



Economic Commission for Europe**Inland Transport Committee****Working Party on Customs Questions affecting Transport****Group of Experts on Conceptual and
Technical Aspects of Computerization of the TIR Procedure****Second session**

Geneva, 25–28 May 2021

Item 6 (c) of the provisional agenda

**eTIR conceptual, functional and technical documentation version 4.3:
eTIR functional specifications****Activity Analysis****Note by the secretariat****I. Mandate**

1. The Inland Transport Committee during its eighty-second session (23–28 February 2020) approved (ECE/TRANS/294, para. 84¹) the establishment of the Group of Experts on Conceptual and Technical Aspects of Computerization of the TIR Procedure (WP.30/GE.1) and endorsed its Terms of Reference (ToR)² (ECE/TRANS/WP30/2019/9 and ECE/TRANS/WP.30/2019/9/Corr.1) pending approval by United Nations Economic Commission for Europe (ECE) Executive Committee (EXCOM). EXCOM during its Remote informal meeting of members of the Executive Committee (20 May 2020) approved the establishment of the Group of Experts on Conceptual and Technical Aspects of Computerization of the TIR Procedure (WP.30/GE.1) until 2022, based on the ToR included in document ECE/TRANS/WP.30/2019/9 and Corr.1, as contained in document ECE/TRANS/294 (ECE/EX/2020/L.2, para. 5(b)).³

2. The ToR of the Group stipulate that the Group should focus its work on preparing a new version of the eTIR specifications, pending the formal establishment of Technical Implementation Body (TIB). More specifically the Group should (a) prepare a new version

¹ Decision of the Inland Transport Committee para. 84 / ECE/TRANS/294
www.unece.org/fileadmin/DAM/trans/doc/2020/itc/ECE-TRANS-294e.pdf

² Terms of reference of the newly established Group approved by the Inland Transport Committee and the Executive Committee (EXCOM) of UNECE
www.unece.org/fileadmin/DAM/trans/bcf/wp30/documents/2019/ECE-TRANS-WP30-2019-09e.pdf
and corrigendum www.unece.org/fileadmin/DAM/trans/bcf/wp30/documents/2019/ECE-TRANS-WP30-2019-09c1e.pdf

³ Decision of EXCOM, ECE/EX/2020/L.2 / para. 5(b)
www.unece.org/fileadmin/DAM/commission/EXCOM/Agenda/2020/Remote_informal_mtg_20_05_2020/Item_4_ECE_EX_2020_L.2_ITC_Sub_bodies_E.pdf



of the technical specifications of the eTIR procedure, and amendments thereto, ensuring their alignment with the functional specifications of the eTIR procedure; (b) prepare a new version of the functional specifications of the eTIR procedure, and amendments thereto, ensuring their alignment with the conceptual specifications of the eTIR procedure; (c) prepare amendments to the conceptual specifications of the eTIR procedure, upon requests by WP.30.

3. This document presents the activity analysis. This document will be part of the eTIR functional specifications document.

II. Introduction

4. The purpose of the eTIR functional specifications is to translate the eTIR concepts (eBusiness requirements) into specifications that enable software developers and message designers to further design the eTIR system.

5. eTIR functional specifications goals are:

- (a) To build a set of business objects from the eTIR concepts;
- (b) To transform the eTIR concepts into precise, object oriented specifications;
- (c) To provide a foundation for the design of electronic messages;
- (d) To provide all actors of the eTIR system with interfaces to hook on to their existing information systems;
- (e) To explicitly specify the dynamics of the eTIR system.

6. In order to achieve those goals, this document provides further detail on the dynamic aspects of the eTIR system and completes the more general description provided by the activity diagrams in the eTIR concepts. It does so by means of sequence diagrams which describe the detailed interactions between actors and objects in the eTIR system. The identification of all these interactions is the basis for the elaboration of the electronic messages.

7. Furthermore, the class diagram in the eTIR concepts is further developed and is now divided into three separate class diagrams, which include attributes and operations. The class diagrams will be used to design the messages and provide the structure of databases. They will also provide the basis for the development of the objects' methods.

8. The eTIR functional specifications are therefore subdivided into two parts, starting with the activity analysis, which depicts the dynamics of the eTIR international system, and followed by a data analysis, which presents the attributes and the methods of the objects used and exchanged by the eTIR international system in the form of class diagrams.

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1 Activity Analysis

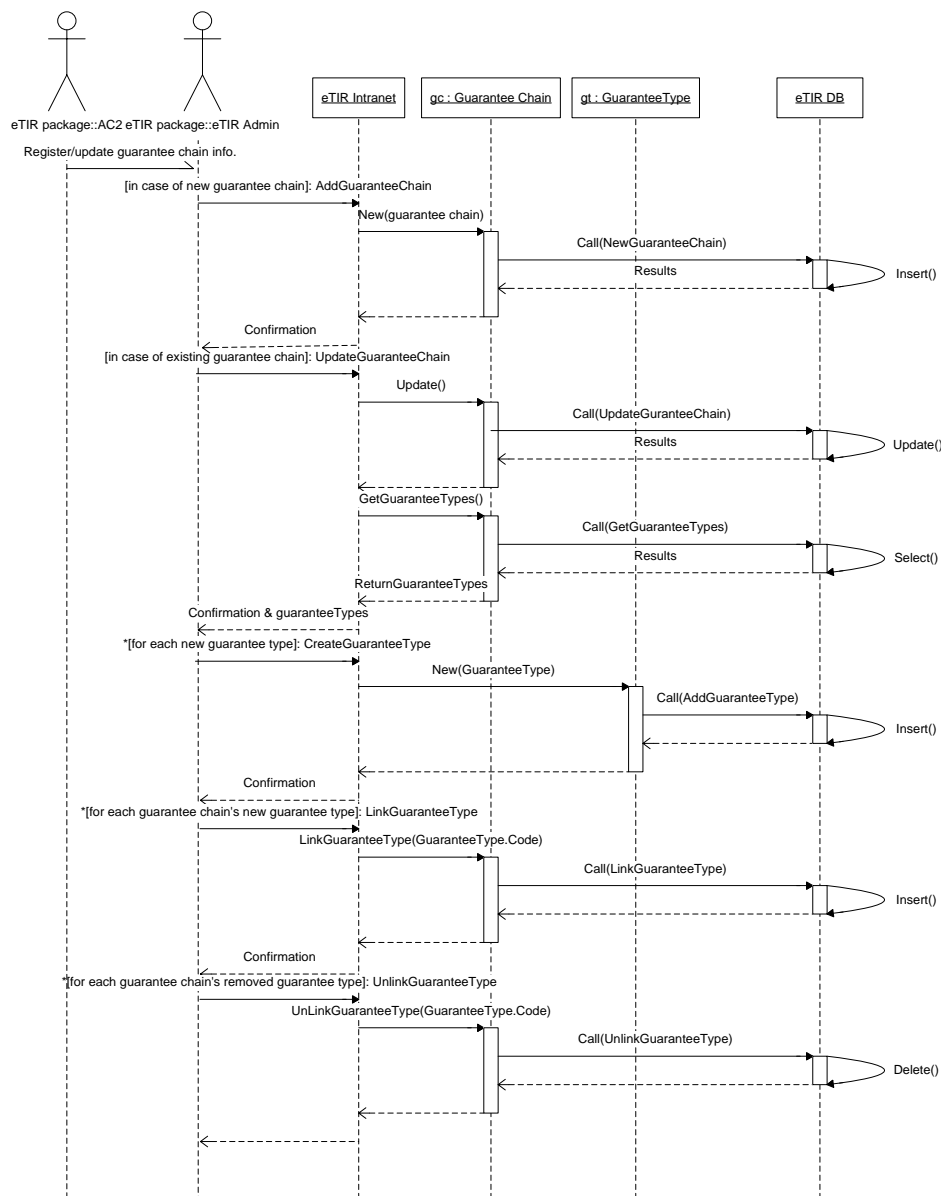
1.1 Sequence diagrams

9. The following sequence diagrams are devised on the basis of the activity diagrams presented in the eTIR concepts. They describe in details all interactions between the actors and the objects of the system. 10. Annex III contains the sequence of messages from the point of view of countries of departure, transit and destination.

