of this child UI will be considered as disaggregated. In the case that the child UI is part of an aggregation hierarchy, all parent aUIs will be disaggregated.
As a consequence, once the implicit disaggregation is detected, no movement should be reported on that parent aUI (until the next aggregation event is reported).

Principle 4: All disaggregation must be performed at a location. No Disaggregation are allowed during the transport.

Control	Description	Scope
VAL_UI_ORD_AGG_MULT	Validation that a parent UI has not been part of any prior aggregation event (as parent) without being part of a disaggregation event. This control prevents the reuse of an aUI without prior disaggregation.	*EPA*
VAL_UI_ORD_DISAGG	Validation that an aUI has been disaggregated cannot be part on any product movement prior of being aggregated.	*EDP - ERP – ETL - EVR*
VAL_UI_ORD_IMPLDISAGG	Validation that an aUI has been implicitly disaggregated cannot be part on any product movement prior of being aggregated.	*EDP – ERP – ETL - EVR*
VAL_UI_ORD_AGG_FID	Validation that the aggregation and the disaggregation events must happen at the same facility (FID) where the products have been either created or arrived.	*EPA - EUD– EDP – ERP – ETL – EUD- EVR*

8.2.5.3 Dispatch and arrival Validation

Principle 5: The reporting on the Arrival should be done on the same UI that have been reported during the Dispatch/Transloading process. This is a consequence of principle 4. This means that an Arrival Event that contains child UI of UI reported during the Dispatch/Transloading Event will be rejected. The same UI must be reported.

Control	Description	Scope
VAL_UI_ORD_ARRIVAL	Validation that a UI is part of a prior reported dispatch or transloading event (EDP 3.3, ETL 3.5) for the specified destination. This validation concerns the sequence of events. *Exception:* Imported products	*ERP, EDP, EVR*

	Exception: arrival of type return that were delivered (EDP, EVR) to a retail outlet.	
VAL_UI_ORD_DISPATCH	Validation that a UI last location (FID) matches the source location (FID) of the dispatch event. The UI must have been: - Applied or aggregated on that specific location (FID) - Arrived on that location.	*EDP*

8.2.6 Message Event Time Validation

The following messages validation compares the event time (Event Time) to the actual reception time of the event by the first point of entry.

Control	Description	Scope
VAL_EVT_24H	Validation that the Events are reported within 24 hours from the occurrence of the event. This validation is performed on the Event Time compared to the Record Time of the Primary repository or the Router. NOTE: this validation will be reduced to 3 hours after 20 May 2028 **This validation should not be blocking but rather generating a warning to the sender system**	*EUA – EPA – EVR – EIV – EPO – EPR*
VAL_EVT_TIME	"Within 24 hours prior to the occurrence of the event" rule for dispatch and trans-loading event messages is a strict rule and the system shall reject non-compliant messages. Control is based on the "actual date – Event Time" time difference	*EDP – ETL*

VAL_EVT_RECALL	For requests of unit level or aggregated level UIs (ISU, IRU, ISA, IRA), recalls can be performed up to one working day after the original message.	*RCL*

8.2.7 Identification Code validation

Identification codes are used in a number of messages. The validation of the existence and fact that the identification code is active is part of the business validation as described in the table below.

Control	Description	Scope
VAL_ENT_EXIST_EOID	Check if the EOID exists in the EU wide registry	*ISU – ISA – IRU – IRA – IDA – EUA – EPA – EDP – ERP – ETL – EUD- EVR*
VAL_ENT_EXIST_FID	Check if FID, exists in the EU wide registry	*ISU – IRU – ISA – IRA – IRU – EUA – EPA*
VAL_ENT_EXIST_MID	Check if MID, exists in the EU wide registry	*ISU – ISA - IRU – IRA*
VAL_ENT_ACTIVE_EOID	Check if EOID is marked as active in the repository	*IRU – IRA – IDA – EUA – EPA – EDP – ERP – ETL – EUD- EVR*
VAL_ENT_ACTIVE_FID	Check if FID is marked as active in the repository	*ISU – ISA – IRU – IRA – EUA – EPA*
VAL_ENT_ACTIVE_MID	Check if MID is marked as active in the repository	*IRU – ISA - IRA – IRU*
VAL_ENT_REL_EOID_FID	Check if EOID FID relation is defined in the EU wide registry	*IRU - IRA*
VAL_ENT_REL_ FID_MID	Check if FID MID relation is defined in the EU wide registry	*IRU - IRA*

