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Economic Commission for Europe

Inland Transport Committee

Working Party on Customs Questions affecting Transport

**Informal Ad hoc Expert Group on Conceptual and
Technical Aspects of Computerization of the TIR Procedure**

Twenty-fourth session

Antalya, 25-26 September 2014

Item 5 (b) of the provisional agenda

Other business:

Other activities of interest

UNECE-IRU eTIR pilot project- Overview for Customs

**Note by the secretariat and the International Road Transport Union
(IRU)**

I. Background

1. The Expert Group may wish to take note of the document presenting the customs relevant aspects of the UNECE-IRU eTIR pilot project, as reproduced in Annex

Annex



eTIR Joint Pilot Overview for customs

Version 1

06 June 2014



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LIST OF ABBREVIATIONS

Abbreviation	Signification
B2C/C2B	Business to customs Customs to Business
C2C	Customs to customs
eGuarantee	TIR electronic guarantee
EPD	Electronic pre-declaration
RTS	Real-Time SafeTIR

Table 0-1: List of abbreviations

VERSION HISTORY

Version	Date	Comment
1	10.06.2014	Initial version presented at WP30

Table 0-2: Version history



1 INTRODUCTION

1.1 Preamble

At its seventy-sixth session, the Inland Transport Committee urged Contracting Parties to accelerate efforts to complete and launch the eTIR project (ECE/TRANS/240). On this basis and considering that the work on the conceptual and technical aspects of the computerization of the TIR procedure is nearing completion, the secretariat met with representatives of IRU to discuss possible ways to speed up the launching of the eTIR project by means of a pilot as well as outlining a common long term vision¹.

1.2 Purpose of this document

The aim of this document is to present the concept of the eTIR pilot (including high level functionalities and technical requirements) as well as presenting a possible roadmap towards the full implementation of the eTIR Reference Model. This document also allows assessing the activities to be deployed by interested pilot countries.

¹ For further details, see document [ECE/TRANS/WP.30/2014/9](https://www.ece.org/trans/wp30/2014/9)

2 ETIR PILOT

2.1 Presentation

2.1.1 Objective

The objective of this pilot project is to allow a rapid and minimum cost launch of a paper-less TIR procedure between two pilot countries, building on the investments that have already been made by both customs administrations and the private sector in the framework of the computerization of the TIR procedure.

2.1.2 Main concepts

The pilot project builds on the existing investments and constitutes a first step towards implementing the fully fledged eTIR system, as designed by Contracting Parties and described in the eTIR Reference Model. To accelerate its implementation within a limited geographical area and timeframe, the pilot project will not encompass all eTIR concepts.

The pilot project will involve two Contracting Parties to the TIR Convention that have already computerized the management of TIR operations at the national level and that are, ideally, already connected to the Real-Time SafeTIR (RTS) and TIR-EPD (electronic pre-declaration) systems of IRU. The IRU central databases, used by the RTS and TIR-EPD systems, will function as repositories for customs-to-customs (C2C) information exchange related to TIR operations and the data will be replicated in a minimized eTIR international system, hosted by UNECE. The minimized system will only be used for audit purposes and ensure full consistency, integrity and reliability of the data available in the IRU systems.

Upon issue of an electronic guarantee, the guarantee data will be recorded in the eTIR international system, as foreseen in the eTIR project. However, at this stage, the eTIR international system will not be available 24/7 in order to minimize the costs of the pilot. Pilot countries will have two options to verify the validity of the guarantee, against the eTIR international system or against the IRU database which will be operational at all times.

Furthermore, pilot countries will receive, by means of the TIR-EPD system, differentiated declarations in line with their national requirements, in particular when it comes to safety and security data. The declaration checked by customs in the country of departure will be stored in the IRU system and made available to customs in the country of destination. The pilot countries will send messages to IRU at the start and termination of each TIR operation. This information will be available to the pilot countries and replicated in the eTIR international systems to ensure integrity.

2.1.3 Pilot high-level architecture

The pilot architecture leverages existing systems. Customs check the validity of the guarantee and exchange TIR operation data, using the IRU systems. At the same time, all data are also replicated to the UNECE eTIR international system to ensure data integrity and can be consulted by customs on request.