1.1.1 Management by customs of data on guarantees

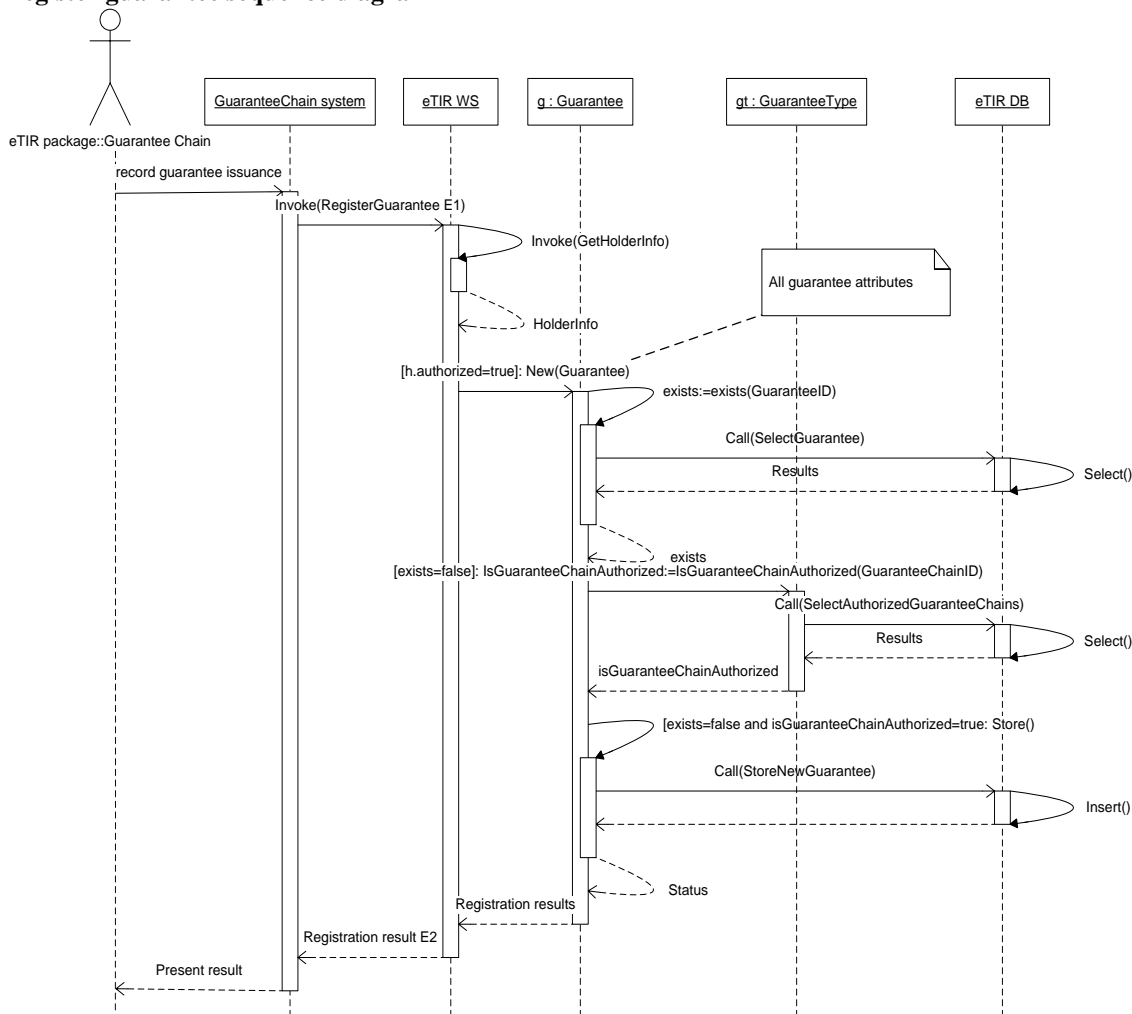
1.1.1.1 Register/update guarantee chain information

