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Validation Rules

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Table of Contents

1. Introduction

In the context of the EU Project e-IMPACT it was identified the need to build a toolkit containing the adequate artefacts to support an interested party (to be designated simply by adopter hereafter) in the adoption of the e-Freight Common Framework.

Activity 1 of the project aimed the development of the artefacts. They have two natures: documents and software. In Sub-Activity 1.1 the artefacts were identified, and the ones that are documents were developed.

The present document is included in the list resulting from the identification process (done under SubAct 1.1, Task 1.1.1). Its aim is the **description of a set of Validation Rules** in order to provide a common set of data validation for processing the e-Freight messages being exchanged.

> **Important:**   **Provide a common set for data validation.**

Having a common ground has several advantages:

- Allows a quicker path to join an existent community, whatever the nature and scope of "community".
- Helps with the adoption process, mainly for new adopters if they interact with partners that already use e-Freight and follow the same validation rules.
- Provide "ready to use" answers and solutions to transversal doubts.

Of course that the "more common" there is, "less tailor made" exists. That can provoke a non-adherence posture since a potential adopter may not identify his/her business situation with what is validated.

Care must be taken establishing the boundaries that validation rules. A balance between providing a clear orientation / guidance on one side, and freedom to cope with each situation particulars' on the other is necessary to avoid a strict and clear situation, but useless or with low adherence.

As more e-Freight adoption projects are implemented, lessons learned provide valuable information in order to assess the balance achieved. Changes to the content of this document are expected, and even desirable, to provide a better set of rules and recommendations to other adopters.

1.1   Audience

This document is to be used by everyone involved in the software analysis, developing and implementation phases during a process of adoption of e-Freight as a document interchange format, whether another existent system is already in place or not, and whether the adherence to the UBL v2.1 business processes' is intended.

It is important to have a basic knowledge of its own business scenario, context, requirements and data, where e-Freight is being applied. This will allow to align with the example.

It is useful to have some deep knowledge mainly on data validation and process specification.

1.2   Complementary Documents

By the nature of the toolkit, this document is complemented by other documents. The "e-IMPACT_Fundamentals", the "e-IMPACT_Rules_and_Recommendations" and the Mapping Templates[1] documents are the most relevant ones to consider. In the "e-IMPACT_Examples" document it can be found a possible way to get guidance from this document.

1.3   Terminology Clarification

Typically UBL refers to Business Information Entities (BIE) according to what it is defined in ISO/TS 15000-5:2005 Electronic Business Extensible Markup Language (ebXML) – Part 5: ebXML Core Components Technical Specification, Version 2.01. In practical terms, they all end up in being XML elements that are used or not in the messages. For the purpose of this document the term "element" is preferred.

Having this in mind, it may be complementary used the words "composite" and "simple" if the context of the text requires this qualification for clarity purposes. The "composite" word will be used to refer ABIE and ASBIE indifferently, and "simple" word will be used to refer BBIE. So we will have "composite element" and "simple element" when appropriate.

2. Background

In the recent years, "a number of EU funded research and development projects have been addressing the issues of information and communication technologies in transport and logistics"[2]. One of these projects is e-Freight, and one of its results was a common framework containing the definitions of a set of messages to support business documents interchange between several actors in the logistics and transport business.

This common framework was incorporated into ISO/IEC 19845 – "Information Technology – Universal Business Language Version 2.1 (UBL v2.1)"[3]. UBL v2.1 models the processes and defines the

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[1] Made of "e-IMPACT_Mapping_Template_Manual" and the "e-IMPACT-... – MapTemplate - …" files.
[2] Pedersen, Jan Tore – "*One Common Framework for Information and Communication Systems in Transport and Logistics – Facilitating Interoperability*", June, 2011.
[3] UBL v2.1 can be found at http://docs.oasis-open.org/ubl/UBL-2.1.html.

documents supporting the interaction between logistics actors.

However there are three issues that need to be addressed in order to transform these results into practical solutions:

- e-Freight itself defines extensions to the definitions in UBL v2.1, both in terms of the existent messages in UBL and in terms of additional messages, since not all the common framework was included in UBL v2.1[4].
- Simultaneously e-Freight messages included in the UBL v2.1 are a subset of the corresponding messages in UBL v2.1 since not all elements of the standard are used in e-Freight.
- It is difficult to apply the e-Freight definitions into practice mainly in situations of existent messages interchanges processes, lack of knowledge or experience in an adoption process of standards, and limited resources.

To address these issues, e-IMPACT project has as one of its goals the development of a toolkit containing a set of artefacts or tools. The choice of which artefacts to include was done in the context of Task 1.1.1, in Sub-Activity 1.1 of Activity 1 of e-IMPACT. A future adopter of e-Freight can use the artefacts in the toolkit that he finds convenient when going through the process of adopting e-Freight.