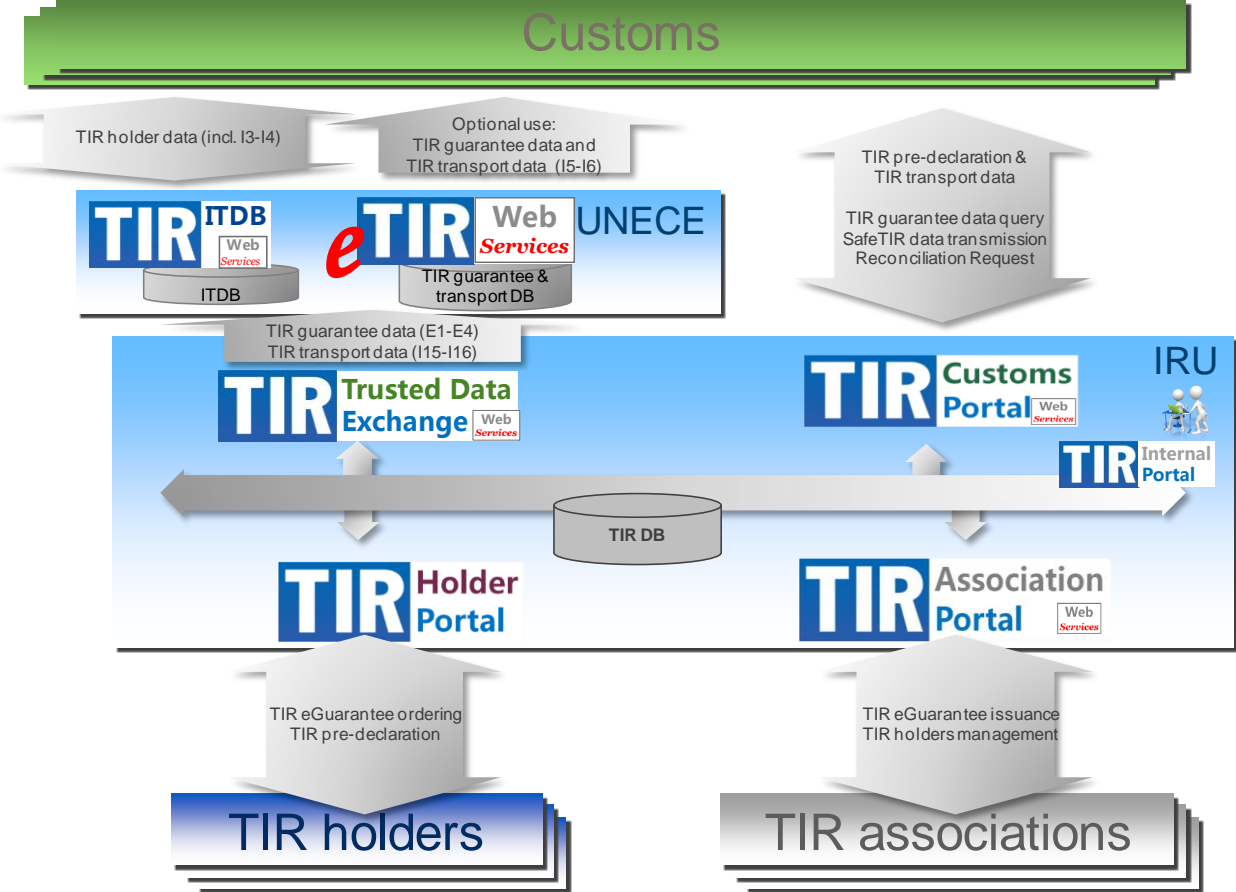


Figure 2-1: Pilot high-level architecture

Please refer to the eTIR Reference Model¹ for further description of Ex/Ix messages.

¹ Current version dated November 13th, 2013:
http://www.unece.org/fileadmin/DAM/trans/bcf/adhoc/conc_tech/documents/id13-04e.pdf

2.1.4 Scope of the pilot

The geographical scope of the pilot is limited to a single corridor composed of two Contracting Parties and four defined customs offices (two in each country). Furthermore, the pilot will only cover simple TIR transports (i.e. with one loading point, one border crossing and one unloading point), conducted by a limited number of TIR transport operators.

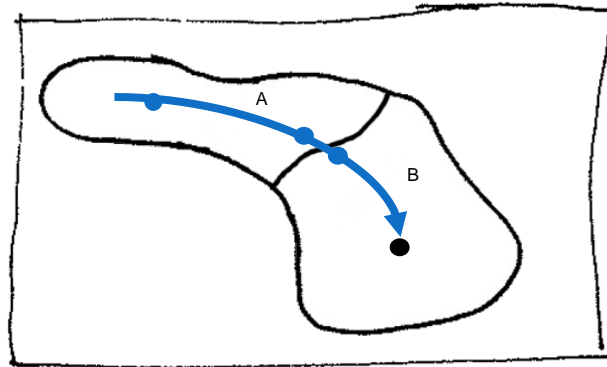


Figure 2-2: Corridor (between two countries)

During the pilot phase, the TIR Convention does not need to be amended. A bilateral agreement between the two participating Contracting Parties will suffice.

2.1.5 Modus operandi

2.1.5.1 Issuance of electronic guarantees

Holders will order electronic guarantees online. The corresponding national guaranteeing association issues the electronic guarantee after conducting the necessary controls.

2.1.5.2 Real-time TIR operation monitoring

Associations will monitor in real-time transport operations covered by electronic guarantees they have issued. This allows to quickly identify problems, irregularities or fraud cases and contact holder or customs authorities accordingly.

2.1.5.3 TIR operation data transmission and retrieval

Customs will send TIR operation data (Departure, Exit, Entry, Termination, Discharge) to IRU's database. TIR customs data (mainly seals number affixed at the customs office of departure) will be queried by customs from IRU's database, which will be accessible 24/7.

2.1.5.4 Replication to the UNECE eTIR international system

Data on electronic guarantees (issued to holders) and TIR operation data centralized at IRU's database, are replicated to a simplified eTIR international system, hosted by UNECE, where customs may also retrieve TIR data but whose availability cannot be ensured 24/7.

2.1.6 Stakeholders roles

This section describes the roles and responsibilities of all stakeholders during the pilot.

Holder (i.e. hauliers)

- Order the electronic guarantee online.
- Print their electronic guarantee reference (see 2.1.7-Unique electronic guarantee identifier)
- Submit advance cargo information via TIR-EPD (including the electronic guarantee identifier).
- Present the vehicle, the goods and the electronic guarantee identifier to customs

Customs

- Receive advance cargo information (pre-declaration) and perform their risk assessment.
- Approve/reject the holders pre-declaration.
- Upon the presentation of the vehicle at the departure and entry, check the validity of the electronic guarantee and, possibly, retrieve eTIR transport information from the IRU data base using the guarantee reference.
- Perform controls and procedures according to the TIR procedure. Then authorize the vehicle to depart/continue its transport in their country.
- Send TIR operations data to the IRU (Departure, Exit, Entry, Termination, Discharge)

IRU national associations

- Issue electronic guarantees.
- Monitor risk, identify potential irregularities or fraud cases and take appropriate actions.

IRU

- Provide IRU systems to support the pilot: Holder Portal (i.e. TIR-EPD), Association Portal (i.e. AskTIRWeb), Customs Portal (i.e. TIRCUTEWeb, CUTE-Wise and RTS). Amend the systems if required.
- Manage electronic guarantees.
- Receive/provide TIR operation data from/to customs and to associations.
- Transmit electronic guarantees and TIR operation data to UNECE's eTIR international system using eTIR standard messages.

UNECE

- Manage UNECE's eTIR international system, which contains a replica of the electronic guarantees and TIR operation data contained in IRU's systems.
- Provide access to the data to customs.

2.1.7 Unique electronic guarantee identifier

Holders do not travel with a paper TIR Carnet anymore but instead with a printable reference which uniquely identifies the electronic guarantee. The exact format of this identifier (barcode/QR code, number, etc.) will be defined at a later stage, but a possible example is shown in the Figure below. Customs will also use this identifier as reference to the TIR operation data in their system.



Figure 2-3: Simple example of an electronic guarantee reference (printable by holders)

2.1.8 Message exchange

The following sequence diagram shows the sequence of messages which are exchanged among systems during a normal pilot TIR transport. The precondition is that an electronic guarantee has been issued to the holder by his/her national guaranteeing association (see 2.1.5.1-Issuance of electronic guarantees).

The process ends after the discharge of both TIR operations. Alternative scenarios (e.g. EPD rejections, etc.) are described in Annex (see 5.1-Message exchange (special cases))

It is important to note that guarantee and operational data are managed by IRU in real-time. The data are replicated to the UNECE eTIR international system by means of the E1-E4/I15-I16 messages shown in Figure 2-1: Pilot high-level architecture. The data can be accessed by customs via the UNECE portal (as shown in the below part of the Figure 2-4: Sequence diagram -eTIR pilot –Normal scenario).

Systems are represented by vertically dotted lines, each message is represented by a horizontal arrow going from the system sending this message to the system receiving this message. In case a message sends a specific result back, it is represented by a horizontally dotted line and by the *Result* text. Comments like *Vehicle arrives at the customs of departure* are displayed as the process progresses.