Figure 1.1:
Register/update guarantee chain information sequence diagram



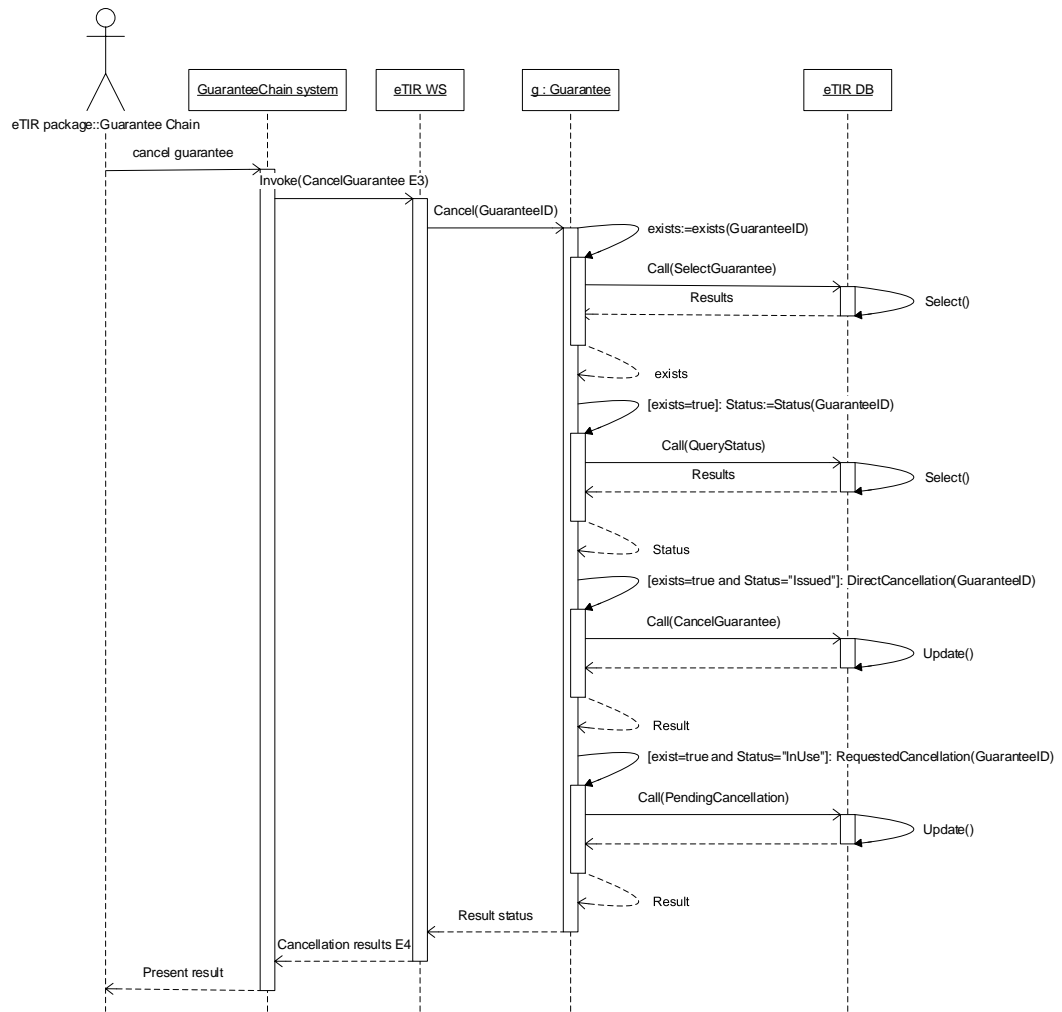
1.1.1.2 Register guarantee

Figure 1.2:
Register guarantee sequence diagram



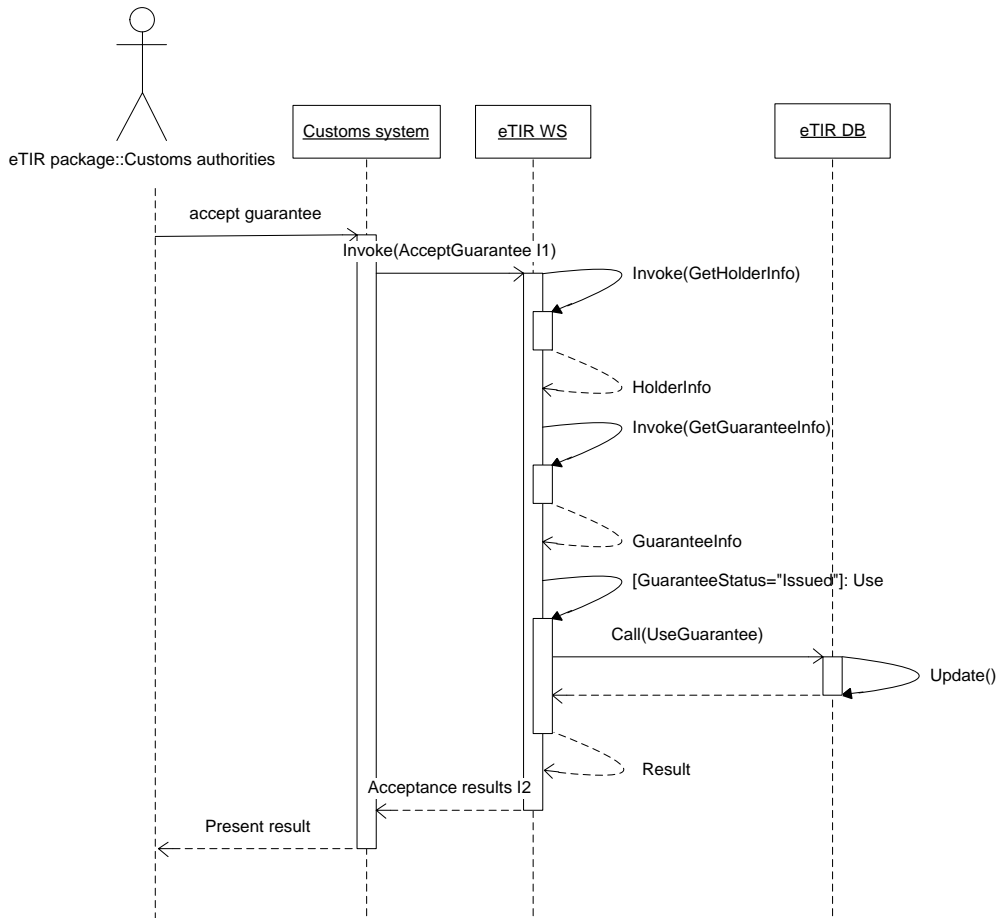
1.1.1.3 Cancel guarantee

Figure 1.3:
Cancel guarantee sequence diagram



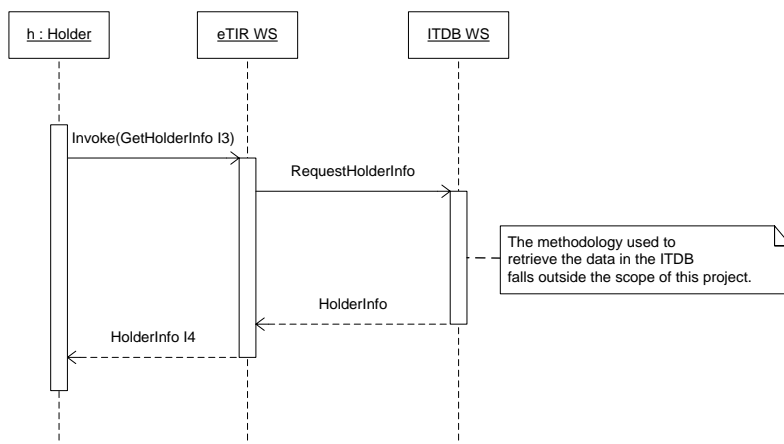
1.1.1.4 Accept guarantee

Figure 1.4:
Accept guarantee sequence diagram



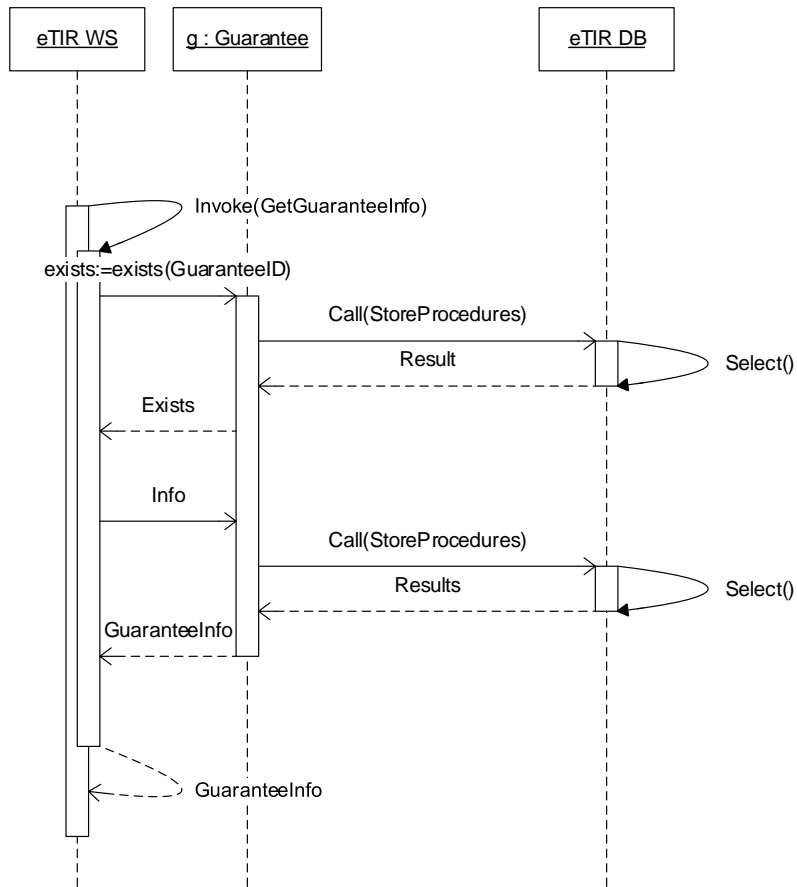
1.1.1.5 Get holder information

Figure 1.5:
Get holder information sequence diagram



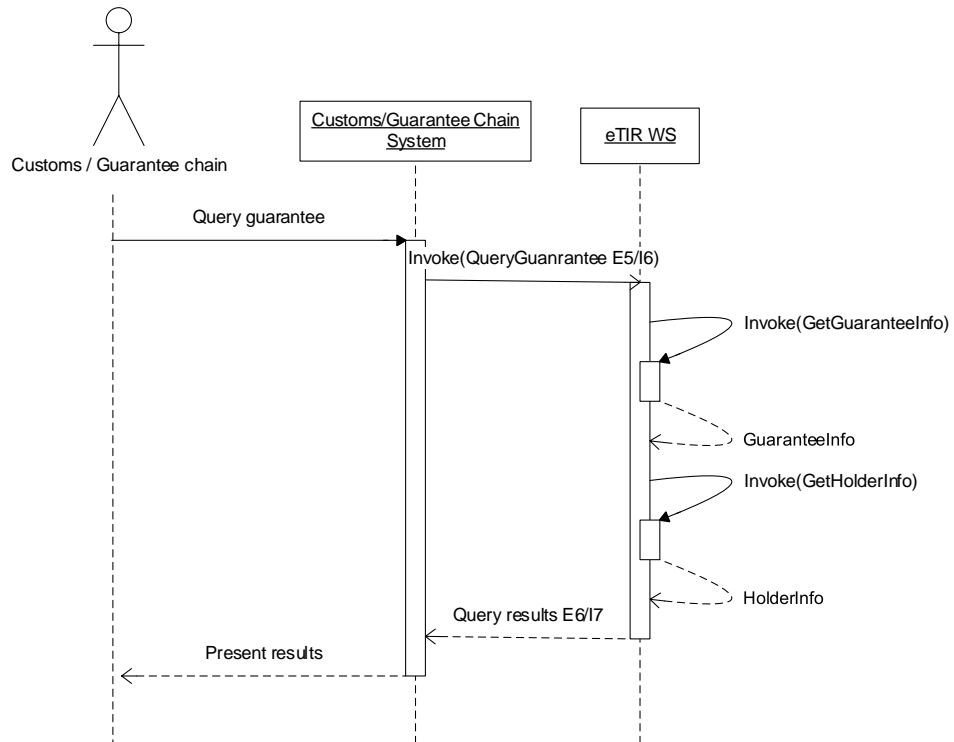
1.1.1.6 Get guarantee information

Figure 1.6:
Get guarantee information sequence diagram



1.1.1.7 Query guarantee

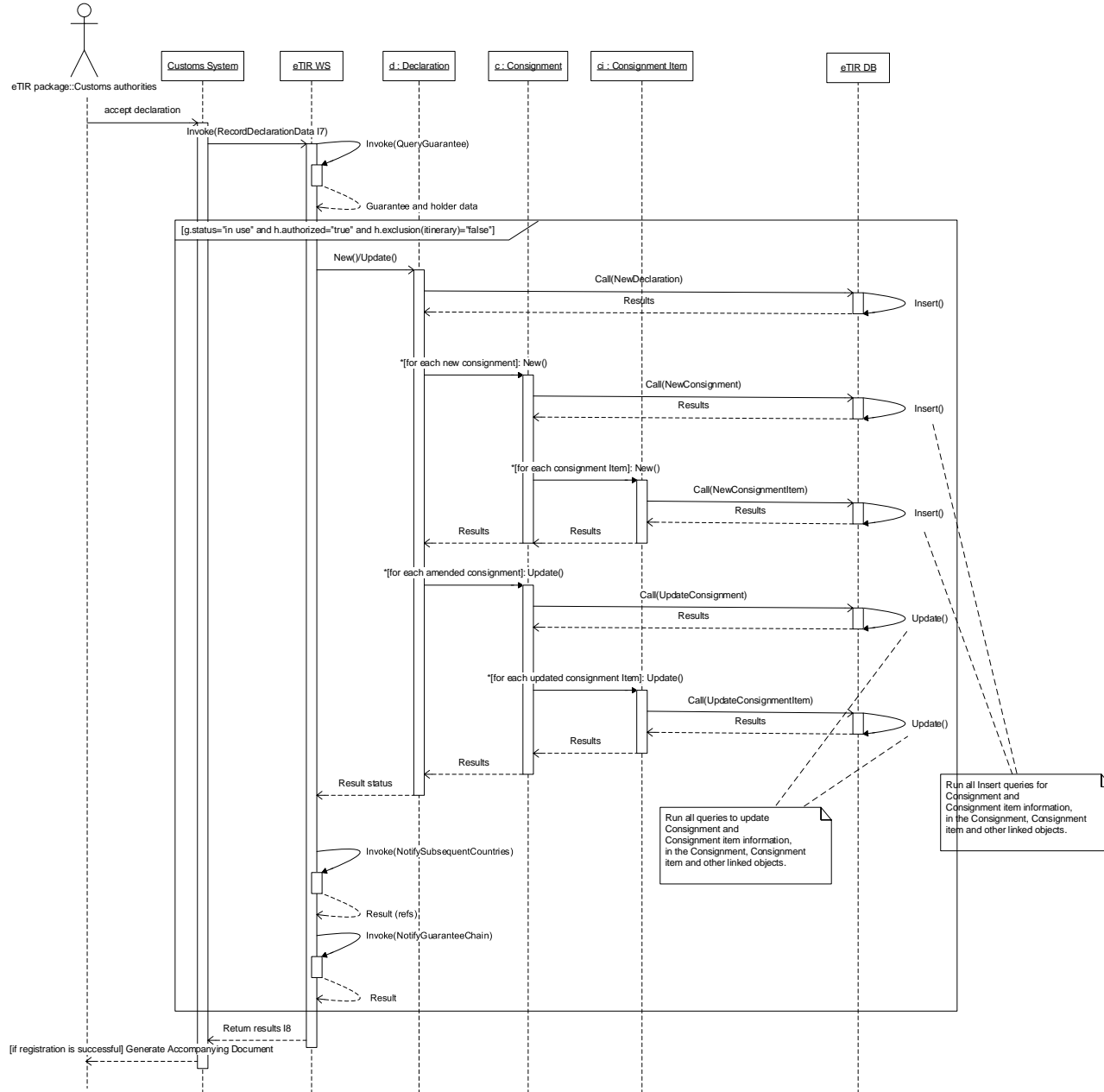
Figure 1.7:
Query guarantee sequence diagram