One of the identified artefacts is a set of validation rules to assist the adopters in handling with the large range of possible uses that e-Freight allows. This way an alignment is created allowing several partners (existent or new) in a same community to participate and benefit from a particular implementation.

These validation rules are essential in the definition of the protocol that rule the bi-directional communication between e-Freight adopters, whether in a closed community or in a wider context. Having these granular pieces, the software developing teams can implement programs that can incorporate the most possible automatic validations, freeing users form repetitive tasks.

Example:	*e-Freight messages have elements IssueDate and IssueTime. However nothing is stated about the values in these elements.*
	It is general accepted that if a message is issued at a specific moment and then sent, it will arrive to receiver after being issued, independently of the time zones' difference.
	But if the issue date/time values refer to a point in the future comparing to the moment of reception, formally the message cannot be rejected or have special treatment simply on the base of e-Freight rules.
	So a validation rule must be defined and documented in order to inform adopters that they should implement the validation of comparing IssueDate and IssueTime against the reception system date/time when a message is received.

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[4] However it is known that steps are being taken in order to incorporate the missing issues in a future revision of UBL.

3. Document Organization and Content

This document is divided in two major chapters.

Chapter 4 contains validation rules defined during the e-IMPACT project.

Chapter 5 contains a template to support the adopter in the enumeration and description of the validation rules required in its own context.

It is open the possibility in the future that a validation rule identified by a particular party in a particular context, and expressed in chapter 5, to be included in chapter 4. In this case the scope of the rule is enlarged.

3.1. Layout of the template and usage

The validation rules are presented in a tabular form having the following columns:

- ID: identification of the rule.
- Element: element to which is applicable.
- Rule: short description of the rule.
- Description: full description of the rule.
- Result: what happens if validation fails?
- Remarks: additional considerations about the rule.

3.2. Nature of the validations

In general, the validation rules expressed in this document have a different nature of what is described in "e-IMPACT_Rules_and_Recommendations" tool. The validation rules are to be implemented in software artefacts responsible for building, for sending and for parsering on reception, the messages. They are much oriented to the contents of elements in particular, even when dependencies on the values in other elements apply.

They exist to create and verify coherence within a message.

This does not mean that some Validation Rules individually or in group could not have a more global concern behind them.

However, this document will not contain validations rules related with cardinality resulting from the e-Freight definition or from the mapping process made by the adopter, since these are expressed in the mapping templates.

3.3. Type of validations

3.3.1. Condition validation

Condition validations have the ID started with a "C-".

Simple or composite elements that have a dependent usage have a condition validation that specifies, depending on the other information within the same message, if the element is required, optional or not to be used.

3.3.2. Rule validation

Rule validations have the ID started with an "R-".

A rule validation specifies a requirement for an element, simple or composite. If the element does not fulfil the requirement then the message is not accepted.

3.3.3. Possible value validation

Possible value validation have the ID started with a "V-".

A possible value validation specifies the domain of values that are accepted for the element in a particular context.

4. Rules

Rules are a set of measures to enforce a determined usage of the messages and elements, eliminating or strongly reducing the ambiguity of usage and behaviour of the messaging exchange process, providing consistency to the message as a whole, and reinforce the alignment between partners.

4.1. Message: TransportServiceDescriptionRequest (TSDR)

4.1.1. Conditions

ID	Element	Condition	Description	Result	Remarks
C-TSDR-xxx					
C-TSDR-xxx					
C-TSDR-xxx					
C-TSDR-xxx					
C-TSDR-xxx					

4.1.2. Rules

ID	Element	Rule	Description	Result	Remarks
R-TSDR-001	IssueDate	Value must be equal or less than system date value.	Value of date must be equal or less that the date in the system producing the message or and in the system receiving the message, discounting the effect of timezone.	Message rejected.	Avoid issue document in the future. Check together with IssueTime.
R-TSDR-002	IssueTime	Value must be equal or less than system time value.	Value of time must be equal or less that the date in the system producing the message or and in the system receiving the message, discounting the effect of timezone.	Message rejected.	Avoid issue document in the future. Check together with IssueDate.
R-TSDR-003	SenderParty	Check sender against connectivity infra-structure.	Sender Party must be properly registered in the connectivity infrastructure adopted in a particular scope.	??	From e-IMPACT the proposed connectivity infrastructure is eDelivery. Parties should be enrolled there.
R-TSDR-004	ReceiverParty	Check receiver against connectivity infra-	Receiver Party must be properly registered in the	??	From e-IMPACT the proposed connectivity

ID	Element	Rule	Description	Result	Remarks
		structure.	connectivity infrastructure adopted in a particular scope.		infrastructure is eDelivery. Parties should be enrolled there.
R-TSDR-xxx					