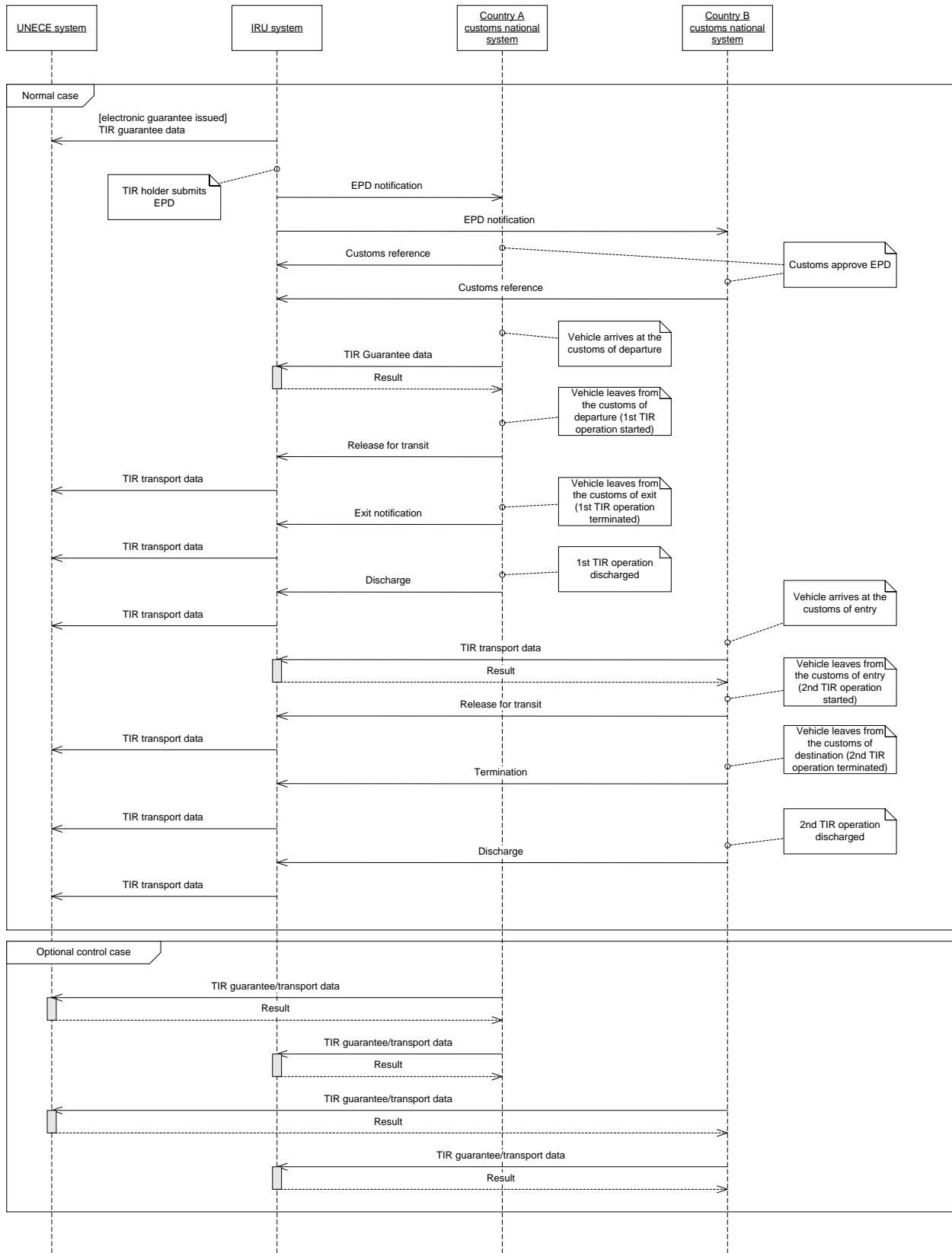


Figure 2-4: Sequence diagram -eTIR pilot –Normal scenario

2.2 Prerequisites

2.2.1 B2C/C2B Messages

2.2.1.1 Guarantee registration

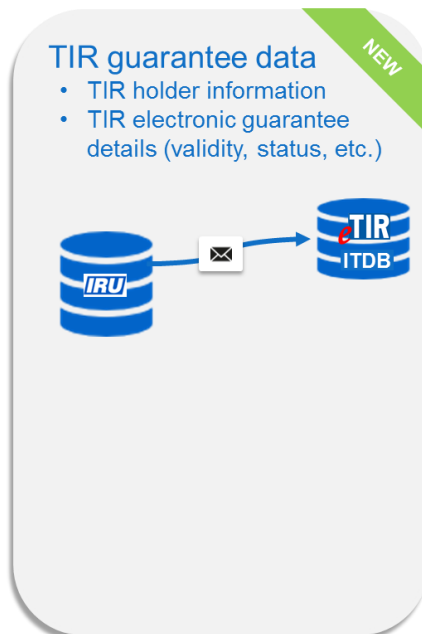


Figure 2-5: Guarantee registration

Precondition:

Electronic guarantee issued to the holder by his association

Sender:

IRU

Recipient:

eTIR international system

Content:

Detailed information about the holder and the electronic guarantee, which may be retrieved by customs at any time.

Nature of changes required for the pilot:

The IRU/UNECE eTIR replication should be put in place

2.2.1.2 EPD notification

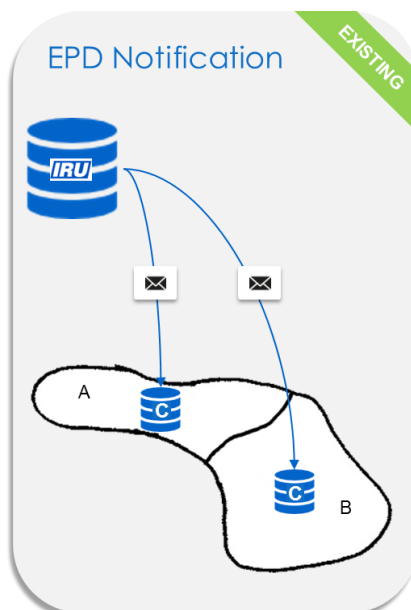


Figure 2-6: EPD notification

Precondition:

Electronic guarantee issued to the holder by his association

Sender:

Holder (via IRU Holder Portal (i.e. TIR-EPD))

Recipient:

Central customs of both countries

Content:

Detailed information about the holder, the TIR transport and possibly additional data requested by customs

Nature of changes required for the pilot:

No changes required

2.2.1.3 Customs reference

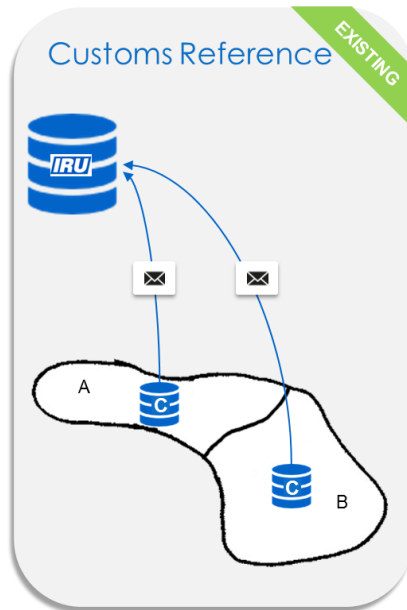


Figure 2-7: Customs reference

Precondition:

EPD notification received

Sender:

Central customs of both countries

Recipient:

Holder (via IRU Holder Portal (i.e. TIR-EPD))

Content:

Customs reference (MRN/LRN), etc.