8.2.8 Recall Validation

Control	Description	Scope
VAL_EVT_RECALL	Check if RecallCode exists	*RCL*

8.3 Validation Responsibility

	Primary repository	Router	Secondary repository
Technical validation			
VAL_SEC_HASH	X	X	X
VAL_SEC_TOKEN	X	X	X
VAL_MSG_JSON	X	X	X
VAL_MSG_XML	X	X	X
VAL_MSG_TYPE	X	X	X
VAL_FIE_MAN	X	X	X
VAL_FIE_FORMAT	X	X	X
VAL_FIE_REF	X	X	X
VAL_MSG_DUPLICATE	X	X	X
VAL_MSG_CODE_DUPLICATE	X		X
Business rule validation			
VAL_UI_MULT_MSG	X	X	
VAL_UI_EXIST_APP	X		
VAL_UI_DUPLICATE_APP	X		
VAL_UI_FID_APP	X		
VAL_UI_EXIST_TIME	X	X	
VAL_UI_EXIST_AUI	X	X	
VAL_UI_EXPIRY	X		
VAL_UI_ORD_REACTIVATION	X	X	
VAL_UI_ORD_DEACTIVATED	X	X	
VAL_UI_ORD_AGG_MULT	X	X	
VAL_UI_ORD_DISAGG	X	X	
VAL_UI_ORD_IMPLDISAGG	X	X	
VAL_UI_ORD_AGG_FID	X	X	
VAL_UI_ORD_ARRIVAL	X	X	
VAL_UI_ORD_DISPATCH	X	X	
VAL_EVT_24H	X	X	
VAL_EVT_TIME	X	X	
VAL_EVT_RECALL		X	
VAL_ENT_EXIST_EOID		X	
VAL_ENT_EXIST_FID		X	
VAL_ENT_EXIST_MID		X	
VAL_ENT_ACTIVE_EOID		X	
VAL_ENT_ACTIVE_FID		X	
VAL_ENT_ACTIVE_MID		X	
VAL_ENT_REL_EOID_FID		X	
VAL_ENT_REL_ FID_MID		X	

8.4 Transition Period Validation

It has been recognized that during the transition period (20 May 2019 – 19 May 2020), as provided for under Article 37(1) of Implementing Regulation (EU) 2018/574, a number of UI, which were generated before the 20th of May 2019 and therefore not-registered in the system, might be present in the supply chain and could be accidently scanned and included in product movement messages. In an effort to avoid full rejection of messages that may also contain valid UIs and non-valid legacy UIs, the following validation rule will be applied.

1.- The receiving system (Primary repository, Router) identifies valid and non-registered UIs as per "VAL_UI_EXIST_TIME" or "VAL_UI_EXIST_AUI" validation in the original message.
2.- In case non-valid legacy UIs are identified, the system (Primary repository, Router) ONLY processes the valid UIs.
3.- An error message is sent to the requesting system containing the list of non-valid legacy UIs. The error code indicates that message in question contains non-valid legacy UIs, which will not be processed by the system. Only valid UIs will be processed.
4.- The requesting system, by receiving the validation result with the list of non-valid legacy UIs, have the possibility to recall the message.

The following validation will not apply during the transition period
- VAL_UI_EXIST_AUI
- VAL_UI_EXIST_TIME

9 Sign up Process

9.1 Overview

The objective of the signup process is to connect 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 flow diagram below gives an overview of how these credentials are gained.