1.1.2 Data exchange

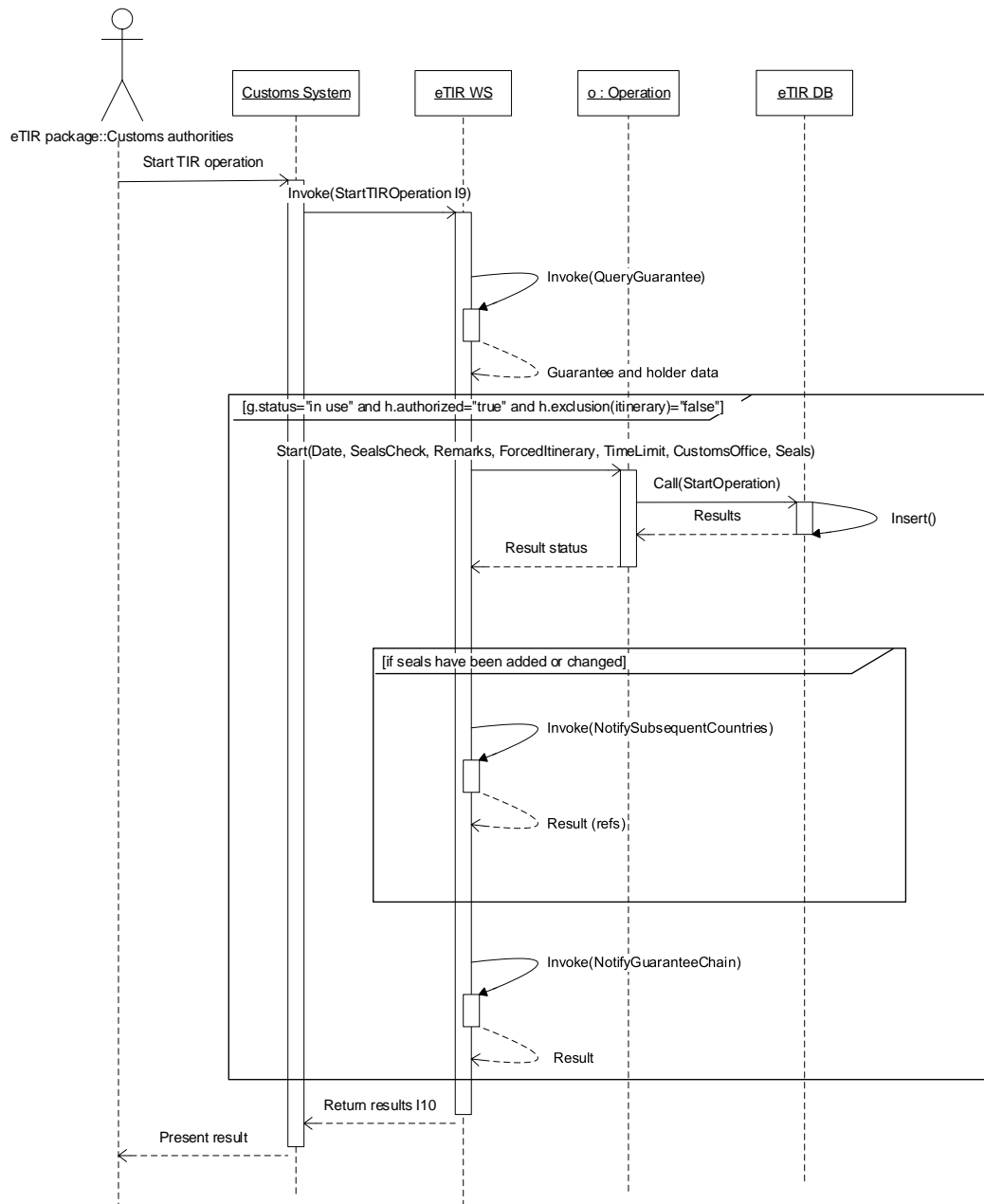
1.1.2.1 Record declaration data

Figure 1.8:
Record declaration data sequence diagram



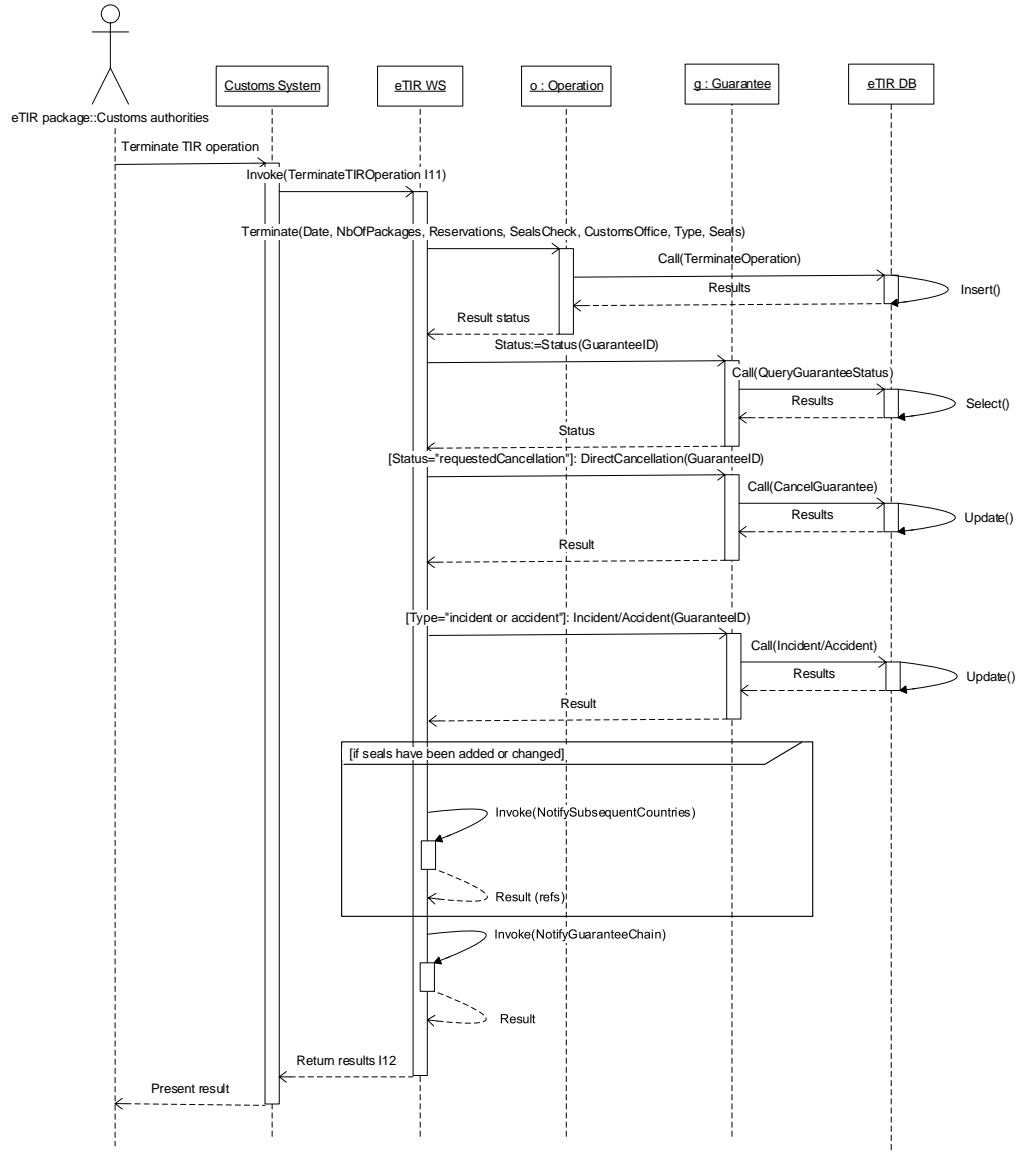
1.1.2.2 Start of TIR operation

Figure 1.9:
Start of TIR operation sequence diagram



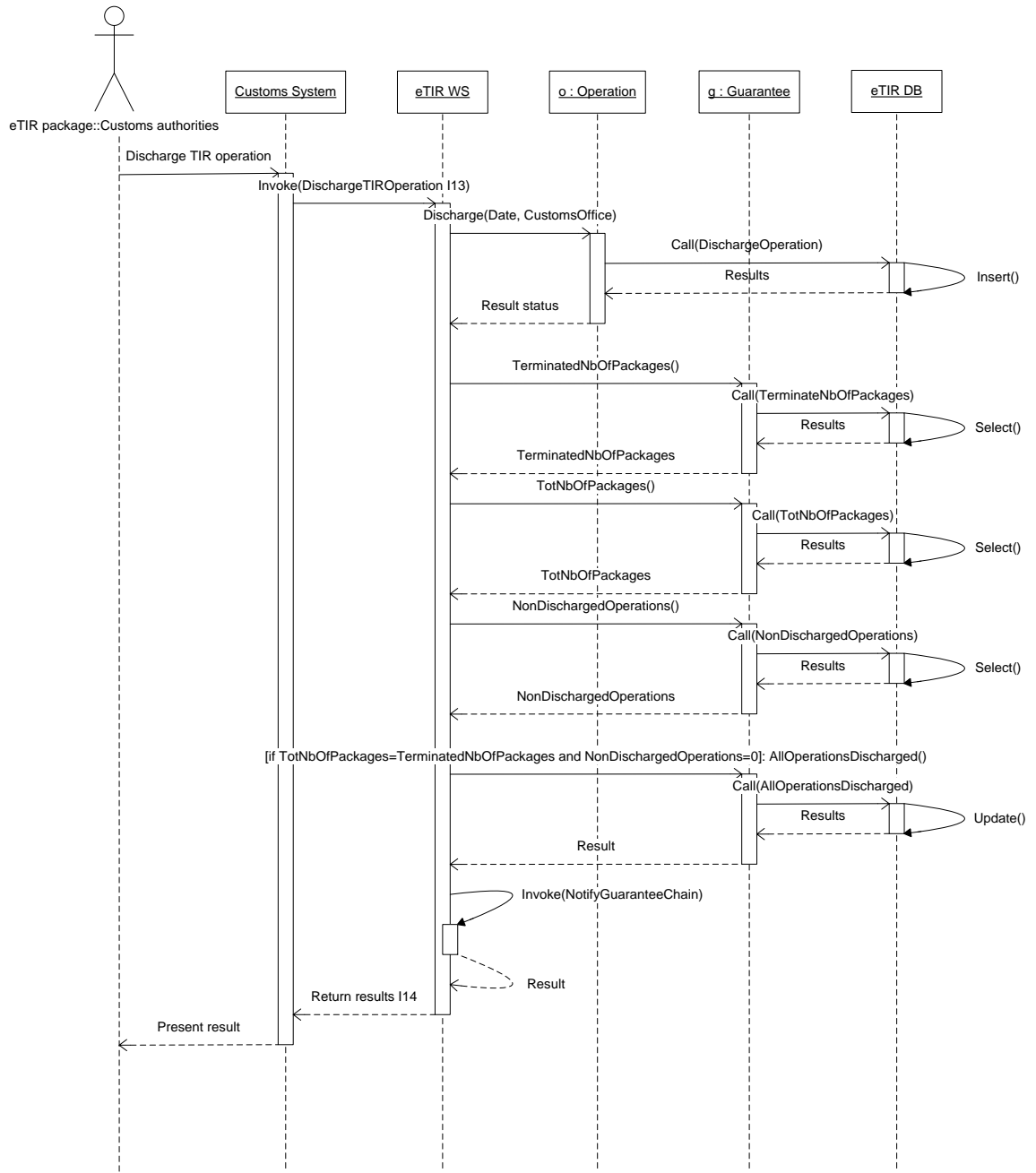
1.1.2.4 Terminate TIR operation

Figure 1.10:
Terminate TIR operation sequence diagram



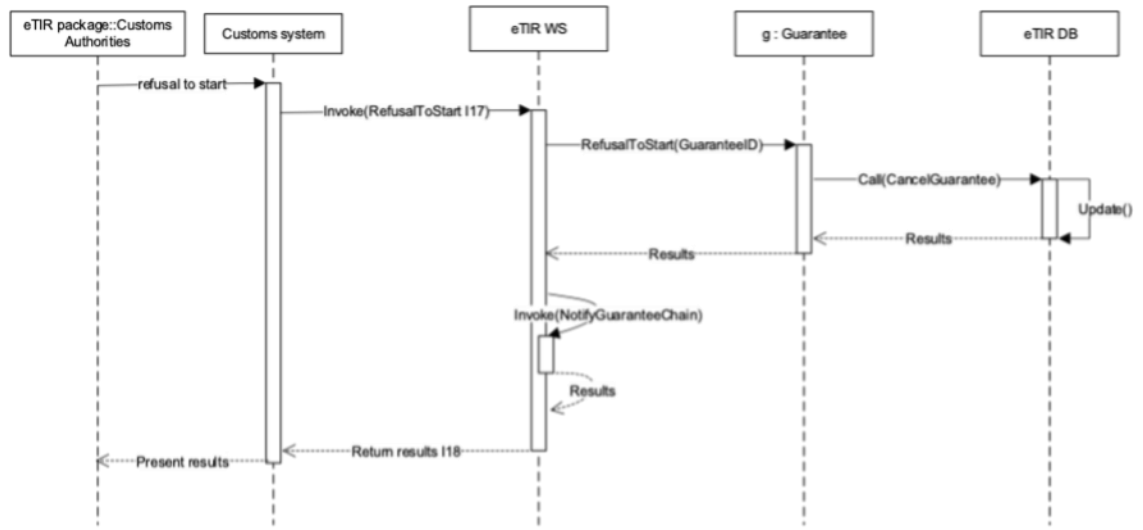