Nature of changes required for the pilot:

No changes required

2.2.1.4 TIR guarantee data

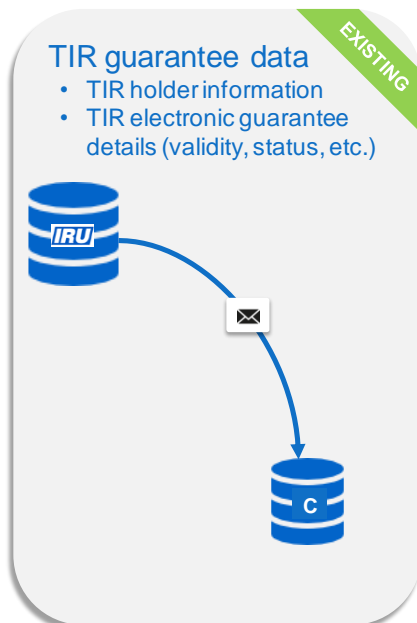


Figure 2-8: TIR guarantee data

Precondition:

Electronic guarantee issued

Sender:

IRU

Recipient:

Customs, UNECE eTIR international system

Content:

Detailed information about the holder and the electronic guarantee, which may be retrieved by customs at any time.

Nature of changes required for the pilot:

No change required

2.2.1.5 Release for transit (departure and entry)

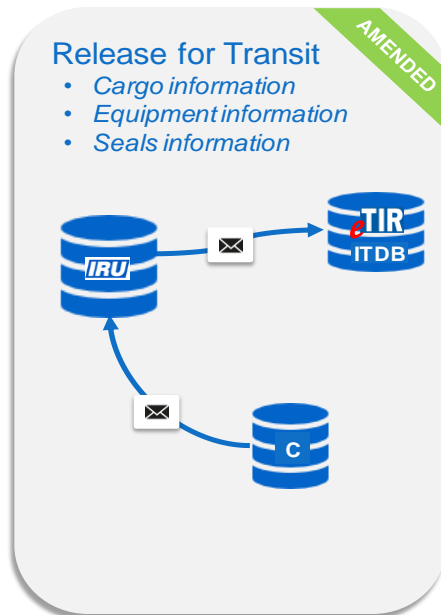


Figure 2-9: Release for transit (departure and entry)

Precondition:

Customs reference received, holder present at the customs office of departure/entry, customs controls OK

Sender:

Customs

Recipient:

IRU, UNECE eTIR international system (via IRU)

Content:

All information contained in the pre-declaration as well as the seals information and the results of the controls, if any.

Nature of changes required for the pilot:

Include information about cargo, equipment and seals in the Release for Transit message sent to IRU. The IRU/UNECE eTIR replication should be put in place

2.2.1.6 Exit notification

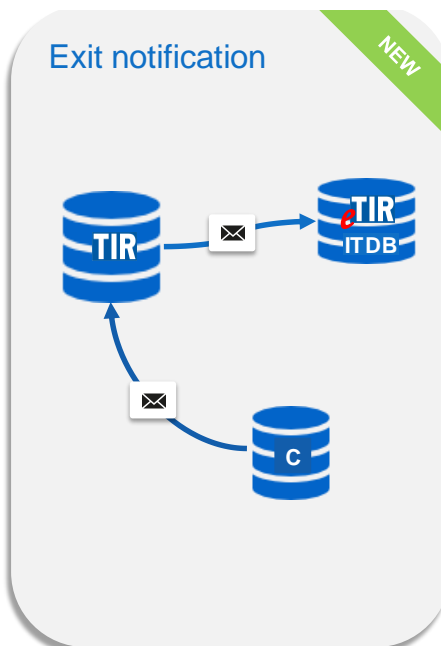


Figure 2-10: Exit notification

Precondition:

Release for transit received, holder present at the customs office of exit, customs controls OK

Sender:

Customs

Recipient:

IRU, UNECE eTIR international system (via IRU)

Content:

Electronic guarantee identifier, customs office reference, exit date, control results, etc. and optionally: seals information

Nature of changes required for the pilot:

This is a new message to be transmitted (however data should be available in the customs systems). The IRU/UNECE eTIR replication should be put in place

2.2.1.7 Discharge

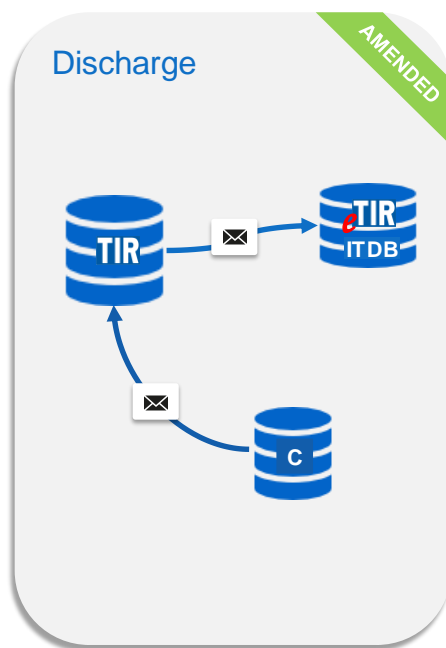


Figure 2-11: Discharge

Precondition:

Exit notification/termination received, customs reconciliation OK

Sender:

Central customs of both countries

Recipient:

IRU, UNECE eTIR international system (via IRU)

Content:

Electronic guarantee identifier, customs office reference, discharge date, etc.

