



Tracking

Supply Chain Efficiency & Integrity

Dentsu Aegis Network

LIST OF SPECIFICATIONS FOR ECONOMIC OPERATORS v1.1

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

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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 Distributors and Wholesalers the list of specifications required to allow the data exchanges with the Secondary repository.

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 – Decoding UI.** 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 system.

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.

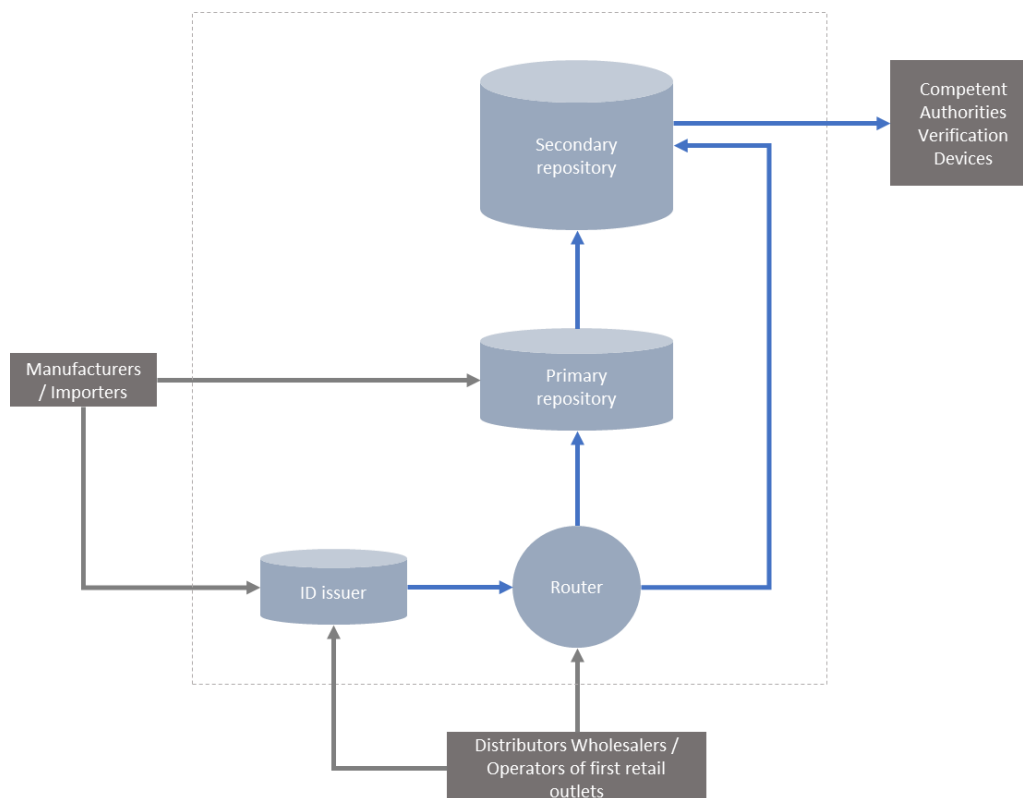


Figure 1 Overall system interconnection

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 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

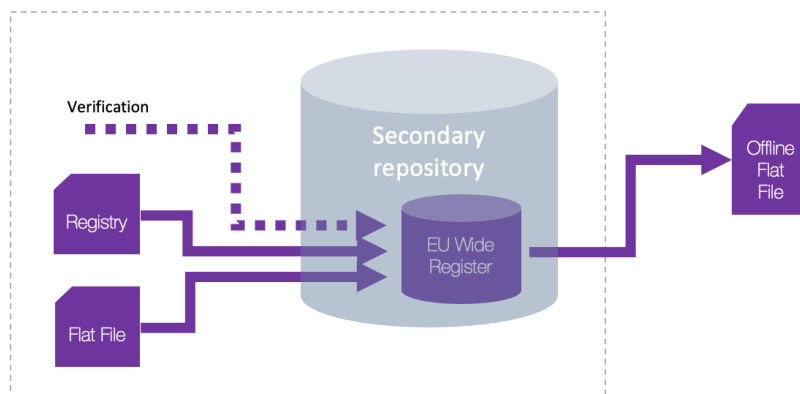


Figure 2 EU Wide Register

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.

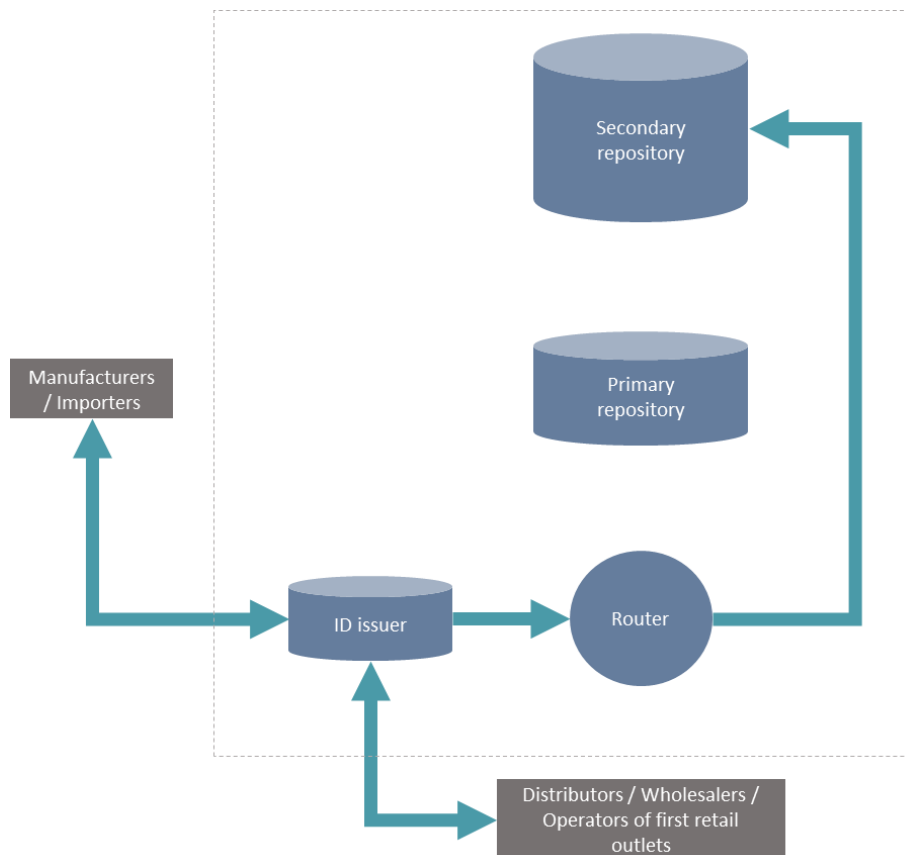


Figure 3 Identifier codes general data flow

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.