4.1.3. Possible Values

ID	Element	Rule	Description	Result	Remarks
V-TSDR-001	TransportationService:TransportServiceCode	In CodeList TransportServiceCode	Value in TransportServiceCode codelist, even if is temporary code.	Message rejected.	
V-TSDR-002	TransportationService:ShipmentStage:TransportModeCode	In CodeList TransportModeCode	Value in TransportModeCode codelist, even if is temporary code.	Message rejected.	
V-TSDR-xxx					
V-TSDR-xxx					
V-TSDR-xxx					

4.2. Message: TransportServiceDescription (TSD)

4.2.1. Conditions

ID	Element	Condition	Description	Result	Remarks
C-TSD-xxx					
C-TSD-xxx					
C-TSD-xxx					
C-TSD-xxx					
C-TSD-xxx					

4.2.2. Rules

ID	Element	Rule	Description	Result	Remarks
R-TSD-001	IssueDate	Value must be equal or less than system date value.	Value of date must be equal or less that the date in the system producing the message or and in the system	Message rejected.	Avoid issue document in the future. Check together with IssueTime.

ID	Element	Rule	Description	Result	Remarks
			receiving the message, discounting the effect of timezone.		
R-TSD-002	IssueTime	Value must be equal or less than system time value.	Value of time must be equal or less that the date in the system producing the message or and in the system receiving the message, discounting the effect of timezone.	Message rejected.	Avoid issue document in the future. Check together with IssueDate.
R-TSD-003	SenderParty	Check sender against connectivity infrastructure.	Sender Party must be properly registered in the connectivity infrastructure adopted in a particular scope.	??	From e-IMPACT the proposed connectivity infrastructure is eDelivery. Parties should be enrolled there.
R-TSD-004	ReceiverParty	Check receiver against connectivity infrastructure.	Receiver Party must be properly registered in the connectivity infrastructure adopted in a particular scope.	??	From e-IMPACT the proposed connectivity infrastructure is eDelivery. Parties should be enrolled there.
R-TSD-xxx					

4.2.3. Possible Values

ID	Element	Rule	Description	Result	Remarks
V-TSD-001	TransportationService:TransportServiceCode	In CodeList TransportServiceCode	Value in TransportServiceCode codelist, even if is temporary code.	Message rejected.	
V-TSD-002	TransportationService:ShipmentStage:TransportModeCode	In CodeList TransportModeCode	Value in TransportModeCode codelist, even if is temporary code.	Message rejected.	
V-TSD-xxx					
V-TSD-xxx					
V-TSD-xxx					

4.3. Message: TransportExecutionPlanRequest (TEPR)

4.3.1. Conditions

ID	Element	Ciondition	Description	Result	Remarks
C-TEPR-xxx					
C-TEPR-xxx					

ID	Element	Ciondition	Description	Result	Remarks
C-TEPR-xxx					
C-TEPR-xxx					
C-TEPR-xxx					

4.3.2. Rules

ID	Element	Rule	Description	Result	Remarks
R-TEPR-001	IssueDate	Value must be equal or less than system date value.	Value of date must be equal or less that the date in the system producing the message or and in the system receiving the message, discounting the effect of timezone.	Message rejected.	Avoid issue document in the future. Check together with IssueTime.
R-TEPR-002	IssueTime	Value must be equal or less than system time value.	Value of time must be equal or less that the date in the system producing the message or and in the system receiving the message, discounting the effect of timezone.	Message rejected.	Avoid issue document in the future. Check together with IssueDate.
R-TEPR-003	SenderParty	Check sender against connectivity infra-structure.	Sender Party must be properly registered in the connectivity infrastructure adopted in a particular scope.	??	From e-IMPACT the proposed connectivity infrastructure is eDelivery. Parties should be enrolled there.
R-TEPR-004	ReceiverParty	Check receiver against connectivity infra-structure.	Receiver Party must be properly registered in the connectivity infrastructure adopted in a particular scope.	??	From e-IMPACT the proposed connectivity infrastructure is eDelivery. Parties should be enrolled there.
R-TEPR-xxx					

4.3.3. Possible Values

ID	Element	Rule	Description	Result	Remarks
V-TEPR-xxx					
V-TEPR-xxx					
V-TEPR-xxx					
V-TEPR-xxx					
V-TEPR-xxx					

4.4. Message: TransportExecutionPlan (TEP)

4.4.1. Conditions

ID	Element	Condition	Description	Result	Remarks
C-TEP-xxx					
C-TEP-xxx					
C-TEP-xxx					
C-TEP-xxx					
C-TEP-xxx					