Nature of changes required for the pilot:

This is a new message to be transmitted (however data should be available in customs systems). The IRU/UNECE eTIR replication should be put in place

2.2.1.8 TIR transport data

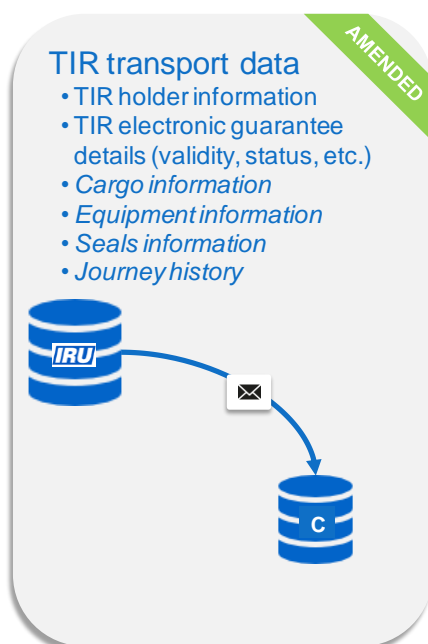


Figure 2-12: TIR transport data

Precondition:

Electronic guarantee issued

Sender:

IRU

Recipient:

Customs

Content:

Detailed information about the holder, the electronic guarantee and the TIR transport, which may be retrieved by customs at any time. If the TIR transport has begun, then the following information is also available: cargo, equipment, seals and journey history

Nature of changes required for the pilot:

Include information about cargo, equipment, seals and journey history information

2.2.1.9 Final termination

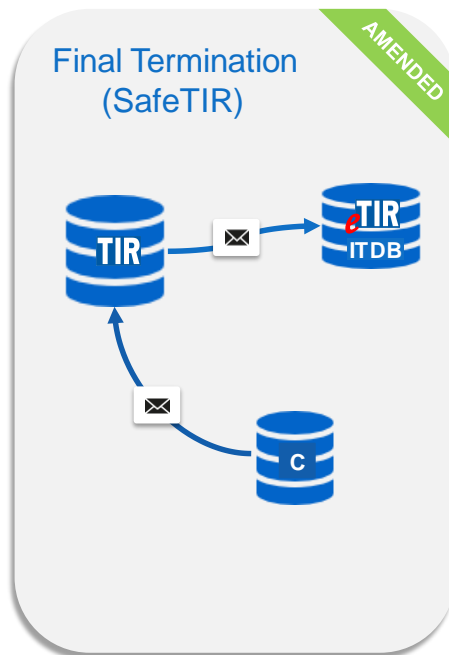


Figure 2-13: Final termination

Precondition:

Release for transit received, holder present at the customs office of destination, customs controls OK or with reservations

Sender:

Customs

Recipient:

IRU, UNECE eTIR international system (via IRU)

Content:

Electronic guarantee identifier, customs office reference, termination date, package quantity, etc. and optionally reservations

Nature of changes required for the pilot:

None for customs. The RTS message exists, is already implemented and does not require modification. The IRU/UNECE eTIR database replication should be put in place

2.2.1.10 Specific case - EPD rejection

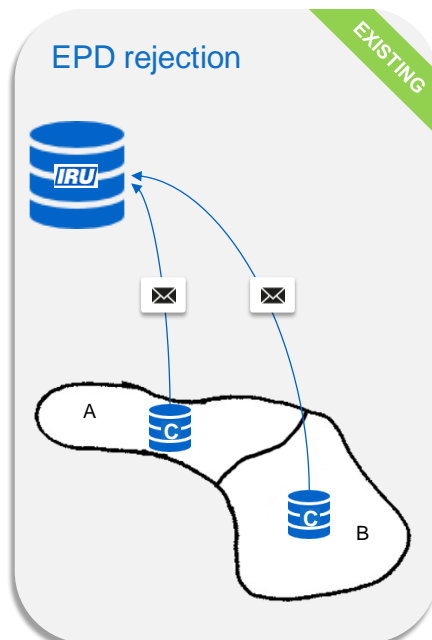


Figure 2-14: Specific case - EPD rejection

Precondition:

EPD notification sent

Sender:

Central customs of both countries

Recipient:

Holder (via IRU Holder Portal (i.e. TIR-EPD))

Content:

electronic guarantee reference number, customs office reference, rejection reason, LRN, etc.

Nature of changes required for the pilot:

No change required

2.2.1.11 Specific case - EPD Cancellation decision (optional)

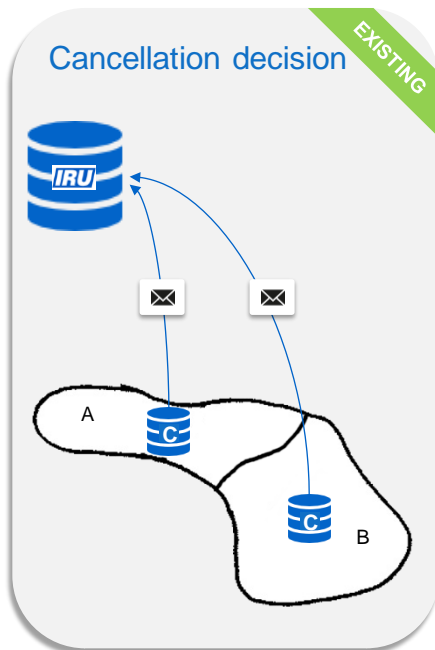


Figure 2-15: Specific case - EPD Cancellation decision (optional)

Precondition:

Customs reference received

Sender:

Central customs of both countries

Recipient:

Holder (via IRU Holder Portal (i.e. TIR-EPD))

Content:

electronic guarantee reference number, customs office reference, MRN, etc. and optionally LRN

Nature of changes required for the pilot:

As this message is implemented only by customs which decided to use it (mainly to notify holders that the unused EPDs and related MRNs are cancelled from customs systems after a certain time), no change is required

2.2.1.12 Specific case - No release for transit

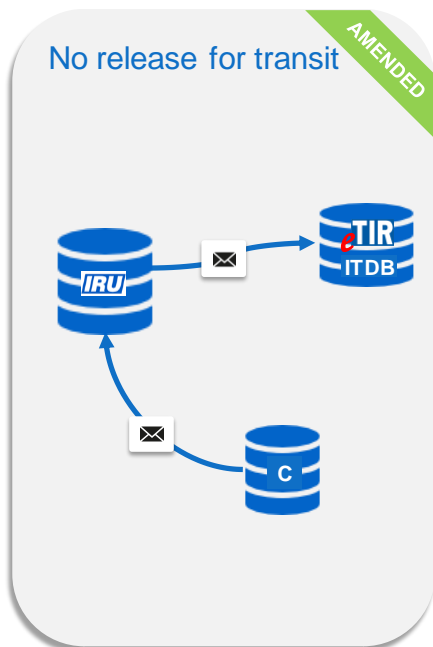


Figure 2-16: Specific case - No release for transit

Precondition:

Customs reference received, holder present at the customs office of departure/entry, customs controls not OK

Sender:

Customs of departure/entry

Recipient:

Holder (via IRU Holder Portal (i.e. TIR-EPD))

Content:

electronic guarantee reference number, customs office reference, no release motivation

Nature of changes required for the pilot:

None for customs. The message exists and does not require modification. Just the IRU/UNECE eTIR database replication should be put in place

2.2.1.13 Claims, audits and other-TIR transport data



Figure 2-17: Claims, audits and other-TIR transport data

Precondition:

Electronic guarantee issued to the holder by his association

Sender:

IRU / eTIR international system

Recipient:

Customs

Content:

Detailed information about the holder, the electronic guarantee and the TIR transport, which may be retrieved by customs at any time. If the TIR transport has begun, then the following information is also available: cargo, equipment, seals and journey history

Nature of changes required for the pilot:

The UNECE eTIR system and interfaces need to be developed

2.2.2 eTIR pilot readiness checklist

The table hereafter summarizes required B2C/C2B messages and systems required in order to launch the pilot and their current status.