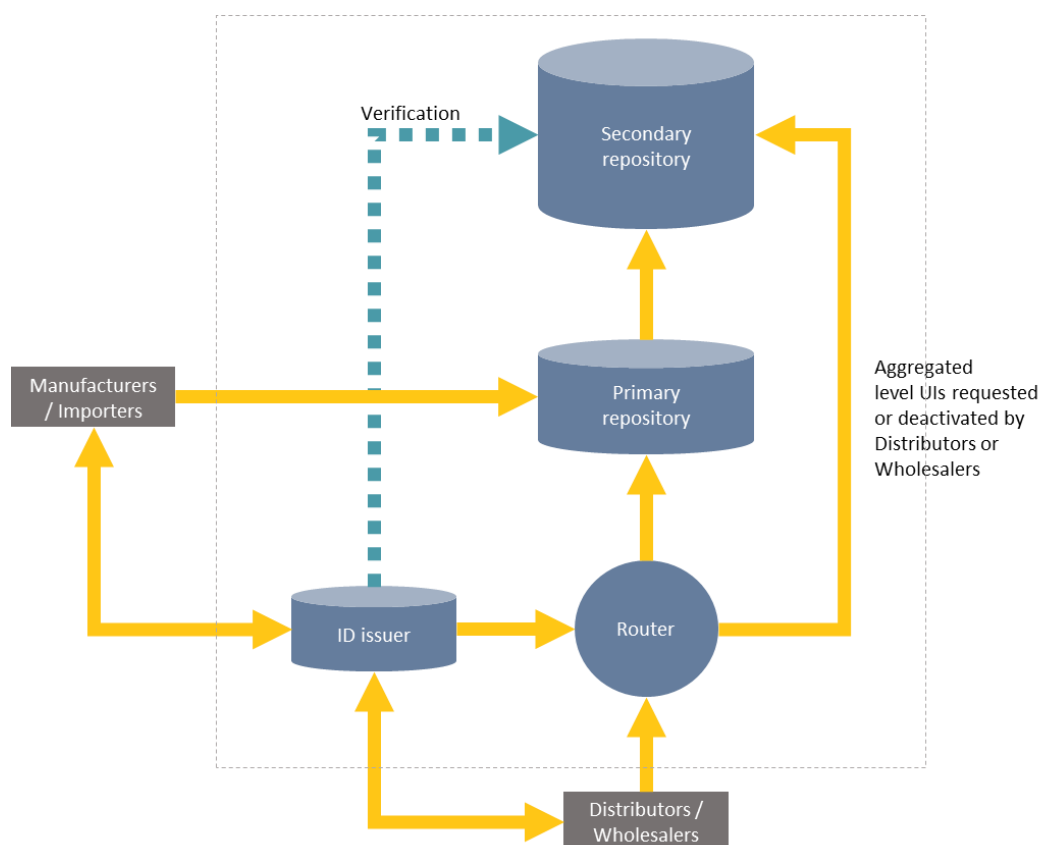


Figure 4 Unique identifier (UI) general data flow

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).

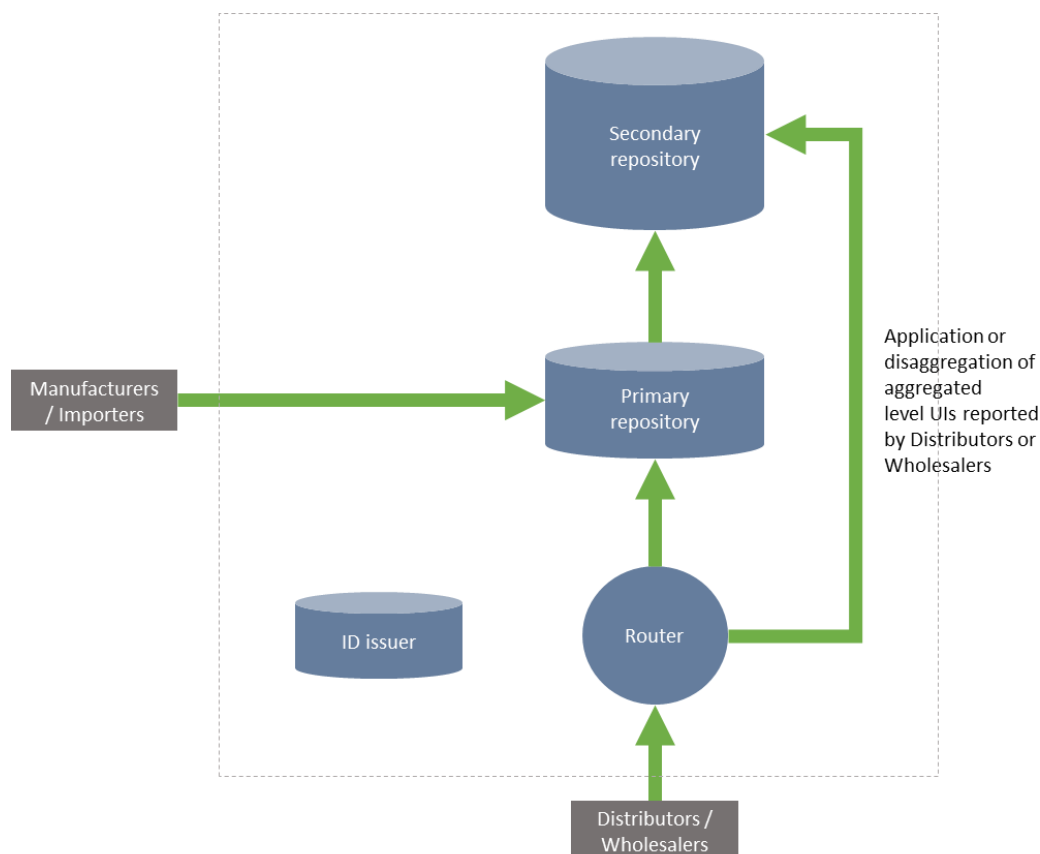


Figure 5 Product movement data flow

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).

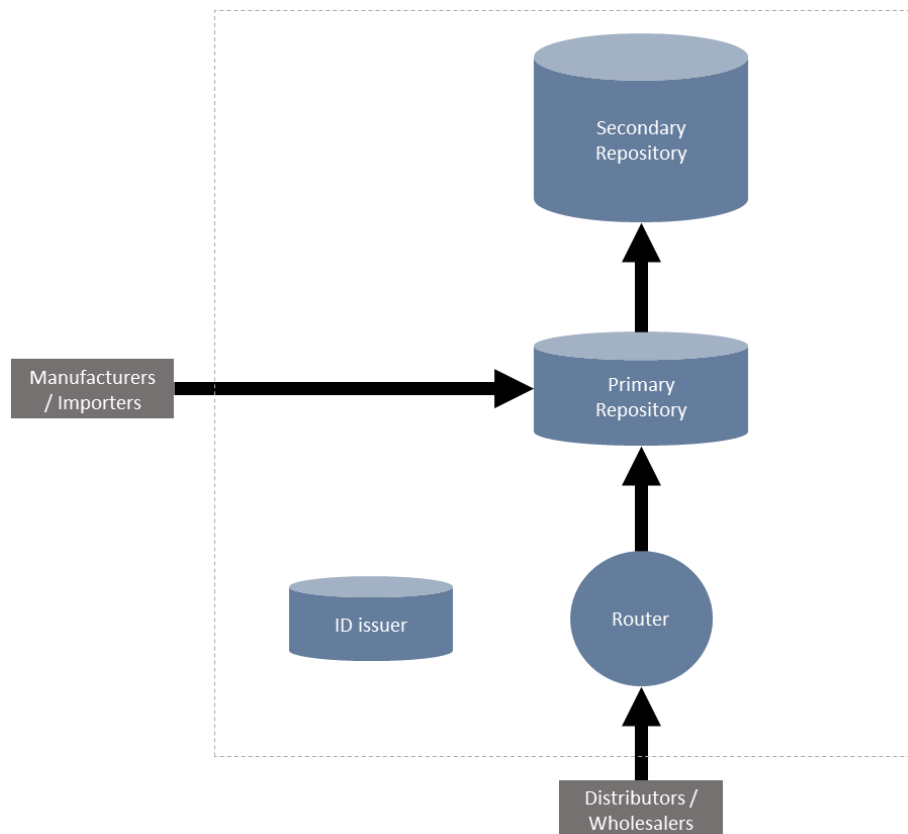


Figure 6 Transaction general data flow

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.

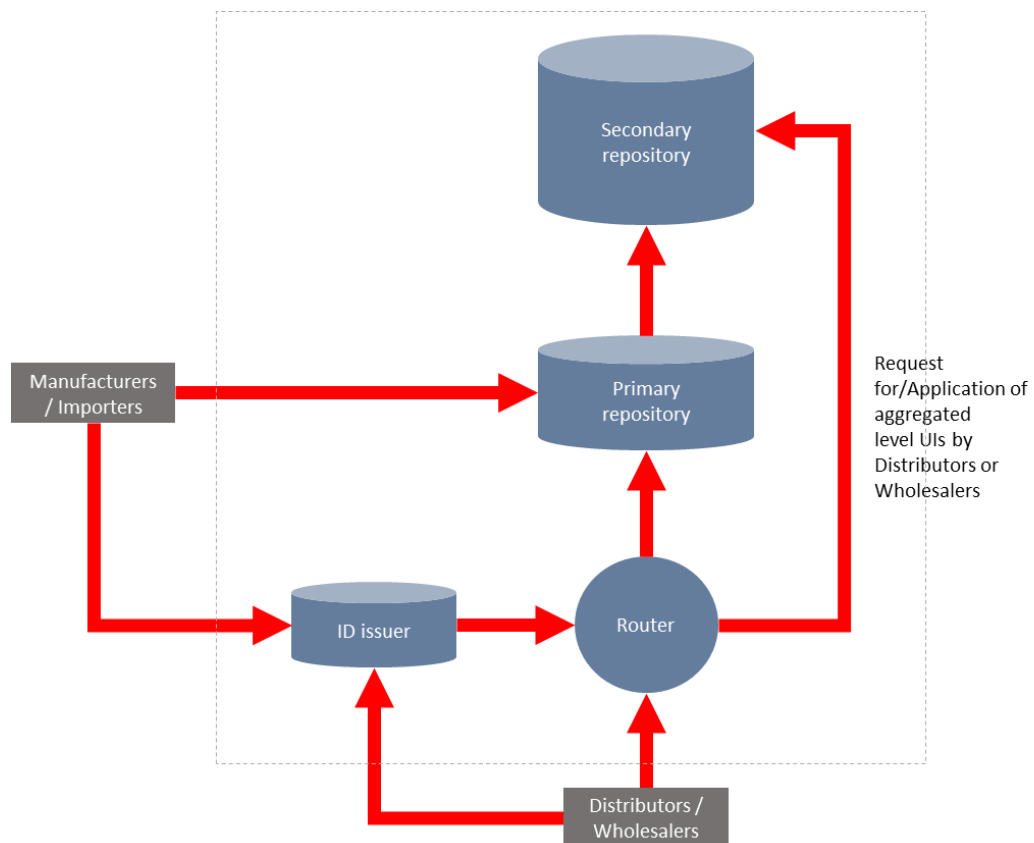


Figure 7 Recalls general data flow

	techniques.
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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
SU2AC	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	Secure interface published by the Secondary