4.4.2. Rules

ID	Element	Rule	Description	Result	Remarks
R-TEP-001	IssueDate	Value must be equal or less than system date value.	Value of date must be equal or less that the date in the system producing the message or and in the system receiving the message, discounting the effect of timezone.	Message rejected.	Avoid issue document in the future. Check together with IssueTime.
R-TEP-002	IssueTime	Value must be equal or less than system time value.	Value of time must be equal or less that the date in the system producing the message or and in the system receiving the message, discounting the effect of timezone.	Message rejected.	Avoid issue document in the future. Check together with IssueDate.
R-TEP-003	SenderParty	Check sender against connectivity infra-structure.	Sender Party must be properly registered in the connectivity infrastructure adopted in a particular scope.	??	From e-IMPACT the proposed connectivity infrastructure is eDelivery. Parties should be enrolled there.
R-TEP-004	ReceiverParty	Check receiver against connectivity infra-structure.	Receiver Party must be properly registered in the connectivity infrastructure adopted in a particular scope.	??	From e-IMPACT the proposed connectivity infrastructure is eDelivery. Parties should be enrolled there.
R-TEP-xxx					

4.4.3. Possible Values

ID	Element	Rule	Description	Result	Remarks
V-TEP-xxx					
V-TEP-xxx					
V-TEP-xxx					
V-TEP-xxx					

4.5. Message: GoodsItemItinerary (GII)

4.5.1. Conditions

ID	Element	Condition	Description	Result	Remarks
C-GII-xxx					
C-GII-xxx					
C-GII-xxx					
C-GII-xxx					
C-GII-xxx					

4.5.2. Rules

ID	Element	Rule	Description	Result	Remarks
R-GII-001	IssueDate	Value must be equal or less than system date value.	Value of date must be equal or less that the date in the system producing the message or and in the system receiving the message, discounting the effect of timezone.	Message rejected.	
R-GII-002	IssueTime	Value must be equal or less than system time value.	Value of time must be equal or less that the date in the system producing the message or and in the system receiving the message, discounting the effect of timezone.	Message rejected.	
R-GII-003	SenderParty	Check sender against connectivity infra-structure.	Sender Party must be properly registered in the connectivity infrastructure adopted in a particular scope.	??	
R-GII-004	ReceiverParty	Check receiver against connectivity infra-structure.	Receiver Party must be properly registered in the connectivity infrastructure adopted in a particular scope.	??	
R-GII-xxx					

4.5.3. Possible Values

ID	Element	Rule	Description	Result	Remarks
V-GII-xxx					
V-GII-xxx					
V-GII-xxx					
V-GII-xxx					
V-GII-xxx					

4.6. Message: TransportationStatusRequest (TSR)

4.6.1. Conditions

ID	Element	Condition	Description	Result	Remarks
C-TSR-xxx					
C-TSR-xxx					
C-TSR-xxx					
C-TSR-xxx					
C-TSR-xxx					

4.6.2. Rules

ID	Element	Rule	Description	Result	Remarks
R-TSR-001	IsseuDate	Value must be equal or less than system date value.	Value of date must be equal or less that the date in the system producing the message or and in the system receiving the message, discounting the effect of timezone.	Message rejected.	Avoid issue document in the future. Check together with IssueTime.
R-TSR-002	IssueTime	Value must be equal or less than system time value.	Value of time must be equal or less that the date in the system producing the message or and in the system receiving the message, discounting the effect of timezone.	Message rejected.	Avoid issue document in the future. Check together with IssueDate.
R-TSR-003	SenderParty	Check sender against connectivity infra-structure.	Sender Party must be properly registered in the connectivity infrastructure adopted in a particular scope.	??	From e-IMPACT the proposed connectivity infrastructure is eDelivery. Parties should be enrolled there.
R-TSR-004	ReceiverParty	Check receiver against connectivity infra-	Receiver Party must be properly registered in the	??	From e-IMPACT the proposed connectivity

ID	Element	Rule	Description	Result	Remarks
		structure.	connectivity infrastructure adopted in a particular scope.		infrastructure is eDelivery. Parties should be enrolled there.
R-TSR-xxx					

4.6.3. Possible Values

ID	Element	Rule	Description	Result	Remarks
V-TSR-xxx					
V-TSR-xxx					
V-TSR-xxx					
V-TSR-xxx					
V-TSR-xxx					

4.7. Message: TransportationStatus (TS)

4.7.1. Conditions

ID	Element	Condition	Description	Result	Remarks
C-TS-xxx					
C-TS-xxx					
C-TS-xxx					
C-TS-xxx					
C-TS-xxx					

4.7.2. Rules

ID	Element	Rule	Description	Result	Remarks
R-TS-001	IssueDate	Value must be equal or less than system date value.	Value of date must be equal or less that the date in the system producing the message or and in the system receiving the message, discounting the effect of timezone.	Message rejected.	Avoid issue document in the future. Check together with IssueTime.
R-TS-002	IssueTime	Value must be equal or less than system	Value of time must be equal or less that the date in the	Message	Avoid issue document in the future. Check