9.2 Overall flow
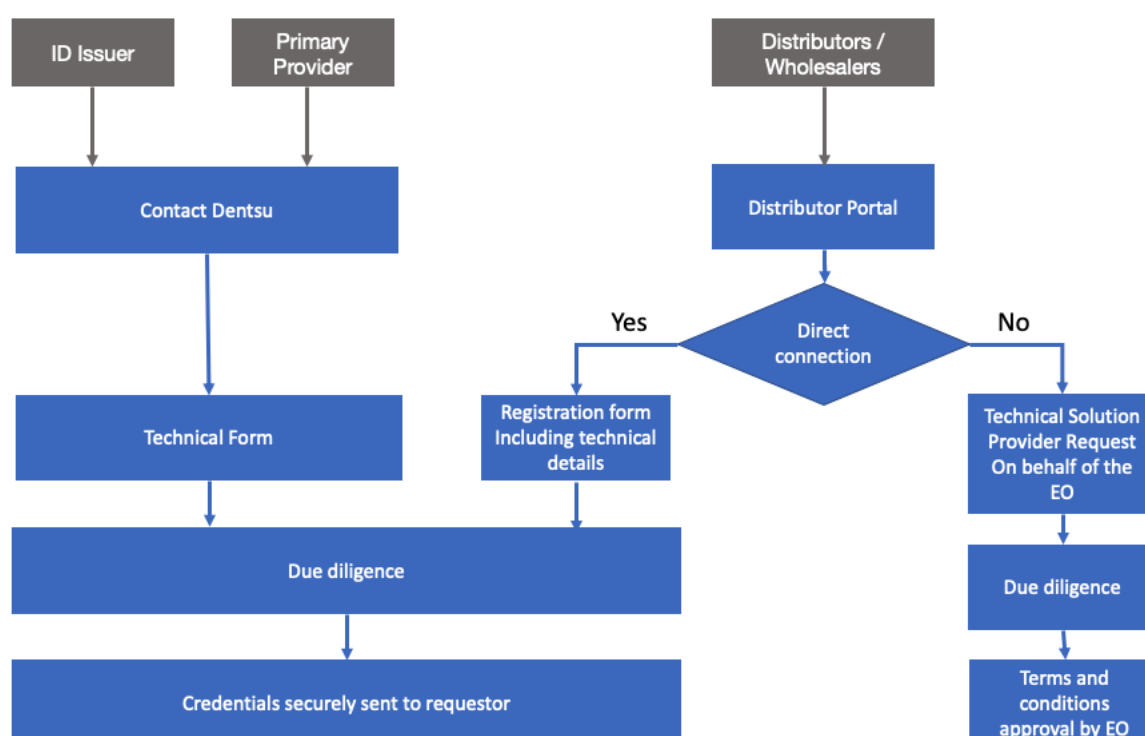
9.2.1 ID Issuer and Primary repositories providers

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

9.2.2 Technical Solution Provider

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

When connecting through the Technical Solution Provider the Distributors / Wholesalers will have to sign terms and conditions prior to be enabled.

9.2.3 Economic Operator Validation

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

10 Endpoints

< BASE_URL > : base url
< ENV > : environment name

		URL
Router		
Router	The authentication endpoint	https://< ENV >.auth.< BASE_URL >
Router	The resource endpoint	https://< ENV >.router.< BASE_URL >

11 List of standards

1	OAuth 2	https://www.oauth.com/oauth2-servers/access-tokens/client-credentials/
2	ISO/IEC 9834-8:2014 Information technology -- Procedures for the operation of object identifier registration authorities -- Part 8: Generation of universally Unique identifier (UI) (UUIDs) and their use in object identifiers	https://www.iso.org/standard/62795.html
3	The JavaScript Object Notation (JSON) Data Interchange Format Internet Engineering Task Force (IETF) Request for Comments: 8259	https://tools.ietf.org/html/rfc8259
4	GS1 EPC Information Services (EPCIS) standard	https://www.gs1.org/standards/fighting-illicit-trade

12 References

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