	repository	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.

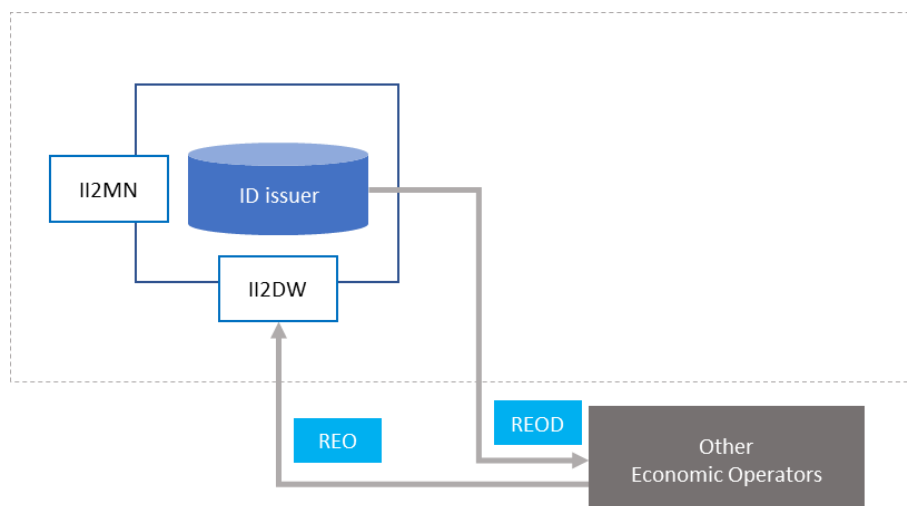


Figure 9 Data Flow Diagram – Issuing of an Economic operator Identifier code

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

4.1.1.3 Messages – Issuing of an Economic operator Identifier code

The table below summarizes the messages and interfaces 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)	II2DW
	REOD	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.

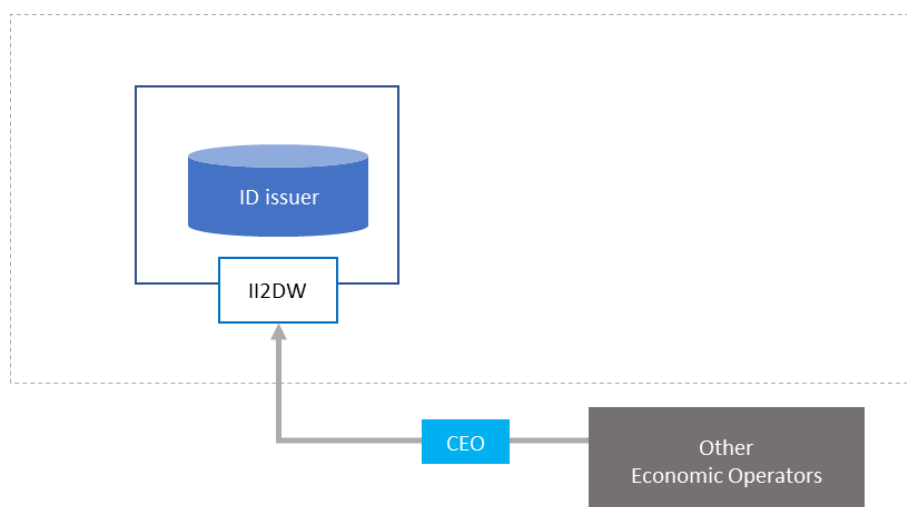


Figure 10 Correction of Information concerning an Economic operator

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)	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.

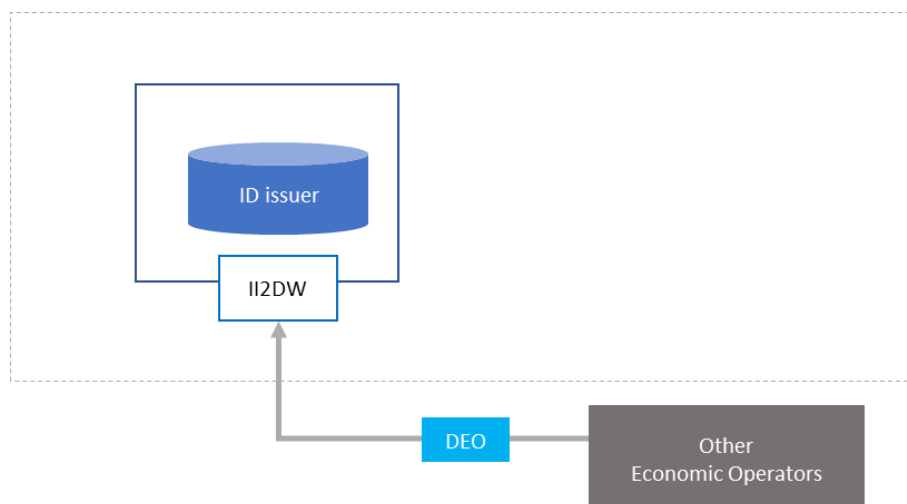


Figure 11 De-registration of an Economic operator

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	Economic operators (Manufacturers, Importers, Distributors,		ID issuer	

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

The table below summarizes the messages and interfaces 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)	II2DW
De-registration of related Facilities	DFA (1.6)	II2DW

4.1.4 Issuing of a Facility Identifier code

4.1.4.1 Description – Issuing of a Facility Identifier code

All facilities from manufacturing to the first retail outlet 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.

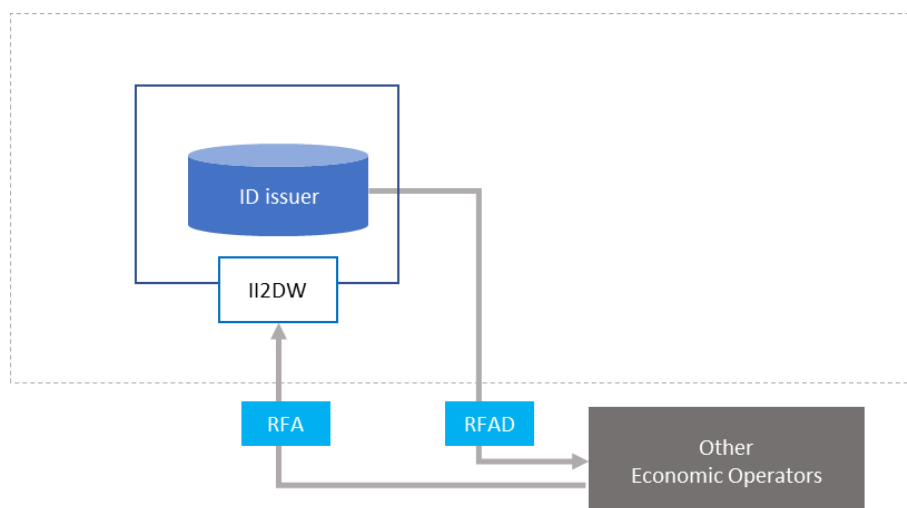


Figure 12 Issuing of a Facility Identifier code

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,		ID issuer	

		Importers, Distributors, Wholesalers, Transport Companies, Providers of courier services) Operators of first retail outlets			
RFAD	Response issuing the Facility Identifier code	ID issuer		Economic operators (Manufactur ers, 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)	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.