ID	Element	Rule	Description	Result	Remarks
		time value.	system producing the message or and in the system receiving the message, discounting the effect of timezone.	rejected.	together with IssueDate.
R-TS-003	SenderParty	Check sender against connectivity infra-structure.	Sender Party must be properly registered in the connectivity infrastructure adopted in a particular scope.	??	From e-IMPACT the proposed connectivity infrastructure is eDelivery. Parties should be enrolled there.
R-TS-004	ReceiverParty	Check receiver against connectivity infra-structure.	Receiver Party must be properly registered in the connectivity infrastructure adopted in a particular scope.	??	From e-IMPACT the proposed connectivity infrastructure is eDelivery. Parties should be enrolled there.
R-TS-xxx					

4.7.3. Possible Values

ID	Element	Rule	Description	Result	Remarks
V-TS-xxx					
V-TS-xxx					
V-TS-xxx					
V-TS-xxx					
V-TS-xxx					

4.8. Message: Multimodal Waybill (MWB)

4.8.1. Conditions

ID	Element	Condition	Description	Result	Remarks
C-MWB-xxx					
C-MWB-xxx					
C-MWB-xxx					
C-MWB-xxx					
C-MWB-xxx					

4.8.2. Rules

ID	Element	Rule	Description	Result	Remarks
R-MWB-001	IssueDate	Value must be equal or less than system date value.	Value of date must be equal or less that the date in the system producing the message or and in the system receiving the message, discounting the effect of timezone.	Message rejected.	Avoid issue document in the future. Check together with IssueTime.
R-MWB-002	IssueTime	Value must be equal or less than system time value.	Value of time must be equal or less that the date in the system producing the message or and in the system receiving the message, discounting the effect of timezone.	Message rejected.	Avoid issue document in the future. Check together with IssueDate.
R-MWB-003	SenderParty	Check sender against connectivity infrastructure.	Sender Party must be properly registered in the connectivity infrastructure adopted in a particular scope.	??	From e-IMPACT the proposed connectivity infrastructure is eDelivery. Parties should be enrolled there.
R-MWB-004	ReceiverParty	Check receiver against connectivity infrastructure.	Receiver Party must be properly registered in the connectivity infrastructure adopted in a particular scope.	??	From e-IMPACT the proposed connectivity infrastructure is eDelivery. Parties should be enrolled there.
R-MWB-xxx					

4.8.3. Possible Values

ID	Element	Rule	Description	Result	Remarks
V-MWB-xxx					
V-MWB-xxx					
V-MWB-xxx					
V-MWB-xxx					
V-MWB-xxx					

4.9. Message: CommonReportingSchema (CRS)

4.9.1. Conditions

ID	Element	Condition	Description	Result	Remarks
C-CRS-xxx					
C-CRS-xxx					

ID	Element	Condition	Description	Result	Remarks
C-CRS-xxx					
C-CRS-xxx					
C-CRS-xxx					

4.9.2. Rules

ID	Element	Rule	Description	Result	Remarks
R-CRS-001	IssueDate	Value must be equal or less than system date value.	Value of date must be equal or less that the date in the system producing the message or and in the system receiving the message, discounting the effect of timezone.	Message rejected.	Avoid issue document in the future. Check together with IssueTime.
R-CRS-002	IssueTime	Value must be equal or less than system time value.	Value of time must be equal or less that the date in the system producing the message or and in the system receiving the message, discounting the effect of timezone.	Message rejected.	Avoid issue document in the future. Check together with IssueDate.
R-CRS-003	SenderParty	Check sender against connectivity infra-structure.	Sender Party must be properly registered in the connectivity infrastructure adopted in a particular scope.	??	From e-IMPACT the proposed connectivity infrastructure is eDelivery. Parties should be enrolled there.
R-CRS-004	ReceiverParty	Check receiver against connectivity infra-structure.	Receiver Party must be properly registered in the connectivity infrastructure adopted in a particular scope.	??	From e-IMPACT the proposed connectivity infrastructure is eDelivery. Parties should be enrolled there.
R-CRS-xxx					

4.9.3. Possible Values

ID	Element	Rule	Description	Result	Remarks
V-CRS-xxx					
V-CRS-xxx					
V-CRS-xxx					
V-CRS-xxx					
V-CRS-xxx					

4.10. Message: TransportProgressStatusRequest (TPSR)

4.10.1. Conditions

ID	Element	Condition	Description	Result	Remarks
C-TPSR-xxx					
C-TPSR-xxx					
C-TPSR-xxx					
C-TPSR-xxx					
C-TPSR-xxx					

4.10.2. Rules

ID	Element	Rule	Description	Result	Remarks
R-TPSR-001	IssueDate	Value must be equal or less than system date value.	Value of date must be equal or less that the date in the system producing the message or and in the system receiving the message, discounting the effect of timezone.	Message rejected.	Avoid issue document in the future. Check together with IssueTime.
R-TPSR-002	IssueTime	Value must be equal or less than system time value.	Value of time must be equal or less that the date in the system producing the message or and in the system receiving the message, discounting the effect of timezone.	Message rejected.	Avoid issue document in the future. Check together with IssueDate.
R-TPSR-003	SenderParty	Check sender against connectivity infra-structure.	Sender Party must be properly registered in the connectivity infrastructure adopted in a particular scope.	??	From e-IMPACT the proposed connectivity infrastructure is eDelivery. Parties should be enrolled there.
R-TPSR-004	ReceiverParty	Check receiver against connectivity infra-structure.	Receiver Party must be properly registered in the connectivity infrastructure adopted in a particular scope.	??	From e-IMPACT the proposed connectivity infrastructure is eDelivery. Parties should be enrolled there.
R-TPSR-xxx					