1.1.2.5 Discharge TIR operation

Figure 1.11:
Discharge TIR operation sequence diagram



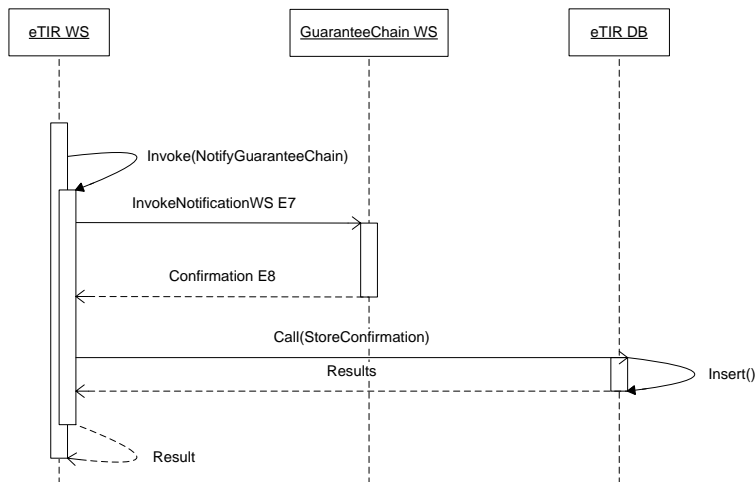
1.1.2.6 Refusal to Start TIR operation

Figure 1.12:
Refusal to start TIR operation sequence diagram



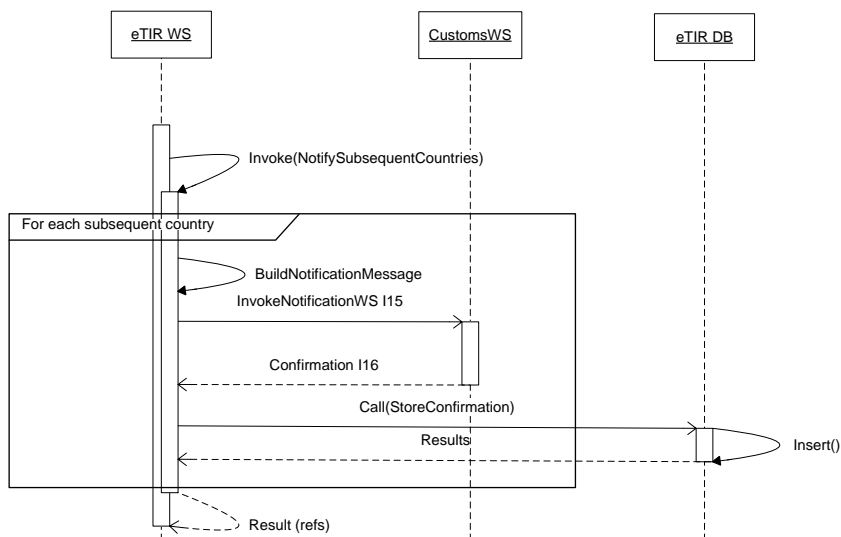
1.1.2.7 *Notify guarantee chain*

Figure 1.13:
Notify guarantee chain sequence diagram



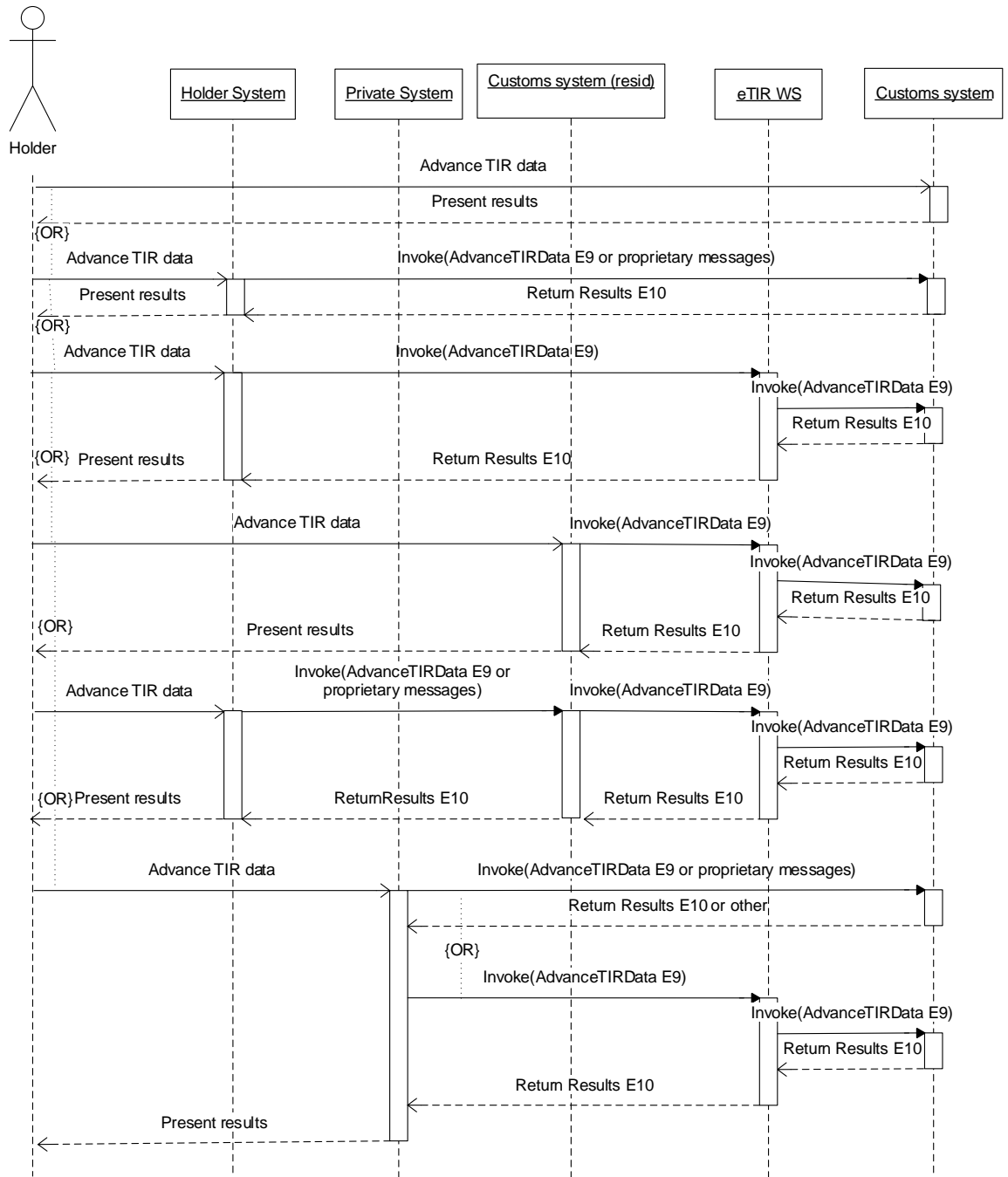
1.1.2.8 *Notify subsequent countries*

Figure 1.14:
Notify subsequent countries sequence diagram



1.1.2.9 Advance TIR data⁴

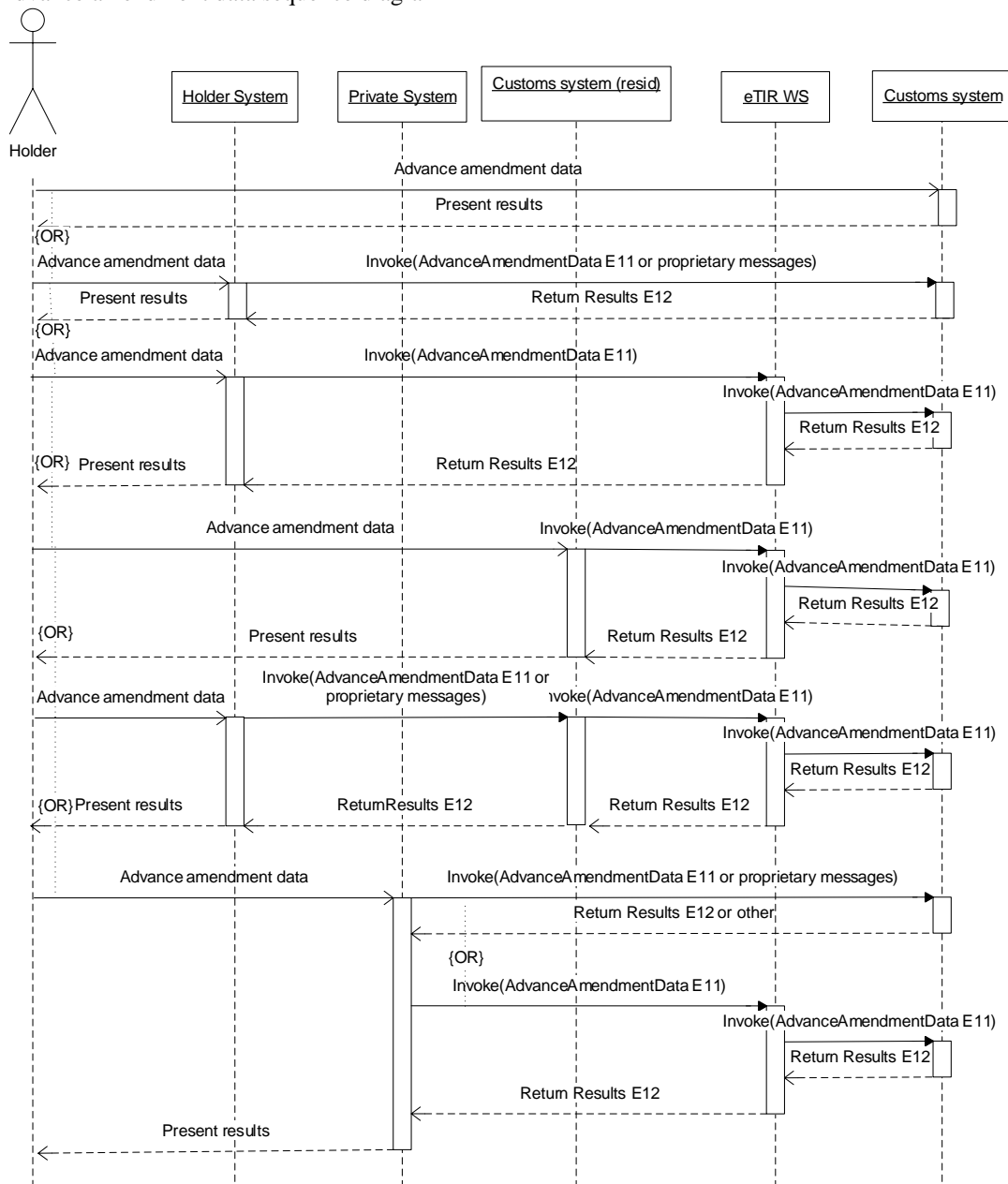
Figure 1.15:
Advance TIR data sequence diagram



⁴ The holders only submits to the country of first departure the advance TIR data (E9) related to the first load and, by means of an advance amendment data message (E11) to the countries where subsequent loading will take place, sends the data for each subsequent departure office.