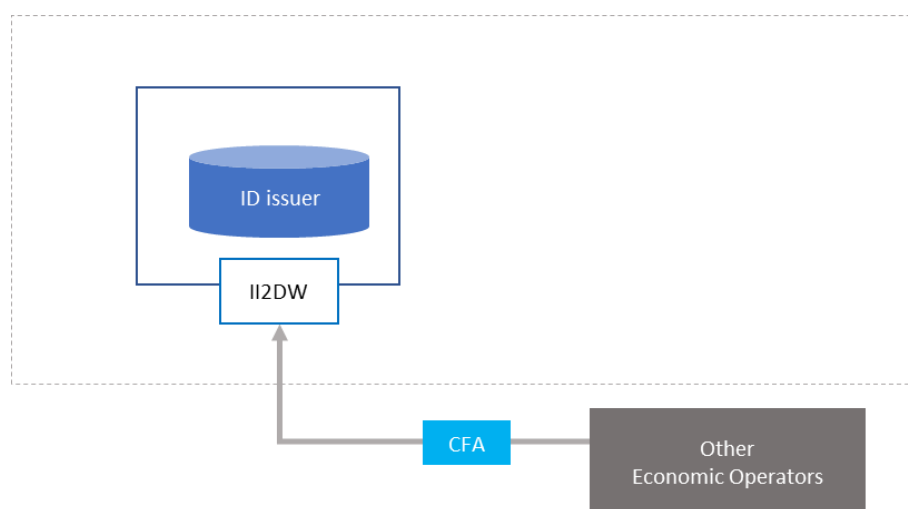


Figure 13 Correction of Information concerning a Facility

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	Economic operators (Manufacturers,		ID issuer	

	of information concerning a Facility	Importers, Distributors, Wholesalers, Transport Companies, Providers of courier services) First retail outlets			
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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)	II2DW

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.

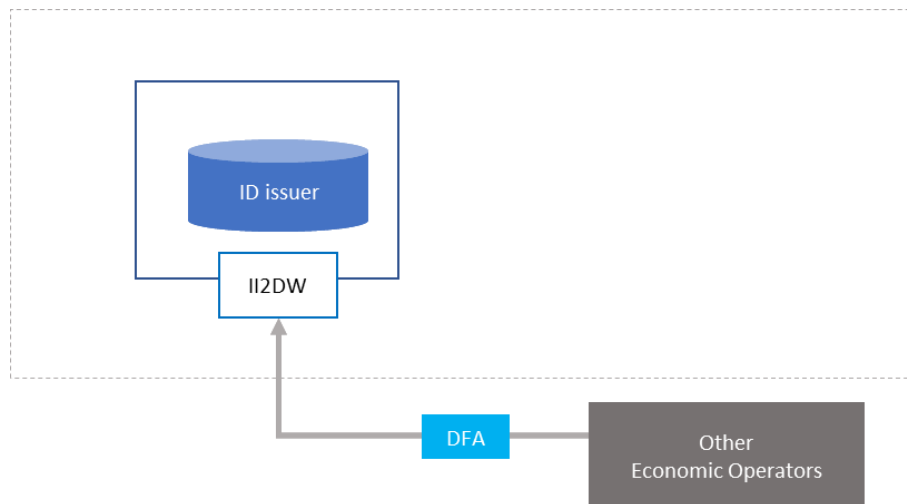


Figure 14 Data Flow Diagram – De-registration of a Facility

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
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)	II2DW

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” message (see section 4.3.1).

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.

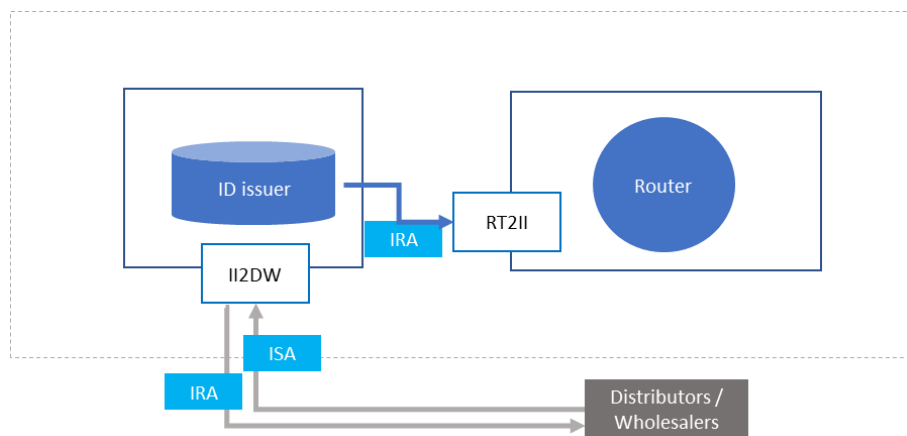


Figure 15 Data Flow Diagram – Issuing of aggregated level Unique identifiers (aUIs) for Aggregated packaging – Request from Distributors and Wholesalers

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, Wholesalers	

	validated by the Router				
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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 (see section 4.4.3.1).

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).

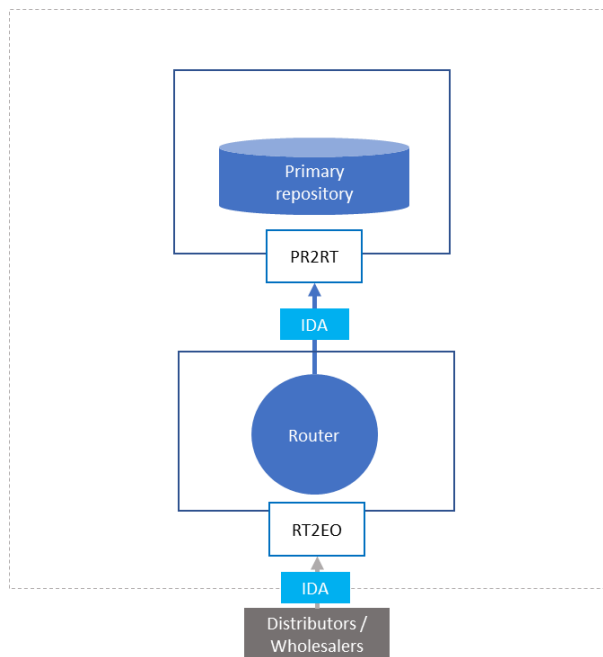


Figure 16 Data Flow Diagram – Deactivation of unit level Unique identifiers (upUIs) – Request from Distributors and Wholesalers

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		Router		Primary repository

	deactivation of unit level UIs				
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4.2.2.1.3 Messages – Deactivation of unit level Unique identifiers (upUIs) – Request from Distributors and Wholesalers

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

Process	Message code	Interface
Deactivation of unit level Unique identifiers (upUIs) – Request from Distributors and Wholesalers	IDA (2.3)	RT2EO
	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 (see section 4.4.3.1).

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).

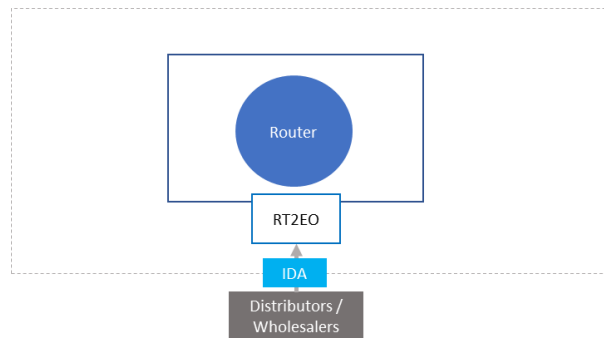


Figure 17 Data Flow Diagram – Deactivation of aggregated level Unique identifiers (aUIs) – Request from Distributors and Wholesalers

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

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

4.2.3.1.3 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	IDA (2.3)	RT2EO

level Unique identifiers (aUIs) – Request from Distributors and Wholesalers		
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4.3 Reporting operational events (product movement information)

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

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

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

Where Distributors or Wholesalers choose to comply with the recording obligations by means of the recording of aggregated packaging, each Aggregated packaging of tobacco product 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 (see section 4.2.1). 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 (see section 4.2.3). 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.

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

The diagram below depicts the data flow interaction related to the process whereby Distributors and Wholesalers report aggregated level Unique identifiers (aUIs) to the Secondary repository via the Router.