This section will be customized with customs according to the country's status to provide a quick overview of what should be done to be ready for the pilot














Status	Sys/Msg	Name	Description
	Sys	Holder Portal (TIR-EPD)	IRU's TIR-EPD integrated with customs systems
	Sys	Customs Portal (TIRCuteWeb, CUTE-Wise)	Customs have access
	Sys	Real Time SafeTIR (RTS)	IRU's RTS integrated with customs systems
	Msg	EPD notification	Message already exists. No modification
	Msg	EPD rejection	Message already exists. No modification
	Msg	Customs reference	Message already exists. No modification
	Msg	Cancellation decision	Message already exists. No modification
	Msg	electronic guarantee Information	Message already exists. Must be amended with new information which must be retrieved by customs
	Msg	Release for transit	Message already exists. Must be amended with new information which must be provided by customs
	Msg	No release for transit	Message already exists. No modification
	Msg	Exit notification	New message (equivalent to termination)
	Msg	Discharge	Message already exists. Must be activated by customs
	Msg	Termination	Message already exists. No modification

Table 2-1: eTIR pilot readiness checklist

2.3 eTIR pilot, next steps

Following steps are envisaged in order to launch the pilot:

- Kickoff meeting
 - Joint meeting customs, UNECE, IRU, national association
 - Detailed IRU-UNECE eTIR pilot presentation
 - Objectives review
 - B2C/C2B technical readiness review
 - Project planning & organization
- Technical assessment (review of B2C/C2B message exchanges; identification of necessary amendments or additions) (customs, IRU, UNECE)
- Signature of bilateral agreements (participating Contracting Parties, IRU, national associations)
- Development of necessary changes (i.e. messages amendment) and of the light version of the UNECE eTIR international system (customs, IRU, UNECE)
- Selection of customs offices which will be part of the pilot (customs)
- Selection of transport operators which will be part of the pilot (national association & customs)
- Training of customs employees (customs)
- Testing
 - Integration with IRU (emission/reception of messages)
 - Integration with UNECE (reception of messages)
 - Dry run (simulation of a real transport)
- Go-live

3 NEXT STEPS TOWARDS FULLY FLEDGED ETIR

3.1 eTIR longer-term high-level architecture

The fully fledged eTIR system architecture looks as follows:

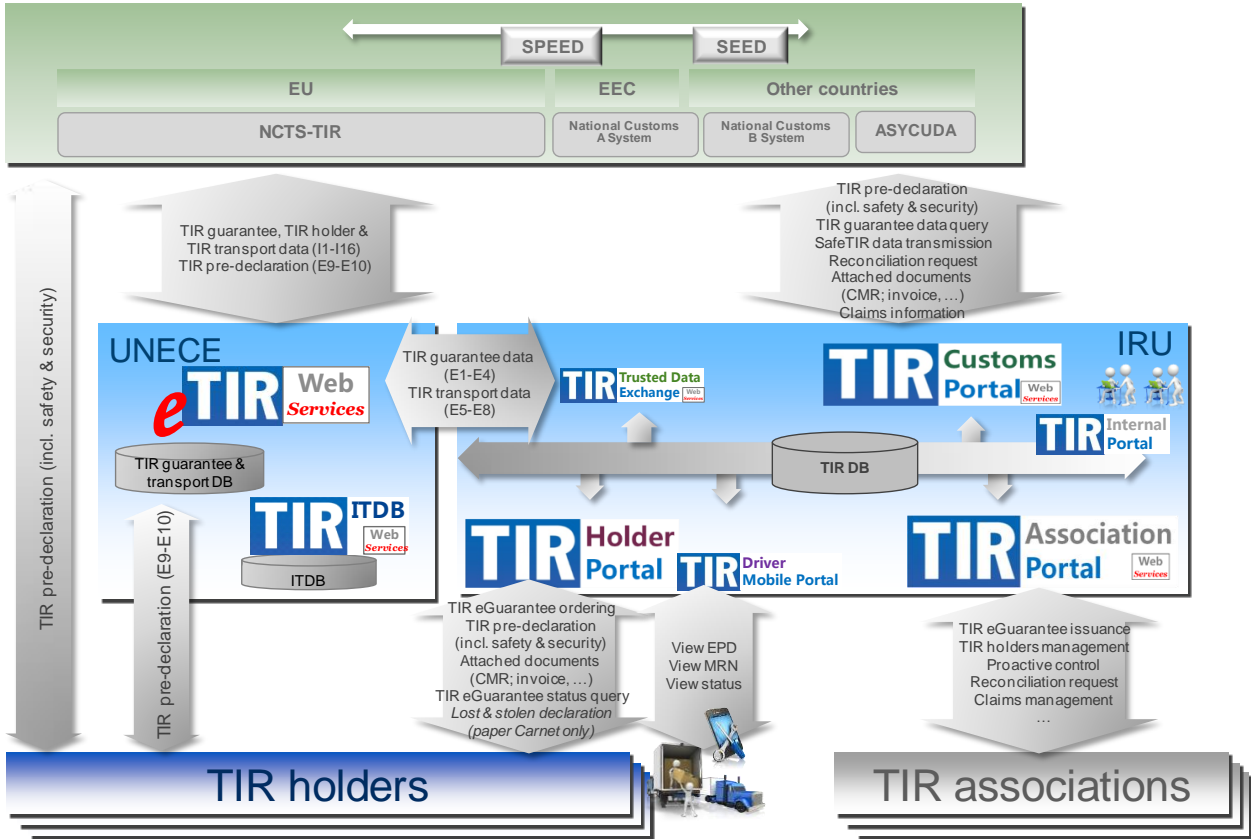


Figure 3-1: eTIR longer-term high-level architecture

Please refer to the eTIR Reference Model for further description of Ex/lx messages.

3.2 Path from pilot to fully fledged system

The pilot will gradually evolve towards the fully fledged system as envisaged in the eTIR Reference Model by gradually removing limitations as described hereafter.