4.10.3. Possible Values

ID	Element	Rule	Description	Result	Remarks
V-TPSR-xxx					
V-TPSR-xxx					
V-TPSR-xxx					
V-TPSR-xxx					

ID	Element	Rule	Description	Result	Remarks
V-TPSR-xxx					

4.11. Message: TransportProgressStatus (TPS)

4.11.1. Conditions

ID	Element	Condition	Description	Result	Remarks
C-TPS-001	PartyIdentification	Required if party name is absent	To correctly identify one party, an identification or a name is needed. It is preferred the use of identification.	Message rejected.	Applicable only to sender and receiver parties.
C-TPS-002	Partyname	Required if party identification is absent	To correctly identify one party, an identification or a name is needed.	Message rejected.	Applicable only to sender and receiver parties.
C-TPS-003	Country. IdentificationCode	Required if Country Name is absent.	To correctly identify one country, an identification or a name is needed. It is preferred the use of identification	Message rejected.	
C-TPS-004	Country.Name	Required if Country.IdentificationCode is absent	To correctly identify one country, an identification or a name is needed.	Message rejected.	

4.11.2. Rules

ID	Element	Rule	Description	Result	Remarks
R-TPS-001	IssueDate	Value must be equal or less than system date value.	Value of date must be equal or less that the date in the system producing the message or and in the system receiving the message, discounting the effect of timezone.	Message rejected.	Avoid issue document in the future. Check together with IssueTime.
R-TPS-002	IssueTime	Value must be equal or less than system time value.	Value of time must be equal or less that the date in the system producing the message or and in the system receiving the message, discounting the effect of timezone.	Message rejected.	Avoid issue document in the future. Check together with IssueDate.
R-TPS-003	SenderParty	Check sender against connectivity infra-structure.	Sender Party must be properly registered in the connectivity infrastructure adopted in a particular scope.	Message correctly Sent.	From e-IMPACT the proposed connectivity infrastructure is eDelivery. Parties should be enrolled there.
R-TPS-004	ReceiverParty	Check receiver against connectivity infra-structure.	Receiver Party must be properly registered in the connectivity infrastructure adopted in a particular scope.	Message correctly received.	From e-IMPACT the proposed connectivity infrastructure is eDelivery. Parties should be

ID	Element	Rule	Description	Result	Remarks
					enrolled there.
R-TPS-005	PartyIdentification.ID	Identification should correspond to a registered value for the party.	The identification is used by the system to check if the party is registered in the system	Message rejected.	Applicable only to sender and receiver parties.
R-TPS-006	PartyName.NAME	The name of the party should correspond to a registered value for the party.	The party name is used by the system to check if the name of the party is registered in the system	Message rejected.	Applicable only to sender and receiver parties.
R-TPS-007	VesselID, VesselName, RadioCallSignID	At least two of these elements should have a value in the message	Considering that in the maritime industry not all vessels have an IMO number and the vessel name can change while in port or while in the journey and the Radio Call Sign can also change, there is no unique way to identify a vessel.	Message rejected.	
R-TPS-008	StartDate, StartTime, EndDate, EndTime	Start Date and Time should be less or equal then End Date and Time.		Message rejected.	
R-TPS-009	PlannedDepartureTransportEvent.TransportEvent TypeCode	If this element is used with a value then it would be ignored.	The value in the Transport Event Type Code is irrelevant since the element Planned Departure Transport Event identifies the type of event.	Apply other situations.	
R-TPS-010	PlannedArrivalTransportEvent.TransportEvent TypeCode	If this element is used with a value then it would be ignored.	The value in the Transport Event Type Code is irrelevant since the element Planned Arrival Transport Event identifies the type of event.	Apply other situations.	
R-TPS-011	ActualArrivalTransportEvent.TransportEvent TypeCode	If this element is used with a value then it would be ignored.	The value in the Transport Event Type Code is irrelevant since the element Actual Arrival Transport Event identifies the type of event.	Apply other situations.	
R-TPS-012	ActualDepartureTransportEvent.TransportEvent TypeCode	If this element is used with a value then it would be ignored.	The value in the Transport Event Type Code is irrelevant since the element Actual Departure Transport Event identifies the type of event.	Apply other situations.	
R-TPS-013	EstimatedDepartureTransportEvent.TransportEvent TypeCode	If this element is used with a value then it would be ignored.	The value in the Transport Event Type Code is irrelevant since the element Estimated Departure Transport Event identifies the type of event.	Apply other situations.	
R-TPS-014	EstimatedArrivalTransportEvent.TransportEvent TypeCode	If this element is used with a value then it would be ignored.	The value in the Transport Event Type Code is irrelevant since the element Estimated Arrival Transport Event identifies the type of event.	Apply other situations.	