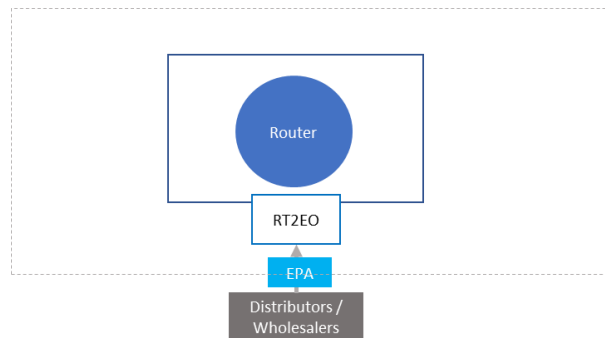


Figure 18 Data Flow Diagram – Application of aggregated level UIs on Aggregated packaging by Distributors and Wholesalers

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

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

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

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

4.3.2 Dispatch of tobacco products from a Facility

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

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

Distributors and Wholesalers 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.

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

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

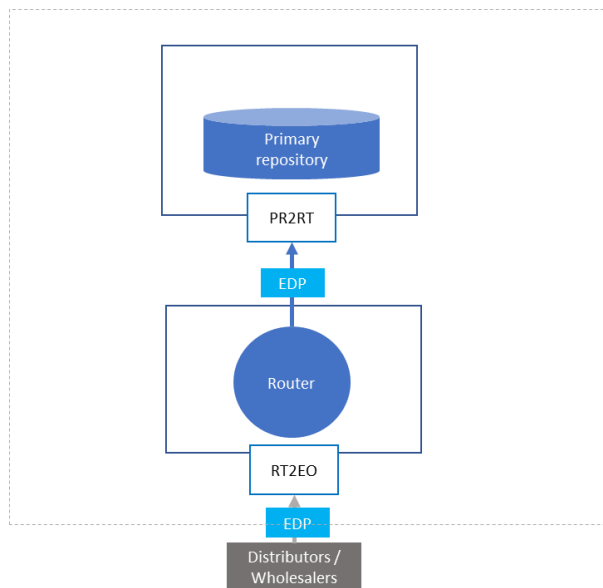


Figure 19 Data Flow Diagram – Dispatch of tobacco products from a Facility – Report from Distributors and Wholesalers

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		Router		Primary repository

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

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

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

4.3.3 Arrival of tobacco products at a Facility

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

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

Distributors and Wholesalers 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.

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

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

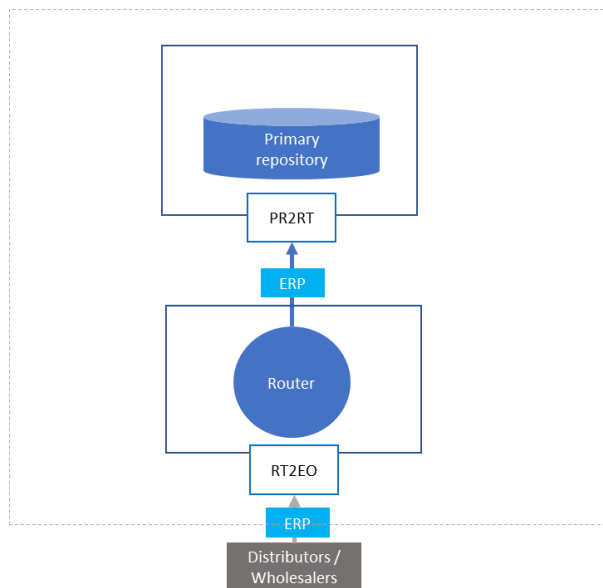


Figure 20 Data Flow Diagram – Arrival of tobacco products at a Facility – Report from Distributors and Wholesalers

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 by		Router		Primary repository

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

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

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

4.3.4 Trans-loading

4.3.4.1 Trans-loading – Report from Distributors and Wholesalers

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

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

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

The diagram below depicts the data flow interaction related to the process whereby Distributors and Wholesalers report to the corresponding Primary repository via the Router the trans-loading of tobacco products.

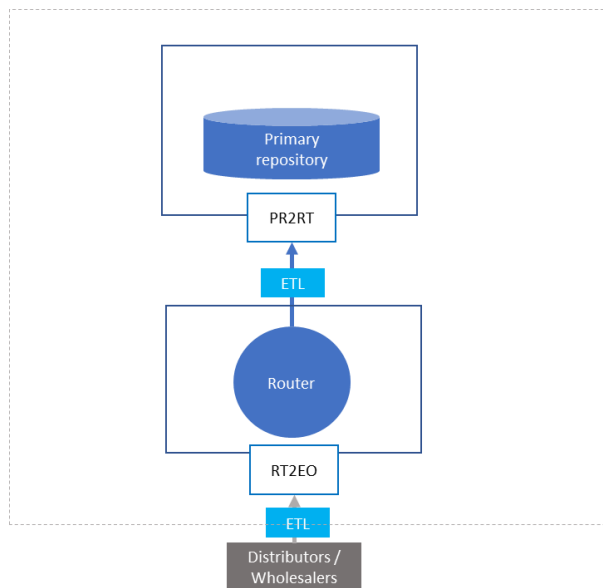


Figure 21 Data Flow Diagram – Trans-loading of tobacco products – Report from Distributors and Wholesalers

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

4.3.4.1.3 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

4.3.5 Disaggregation of aggregated level Unique identifier (UI)

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

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

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

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

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

The diagram below depicts the data flow interaction related to the process whereby Distributors and Wholesalers report to the Secondary repository via the Router the disaggregation of aggregated level UIs.

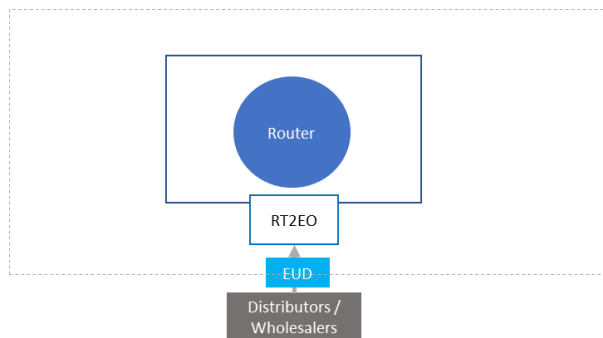


Figure 22 Data Flow Diagram – Disaggregation of aggregated level UIs – Report from Distributors and Wholesalers

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 aggregated level UIs	Economic operators: Distributors, Wholesalers			Router

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

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

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

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

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

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

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

4.3.6.1.2 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.

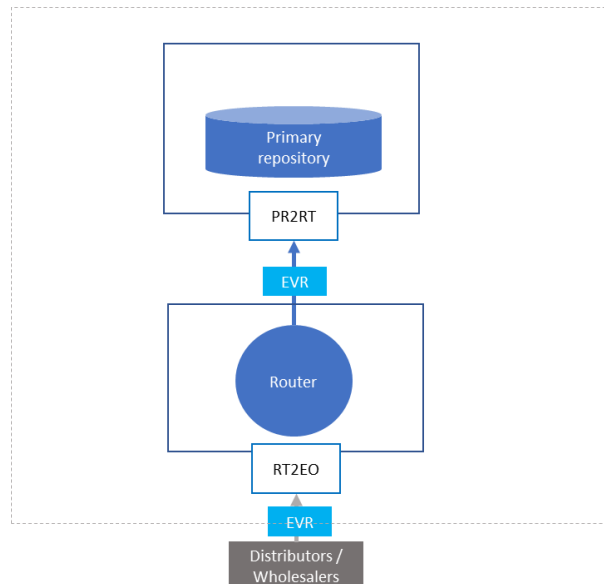


Figure 23 Data Flow Diagram – Delivery carried out with a vending van to multiple retail outlets – Report from Distributors and Wholesalers

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

4.3.6.1.3 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

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.