	Pilot		Progressive transition				Full eTIR
	Step 1	Step 2	Step 3	Step 4	Step 5	..	
# of countries	2	2	2	2	2	Progressive geographical expansion	All
# of customs offices	4	All	All	All	All		All
# of operators	2	All	All	All	All		All
Max # of loading and unloading	2	4	4	4	4		4 (maybe more)
eTIR message standard	✗ partial	✗ partial	✓	✓	✓		✓
Use of any declaration mechanism	✗ EPD only	✗ EPD only	✗ EPD only	✓	✓		✓
Fully functional eTIR international system	✗ light	✗ light	✗ light	✗ light	✓		✓
Possible schedule (months)	6	6	3	6	3		

Table 3-1: Path from pilot to fully fledged system

5 ANNEXES

5.1 Message exchange (special cases)

The following sequence diagram shows the first messages exchanged when specific cases occur (such as EPD rejection, no presentation to first customs in time, etc.). In these three specific cases, the TIR operation has not started. Thus, the normal case (see 2.1.8-Message exchange) can be started once the situation is settled.

Systems are represented by vertically dotted lines; each message is represented by an horizontal arrow going from the system sending this message to the actor/system receiving this message. Comments like *Vehicle arrives at the customs of departure* are displayed as the process progresses.

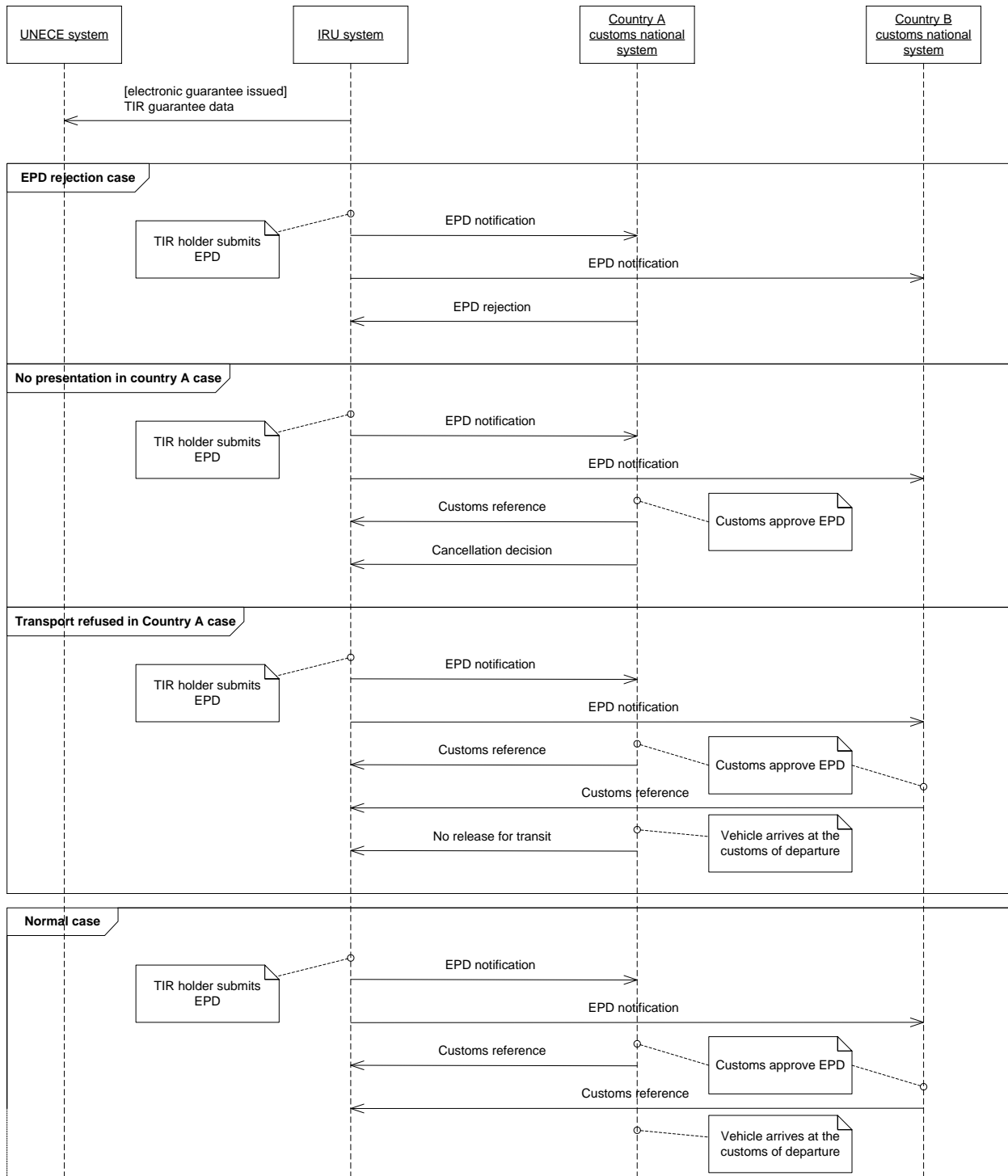


Figure 5-1: Sequence diagram-Message exchange (special cases)

5.2 Detailed B2C/C2B message exchanges process (during pilot)

The below activity diagram shows the various messages which can be exchanged between business and customs, once an electronic guarantee has been issued to the holder by the issuing association (of the departure country).