4.11.3. Possible Values

ID	Element	Rule	Description	Result	Remarks
V-TPS-001	StatusAvailableIndicator	If the element is present in message it should be yes or no		Message rejected	
V-TPS-002	Country. IdentificationCode	The value has to be in the IdentificationCode code list		Message rejected.	
V-TPS-003	Location.ID	The value should be present in a reference code list.	As a location can be identified by several list issued by different agencies/organizations it means that no universal reference list exists (UN/Locode, EAN Location Number). Depending on the context a suitable widely recognize list should be used preferably or, if this is not possible, use local lists agreed between partners.	Message rejected.	
V-TPS-004	LocationTypeCode	The value should be present in the LocationTypeCode in the Code List.		Message rejected	Applicable code list subset: 5, 8, 29, 60, 61, 66, 67, 77, 78, 87, 94, 95, 123,124, 125, 130, 139, 140, 141, 142, 153, 156, 160, 161, 164, 172, 176, 184, 202, 214, 216, 217, 221, 225, 226, 227,228,229, 230, 234, 235, 236, 248, 252, 253, 254, 255, 276, 288, 296, 300.
V-TPS-005	CoordinateSystemCode	The value should be present in CoordinateSystemCode in the Code List		Message rejected	
V-TPS-006	LatitudeDirectionCode	The value should be in LatitudeDirectionCode in the Code List.		Message rejected	
V-TPS-007	LongitudeDirectionCode	The value should be in LongitudeDirectionCode in the Code List		Message rejected	

5. Template

To use the below templates for specific/local validations it is advised to make a working copy of this document and perform the changes in there. Lines can be added to each table.

Important: When using the template to describe own validation rules, make sure not to assign an ID already assigned to any other rule.

5.1. Message: TransportServiceDescriptionRequest (TSDR)

5.1.1. Conditions

ID	Element	Condition	Description	Result	Remarks
C-TSDR-xxx					
C-TSDR-xxx					
C-TSDR-xxx					
C-TSDR-xxx					
…					

5.1.2. Rules

ID	Element	Rule	Description	Result	Remarks
R-TSDR-xxx					
R-TSDR-xxx					
R-TSDR-xxx					
R-TSDR-xxx					
…					

5.1.3. Possible Values

ID	Element	Rule	Description	Result	Remarks
V-TSDR-xxx					
V-TSDR-xxx					
V-TSDR-xxx					
V-TSDR-xxx					
…					

5.2. Message: TransportServiceDescription (TSD)

5.2.1. Conditions

ID	Element	Condition	Description	Result	Remarks
C-TSD-xxx					
C-TSD-xxx					
C-TSD-xxx					
C-TSD-xxx					
…					

5.2.2. Rules

ID	Element	Rule	Description	Result	Remarks
R-TSD-xxx					
R-TSD-xxx					
R-TSD-xxx					
R-TSD-xxx					
…					

5.2.3. Possible Values

ID	Element	Rule	Description	Result	Remarks
V-TSD-xxx					
V-TSD-xxx					
V-TSD-xxx					
V-TSD-xxx					
…					

5.3. Message: TransportExecutionPlanRequest (TEPR)

5.3.1. Conditions

ID	Element	Condition	Description	Result	Remarks
C-TEPR-xxx					
C-TEPR-xxx					
C-TEPR-xxx					
C-TEPR-xxx					
...					

5.3.2. Rules

ID	Element	Rule	Description	Result	Remarks
R-TEPR-xxx					
R-TEPR-xxx					
R-TEPR-xxx					
R-TEPR-xxx					
...					

5.3.3. Possible Values

ID	Element	Rule	Description	Result	Remarks
V-TEPR-xxx					
V-TEPR-xxx					
V-TEPR-xxx					
V-TEPR-xxx					
...					