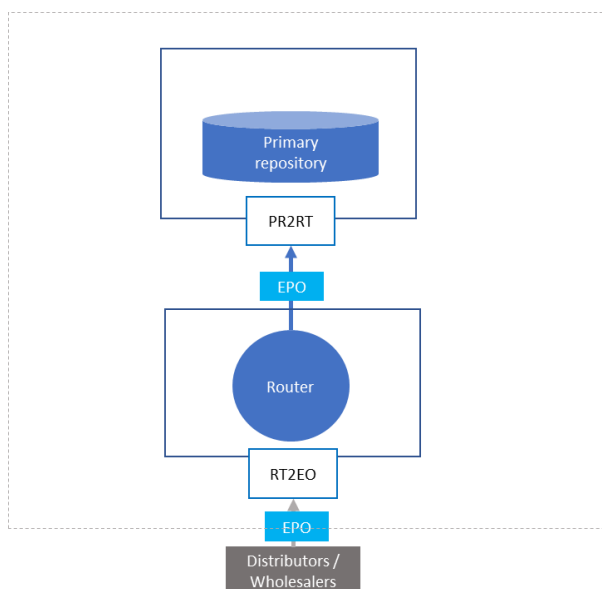


Figure 25 Data Flow Diagram – Issuing of order number – Report from Distributors and Wholesalers

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, Wholesalers			Router

EPO (4.2)	Route the information on the issuing of order number, if message validated by the Router		Router		Primary repository
-----------	--	--	--------	--	--------------------

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

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

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

4.4.3 Receipt of the payment

4.4.3.1 Receipt of payment – Report from Distributors and Wholesalers

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

When in the position of vendors, Distributors and Wholesalers 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.

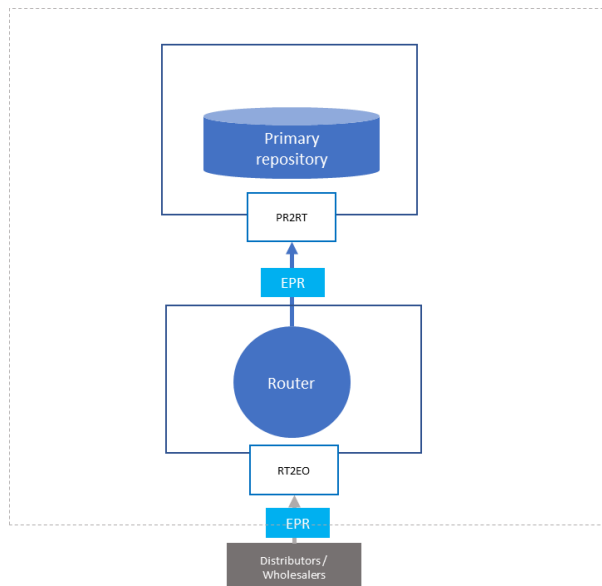


Figure 26 Data Flow Diagram – Receipt of payment – Report from Distributors and Wholesaler

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		Router		Primary repository

	the Router				
--	------------	--	--	--	--

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

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

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

4.5 Recalls of requests, operational and transactional messages

4.5.1 Recalls of requests for aggregated level Unique identifiers (aUIs)

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 UIs (see sections 4.2.2 and 4.2.3) 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 (see sections 4.1.3, 4.1.6 and **Chyba! Nenalezen zdroj odkazů.**).

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.

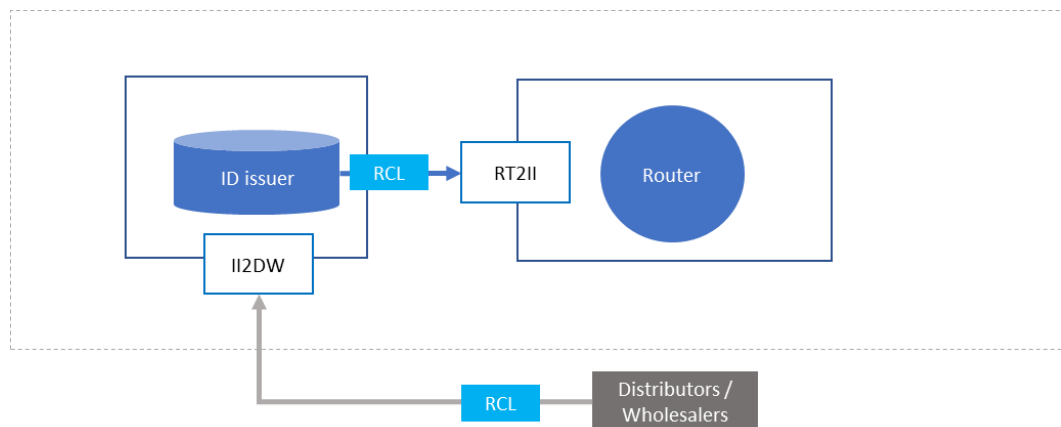


Figure 27 Data Flow Diagram – Recalls of requests for aggregated level Unique identifiers (aUIs) – Recalls from Distributors and Wholesalers

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 from Distributors and Wholesalers	RCL (5)	II2DW
	RCL (5)	RT2II

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.

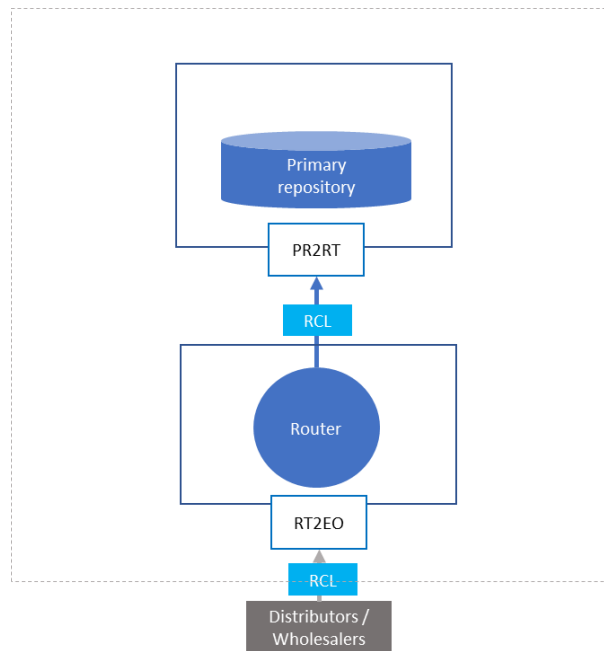


Figure 28 Data Flow Diagram – Recalls of operational and transactional messages – Recalls from Distributors and Wholesalers

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		Router		Primary repository

	operational and transactional event message, if message validated by the Router				
--	---	--	--	--	--

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:

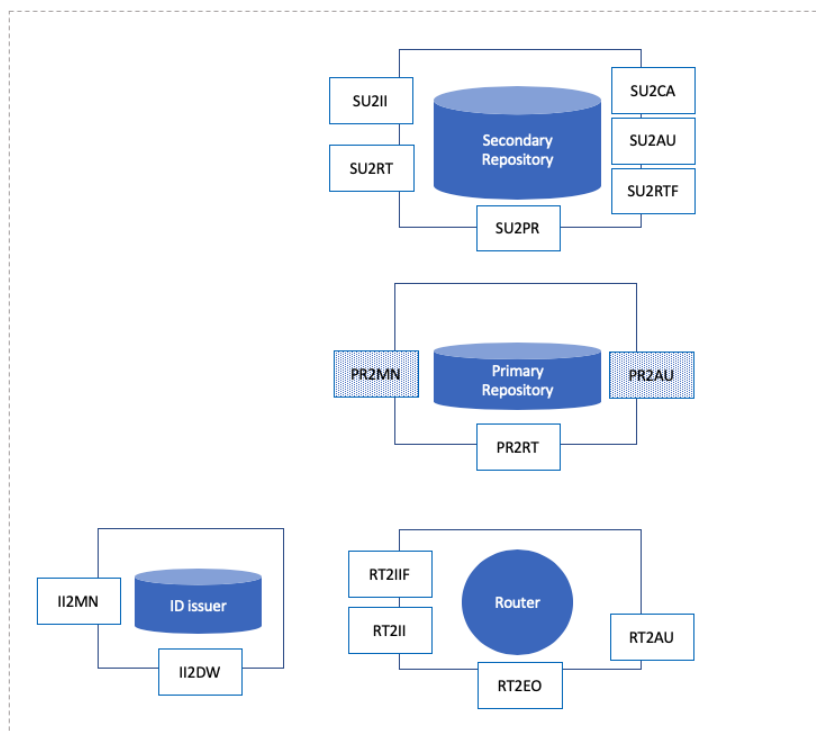


Figure 29 System interfaces and endpoints

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)

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
SU2AC	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

5.2.1 Methods of interaction.

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.

5.2.2 Secured communication

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

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

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

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

5.2.3 Version and backward compatibility

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

Example URL: `http://{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.

5.2.4 Message identification and RecallCode

5.2.4.1 Overview

Economic operators have the possibility to recall requests, operational and transactional messages transmitted to the Secondary repository (see section 4.5).