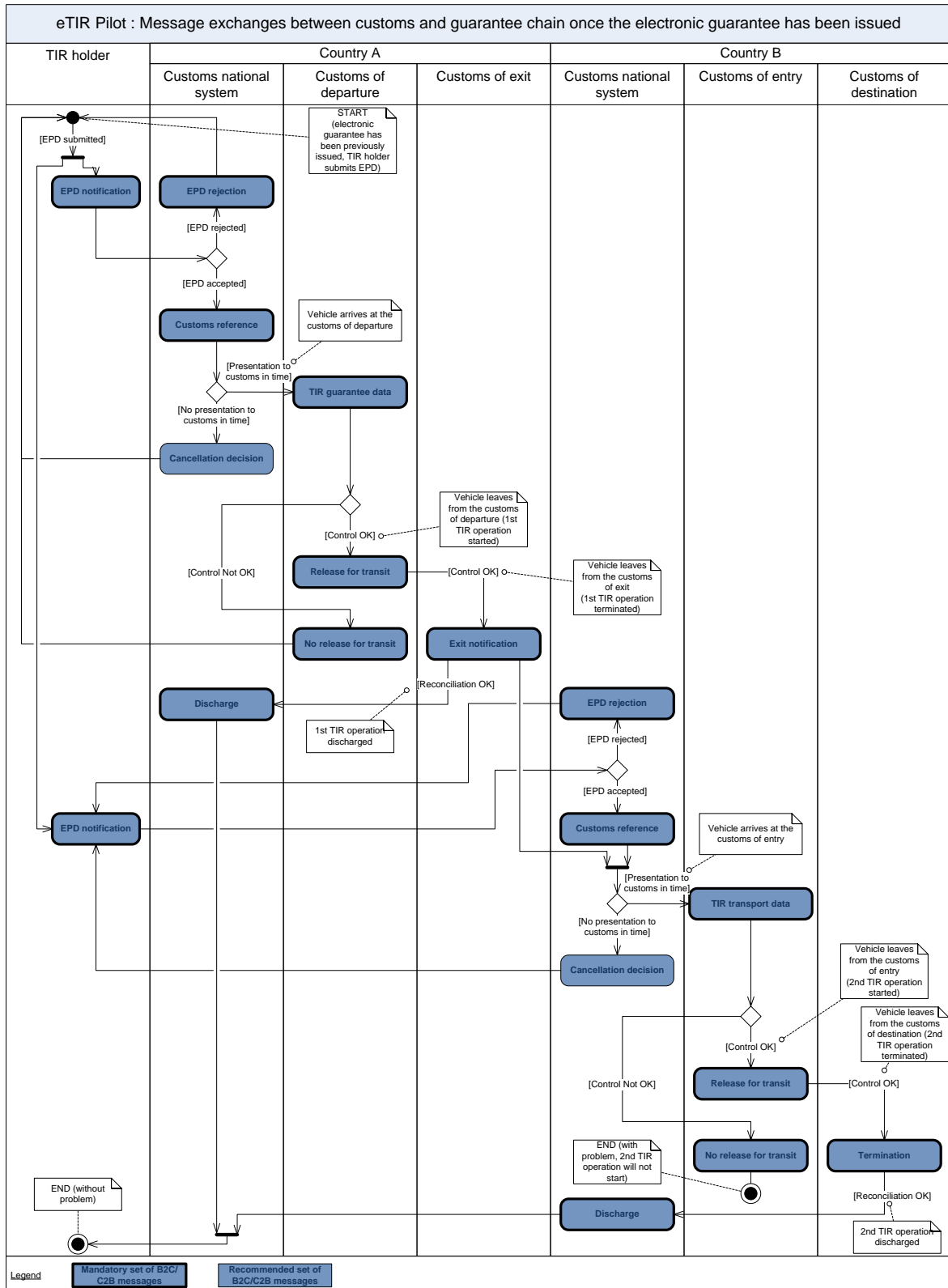


Figure 5-2: Activity diagram-Detailed B2C/C2B message exchanges process (during pilot)

5.3 Detailed message exchanges process (with C2C messages)

The activity diagram below shows a possible example of the integration of the eTIR pilot messages in a customs process.

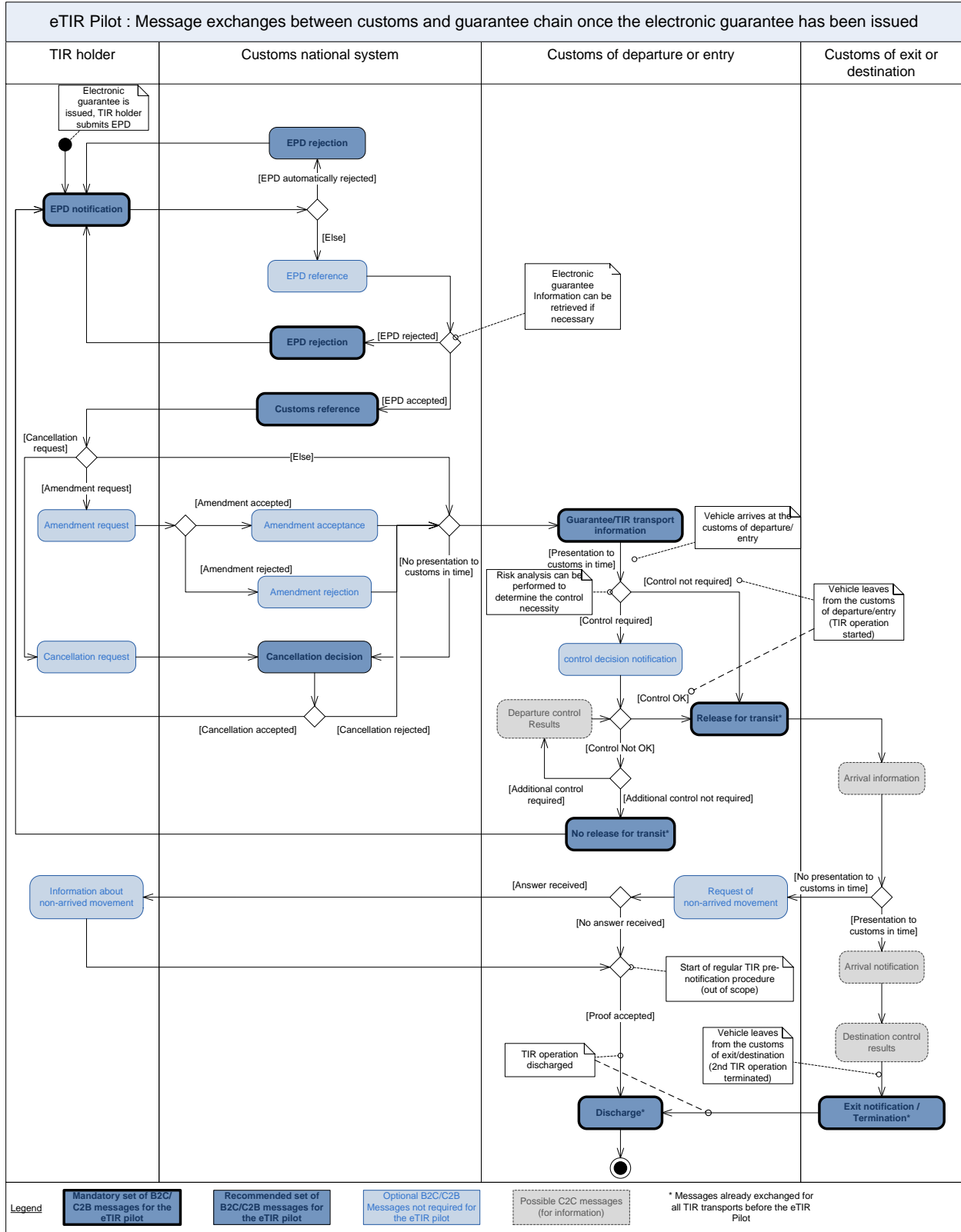


Figure 5-3: Activity diagram-Detailed message exchanges process (with C2C messages)