5.4. Message: TransportExecutionPlan (TEP)

5.4.1. Conditions

ID	Element	Condition	Description	Result	Remarks
C-TEP-xxx					
C-TEP-xxx					
C-TEP-xxx					
C-TEP-xxx					
…					

5.4.2. Rules

ID	Element	Rule	Description	Result	Remarks
R-TEP-xxx					
R-TEP-xxx					
R-TEP-xxx					
R-TEP-xxx					
…					

5.4.3. Possible Values

ID	Element	Rule	Description	Result	Remarks
V-TEP-xxx					
V-TEP-xxx					
V-TEP-xxx					
V-TEP-xxx					
…					

5.5. Message: GoodsItemItinerary (GII)

5.5.1. Conditions

ID	Element	Condition	Description	Result	Remarks
C-GII-xxx					
C-GII-xxx					
C-GII-xxx					
C-GII-xxx					
…					

5.5.2. Rules

ID	Element	Rule	Description	Result	Remarks
R-GII-xxx					
R-GII-xxx					
R-GII-xxx					
R-GII-xxx					
…					

5.5.3. Possible Values

ID	Element	Rule	Description	Result	Remarks
V-GII-xxx					
V-GII-xxx					
V-GII-xxx					
V-GII-xxx					
…					

5.6. Message: TransportationStatusRequest (TSR)

5.6.1. Conditions

ID	Element	Condition	Description	Result	Remarks
C-TSR-xxx					
C-TSR-xxx					
C-TSR-xxx					
C-TSR-xxx					
…					

5.6.2. Rules

ID	Element	Rule	Description	Result	Remarks
R-TSR-xxx					
R-TSR-xxx					
R-TSR-xxx					
R-TSR-xxx					
…					

5.6.3. Possible Values

ID	Element	Rule	Description	Result	Remarks
V-TSR-xxx					
V-TSR-xxx					
V-TSR-xxx					
V-TSR-xxx					
…					

5.7. Message: TransportationStatus (TS)

5.7.1. Conditions

ID	Element	Condition	Description	Result	Remarks
C-TS-xxx					
C-TS-xxx					
C-TS-xxx					
C-TS-xxx					
...					

5.7.2. Rules

ID	Element	Rule	Description	Result	Remarks
V-TS-xxx					
V-TS-xxx					
V-TS-xxx					
V-TS-xxx					
...					

5.7.3. Possible Values

ID	Element	Rule	Description	Result	Remarks
R-TS-xxx					
R-TS-xxx					
R-TS-xxx					
R-TS-xxx					
...					

5.8. Message: Multimodal Waybill (MWB)

5.8.1. Conditions

ID	Element	Condition	Description	Result	Remarks
C-MWB-xxx					
C-MWB-xxx					
C-MWB-xxx					
C-MWB-xxx					
…					

5.8.2. Rules

ID	Element	Rule	Description	Result	Remarks
R-MWB-xxx					
R-MWB-xxx					
R-MWB-xxx					
R-MWB-xxx					
…					

5.8.3. Possible Values

ID	Element	Rule	Description	Result	Remarks
V-MWB-xxx					
V-MWB-xxx					
V-MWB-xxx					
V-MWB-xxx					
…					

5.9. Message: CommonReportingSchema (CRS)

5.9.1. Conditions

ID	Element	Condition	Description	Result	Remarks
C-CRS-xxx					
C-CRS-xxx					
C-CRS-xxx					
C-CRS-xxx					
...					

5.9.2. Rules

ID	Element	Rule	Description	Result	Remarks
R-CRS-xxx					
R-CRS-xxx					
R-CRS-xxx					
R-CRS-xxx					
...					

5.9.3. Possible Values

ID	Element	Rule	Description	Result	Remarks
V-CRS-xxx					
V-CRS-xxx					
V-CRS-xxx					
V-CRS-xxx					
...					

5.10. Message: TransportProgressStatusRequest (TPSR)

5.10.1. Conditions

ID	Element	Condition	Description	Result	Remarks
C-TPSR-xxx					
C-TPSR-xxx					
C-TPSR-xxx					
C-TPSR-xxx					
...					

5.10.2. Rules

ID	Element	Rule	Description	Result	Remarks
R-TPSR-xxx					
R-TPSR-xxx					
R-TPSR-xxx					
R-TPSR-xxx					
...					

5.10.3. Possible Values

ID	Element	Rule	Description	Result	Remarks
V-TPSR-xxx					
V-TPSR-xxx					
V-TPSR-xxx					
V-TPSR-xxx					
...					

5.11. Message: TransportProgressStatus (TPS)

5.11.1. Conditions

ID	Element	Condition	Description	Result	Remarks
C-TPS-xxx					
C-TPS-xxx					
C-TPS-xxx					
C-TPS-xxx					
…					

5.11.2. Rules

ID	Element	Rule	Description	Result	Remarks
R-TPS-xxx					
R-TPS-xxx					
R-TPS-xxx					
R-TPS-xxx					
…					

5.11.3. Possible Values

ID	Element	Rule	Description	Result	Remarks
V-TPS-xxx					
V-TPS-xxx					
V-TPS-xxx					
V-TPS-xxx					
…					

6. Example of Application

Examples of the Validation Rules usage can be found in the tool "e-IMPACT_Examples", in particular section 3.6.

The examples are presented in the context of a hypothetical e-Freight adoption process. To make them interesting, the reader is driven through a business story where an analyst has to make some options on adopting e-Freight regarding the overall business goals.

The validation rules are not alone in the Toolkit. The examples take this into account regarding specific points.

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