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

5.2.4.2 RecallCode structure

UUID version 5

5.2.4.3 Messages

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

	Annex II Reference	
<i>ISU</i>	<i>(2.1)</i>	<i>Request for unit level UIs</i>
<i>IRU</i>		<i>Data Request for unit level UIs</i>
<i>ISA</i>	<i>(2.2)</i>	Request for reporting the issuance of Unique Identifiers at aggregated level
<i>IRA</i>		Data Request for reporting the issuance of Unique Identifiers at aggregated level
<i>EUA</i>	<i>(3.1)</i>	<i>Application of unit level UIs on unit packets</i>
<i>EPA</i>	<i>(3.2)</i>	<i>Application of aggregated level UIs on aggregated packaging</i>
<i>EDP</i>	<i>(3.3)</i>	<i>Dispatch of tobacco products from a facility</i>
<i>ERP</i>	<i>(3.4)</i>	<i>Arrival of tobacco products at a facility</i>
<i>ETL</i>	<i>(3.5)</i>	<i>Trans-loading</i>

<i>EUD</i>	<i>(3.6)</i>	<i>Disaggregation of aggregated level UIs</i>
<i>EVR</i>	<i>(3.7)</i>	<i>Report of delivery carried out with a vending van to retail outlet</i>
<i>EIV</i>	<i>(4.1)</i>	<i>Issuing of the invoice</i>
<i>EPO</i>	<i>(4.2)</i>	<i>Issuing of the order number</i>
<i>EPR</i>	<i>(4.3)</i>	<i>Receipt of the payment</i>

5.2.4.4 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.

5.2.4.5 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": 13,
  "Error": false,
  "Errors": null
}
```

Where the "Code" is the recall id.

5.2.5 Message response

5.2.5.1 Successful response sample

HTTP Status 202

```
{
```

```
"Code": " 6854f9a6-a2b2-4c08-8000-0173f3c35567",  
"Message_Type": 13,  
"Error": false,  
"Errors": null,  
"Checksum": "G6HF5H"  
}
```

5.2.5.2 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

Example of List of errors

```
{  
  "Error_InternalID": "yndkFz7TBEO706frD38hzA",  
  "Error_Code": "INVALID_REQUEST_FORMAT",  
  "Error_Descr": "The EconomicOperatorIdentifier field is unknown."  
  "Error_Data": "54G7J"  
}
```

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": " 6854f9a6-a2b2-4c08-8000-0173f3c35567",
  "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"
}
```

5.2.6 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 section 8.2.3 Unique Identifier validation and in the section 8.2.4 Identification Code 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.

5.2.6.1 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

5.2.6.2 The message should contain

- The original request
- The optional base request sections define in section XXX

```
{
  "EO_ID": "ABC123",
  "F_ID": "Facility Id A",
  "Event_Time": "2018-08-23T07:32:20.7878086+00:00",
  "upUI_1": [
    "5cd2729e-6acc-4479-b67e-a26a84a6e88b121822",
    "752a77ae-d2a3-4c47-bc92-6a40bd2e6ef121203"],
  "upUI_2": ["5cd2729e-6acc-4479-b67e-a26a84a6e88b", "752a77ae-d2a3-4c47-bc92-6a40bd2e6ef3"],
  "upUI_comment": "upUI_comment",
  "M_Type": 1,
  "Code": "EUAadf81-68af-4b79-b29d-84238a40c46c",
  "RejectionData": {
    "Errors": [
      {
        "Error_Code": "INVALID_REQUEST_FORMAT",
        "Error_Descr": "The EconomicOperatorIdentifier does not exist.",
        "ErrorData": "5cd272"
      }
    ]
  },
  1,
}
```

5.2.7 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.

MD5 hash function is used.

checksum = MD5(message body)

The response message contains the hash of the original message in the "Checksum" field.

The originating system should check the value the checksum and compare it to the original message.

Any checksum error should be re-transmitted as a rejected message.

5.2.8 Message size

The maximum message size that we can accept is 8MB. If a Primary repository sees a need for a message to be over 8MB, the provider shall contact Dentsu Aegis.

We have a limit on the HTTP header size of 10' 240 bytes.

5.2.9 Number of simultaneous connections

We have no limit regarding simultaneous connections.

5.2.10 Message limitation

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

5.2.11 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

6 Unique Identifier

6.1 Unique Identifier Specification

6.1.1 General principle

The Secondary repository and Router UI processing is based on the full characters composing the UI.

UI identification will not be done on parts of the UI but only on the full characters composing the UI.

6.1.2 UI from ID issuers

The upUI and aUI provided by the ID Issuers during the UI requests (2.1 and 2.2) must contain the UI information that will be used as is by the EO during the application process.

When applied by the EO, a timestamp will be added to the UI in order to create the applied UI.

During the application validation, The Router compares the UI (without the timestamp) provided by the ID issuer with the UI (with timestamp) provided by the EO excluding the Timestamp

6.1.3 aUI from distributors

The aUI provided by the Economic Operator must comply with the invariant character set of ISO/IEC 646. Note that the "invariant character set of ISO/IEC 646" supports GS1 standard including the FNC1 character(s).

For sake of clarity, the Secondary repository supports both UI with or without FNC1 character(s). In case the Economic Operator generates an aUI based on GS1 standards that contain FNC1 character(s), the subsequent messages relative to the aUI should also contain the FNC1 character(s) otherwise the message will be rejected. And at the opposite, in case the Economic Operator generates an aUI based on GS1 standards without FNC1 character(s), the subsequent messages relative to the aUI shouldn't contain the FNC1 character(s) otherwise the message will be rejected.

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.

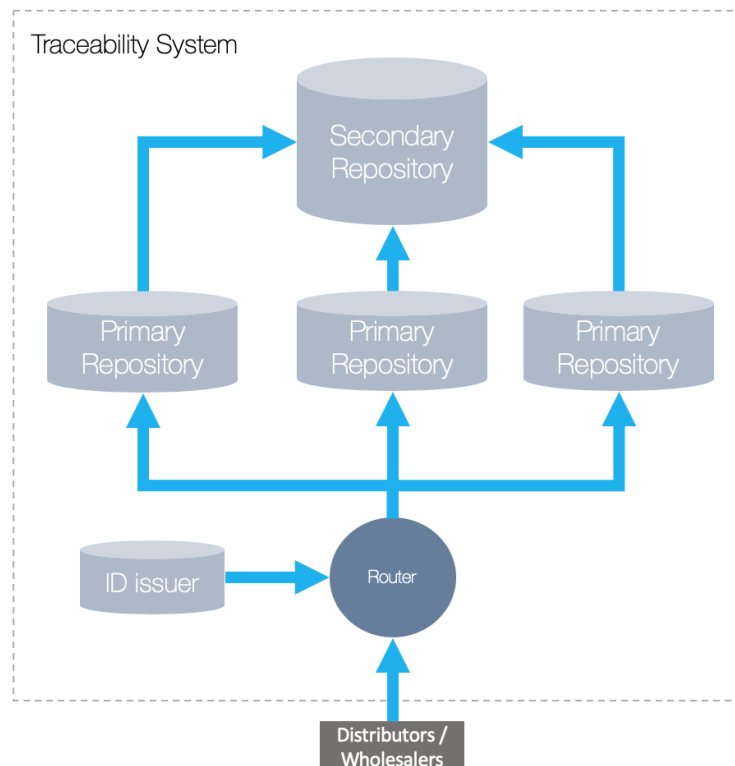


Figure 30 Router Data Flow

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.

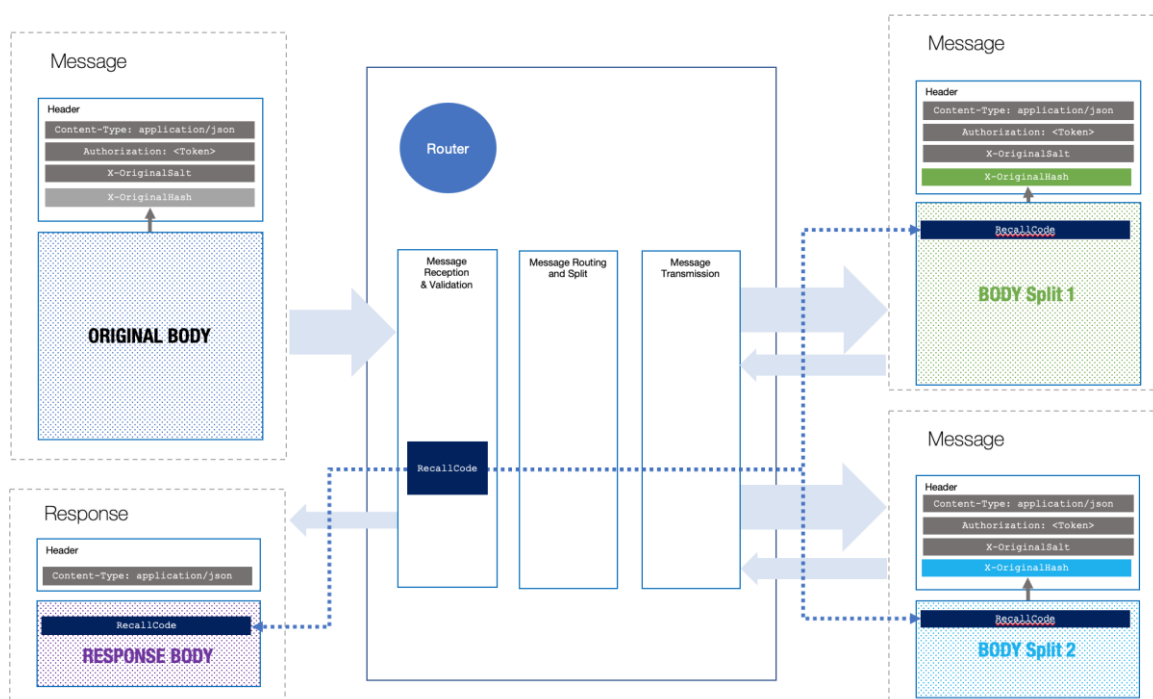
Case 2: When UIs are related to various Manufacturers or Importers, the message will be split by Manufacturer and/or Importer together with the related UIs and resulting messages forwarded to the relevant Primary repository.

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.



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.

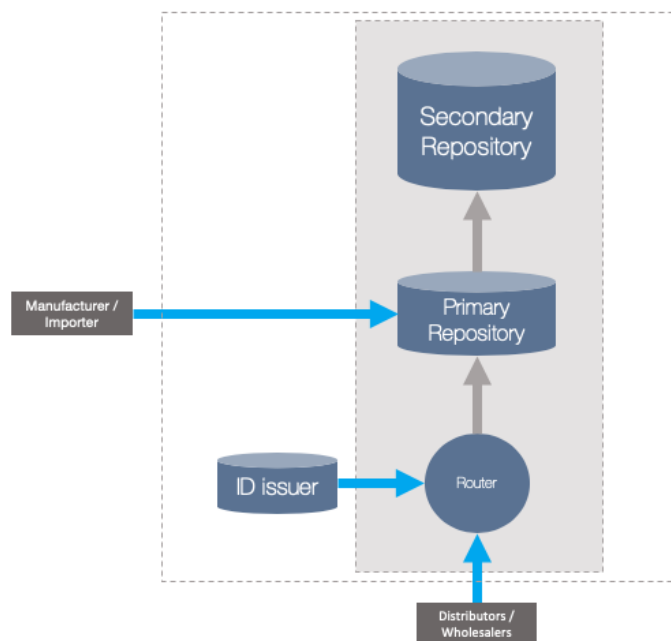


Figure 31 Validation Overview

8.2 Type of validation

8.2.1 Security validation

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

Control	Description	Scope
VAL_MSG_JSON	JSON structure check	All 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 Unique Identifiers validation

8.2.3.1 Message level validation

Control	Description	Scope
VAL_UI_MULT_MSG	Multiple duplicate UI present in the messages.	IDA – EUA – EPA – EDP – ERP- ETL- EUD- EVR – EIV – EPO - EPR

8.2.3.2 Existence

Control	Description	Scope
VAL_UI_EXIST_MSG	UI validity Exists without Timestamp in the repository. (has never been applied).	EUA – EPA
VAL_UI_EXIST_TIME	UI validity – Exists and Active in the repository.	IDA – EUA – EPA – EDP – ERP- ETL- EUD- EVR – EIV – EPO - EPR

8.2.3.3 upUI Expiration

Control	Description	Scope
VAL_UI_EXPIRY	Validation that the application or the aggregation date doesn' t exceed the 6 months period after	EUA

	the code has been issued.	
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8.2.3.4 Message sequence validation

Control	Description	Scope
VAL_UI_ORD_REACTIVATION	UI – UI is not applied after deactivation.	<i>EUA</i>
VAL_UI_ORD_DEACTIVATED	UI – presence of UI in a message after being deactivated.	<i>EPA – EDP – ERP- ETL- EUD- EVR – EIV – EPO - EPR</i>

8.2.4 Message Event Time Validation

Control	Description	Scope
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	<i>EDP, ETL</i>
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.	<i>RCL</i>

8.2.5 Identification Code validation

Control	Description	Scope
VAL_ENT_EXIST_EOID	Check if EOID, exists	<i>ISU - IRU – IRA- IDA – EUA – EPA – EDP – ERP- ETL- EUD- EVR</i>
VAL_ENT_EXIST_FID	Check if FID, exists	<i>ISU -IRU – IRA- IRU- IRA– EUA - EPA</i>
VAL_ENT_EXIST_MID	Check if MID, exists	<i>ISU -IRU – IRA – IRU</i>
VAL_ENT_ACTIVE_EOID	Check if EOID is marked as active in the repository	<i>IRU – IRA- IDA – EUA – EPA – EDP – ERP- ETL- EUD- EVR</i>
VAL_ENT_ACTIVE_FID	Check if FID is marked as active in the repository	<i>IRU – IRA- IRU-IRA– EUA - EPA</i>
VAL_ENT_ACTIVE_MID	Check if MID is marked as active in the repository	<i>IRU – IRA- IRU</i>
VAL_ENT_REL_EOID_FID	Check if EOID FID relation	<i>IRU - IRA</i>
VAL_ENT_REL_FID_MID	Check if FID MID relation	<i>IRU - IRA</i>

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_TYPE	X	X	X
VAL_FIE_MAN	X	X	X
VAL_FIE_FORMAT	X	X	X
VAL_FIE_REF	X	X	X
Business rule validation			
VAL_UI_MULT_MSG	X	X	
VAL_UI_EXIST_APP	X	X	
VAL_UI_EXIST_TIME	X	X	
VAL_UI_EXPIRY	X	X	
VAL_UI_ORD_REACTIVATION	X	X	
VAL_UI_ORD_DEACTIVATED	X	X	
VAL_EVT_TIME	X	X	
VAL_EVT_RECALL	X	X	
VAL_ENT_EXIST_EOID		X	X
VAL_ENT_EXIST_FID		X	X
VAL_ENT_EXIST_MID		X	X
VAL_ENT_ACTIVE_EOID		X	X
VAL_ENT_ACTIVE_FID		X	X
VAL_ENT_ACTIVE_MID		X	X
VAL_ENT_REL_EOID_FID		X	X
VAL_ENT_REL_FID_MID		X	X

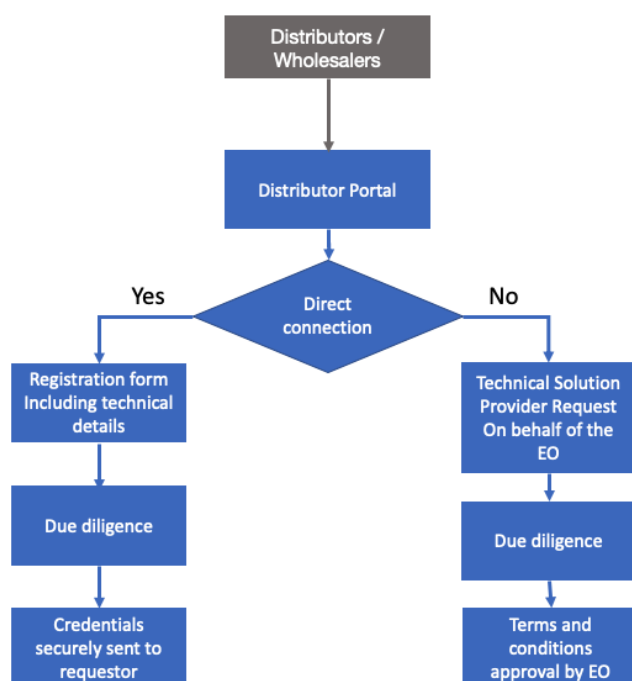
9 Sign up Process

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 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.

9.2.2 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	<a href="https://< ENV >.auth.< BASE_URL >">https://< ENV >.auth.< BASE_URL >
Router	The resource endpoint	<a href="https://< ENV >.router.< BASE_URL >">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

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