1.1.2.10 Advance amendment data⁵

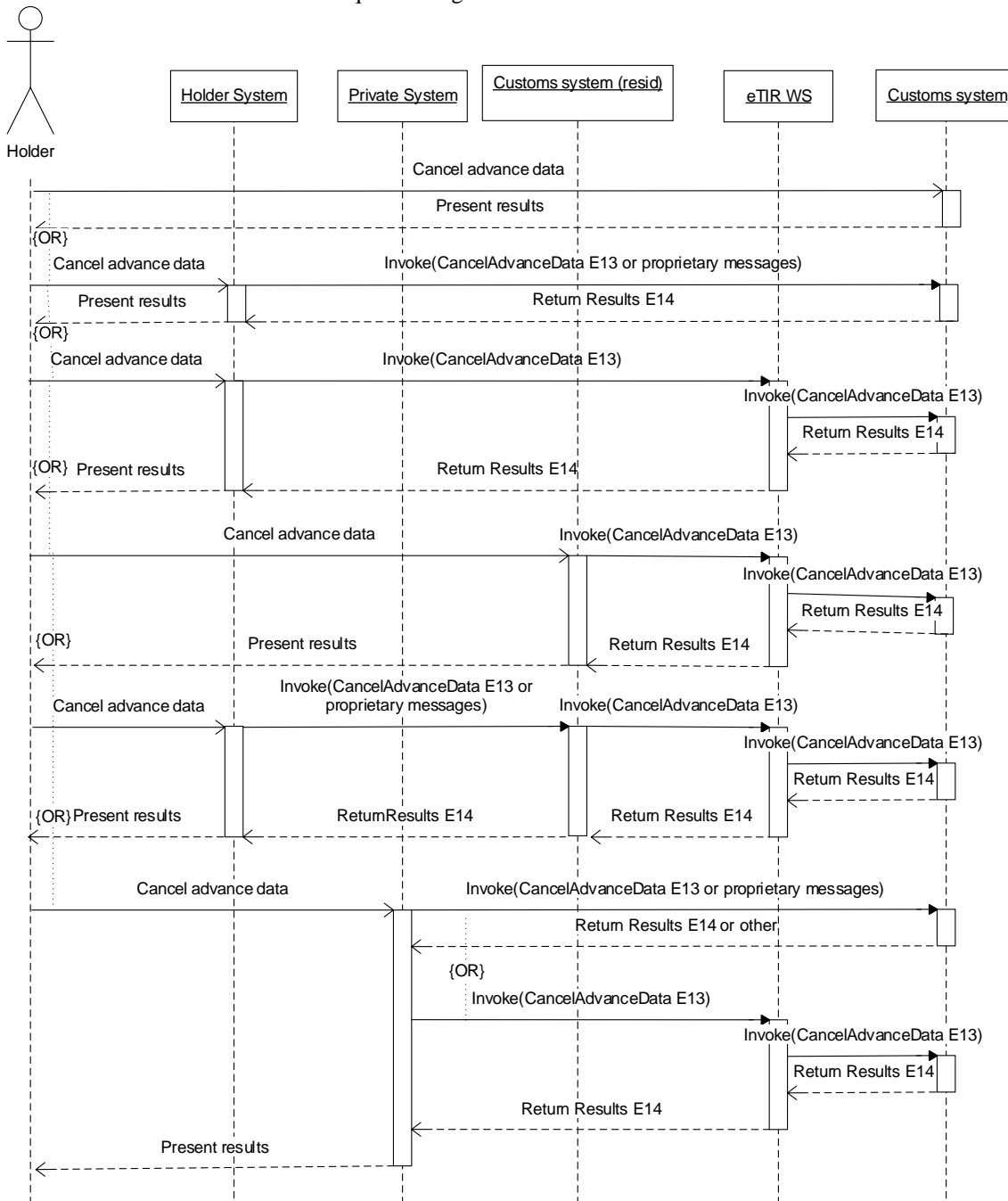
Figure 1.16:
Advance amendment data sequence diagram



⁵ The holders only submits to the country of first departure the advance TIR data (E9) related to the first load and, by means of an advance amendment data message (E11) to the countries where subsequent loading will take place, sends the data for each subsequent departure office.

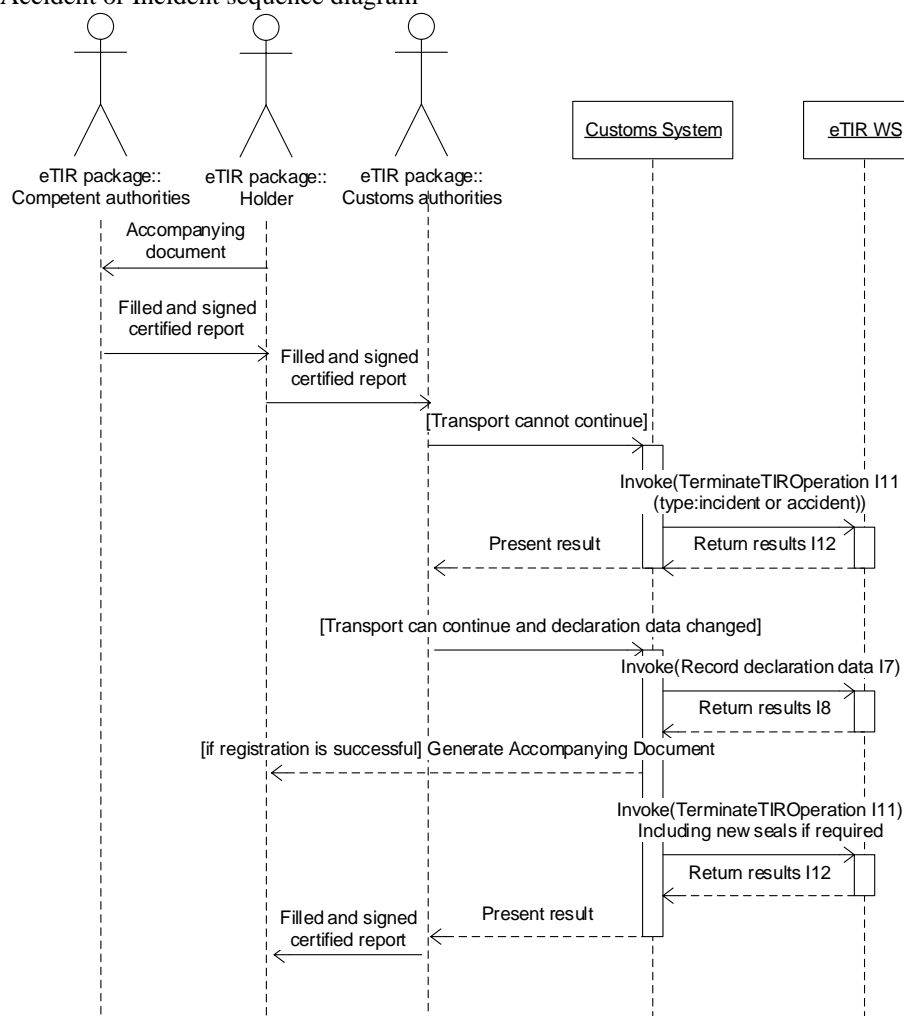
1.1.2.11 Cancel advance data

Figure 1.17:
Cancel advance data sequence diagram



1.1.2.12 Accident or Incident

Figure 1.18:
Accident or Incident sequence diagram



1.2 Fall-back scenarios

11. The aim of this chapter is to provide specific fallbacks for every use case involving the eTIR international system. The fall-back scenarios are based on three major elements:

- (a) Accompanying document;
- (b) Local information;
- (c) A web application and web service developed by the guarantee chain.

12. The accompanying document is a piece of paper provided by the customs office of departure after the declaration has been accepted. It contains all relevant information regarding the TIR transport.

13. It is important to note that the underlying fall-backs are of a functional nature. The systems at stake (i.e. the eTIR international system, national customs systems and guarantee chain systems) should also be equipped with technical fall-backs which allow systems to run smoothly in case of failure. Functional fall-backs have to be used only when all technical fall-backs have failed.

14. The use of functional fall-backs may not provide the same level of facilitation to both the holder and customs. As a consequence, their use should not be mandatory for the holder, who should always have the possibility to wait for the systems to be restored.

Similarly, customs may establish delays before starting functional fall-backs, allowing for the technical fall-back mechanisms to be activated or for the systems to be repaired.

15. Annex IV contains a description of the various fall back components, in particular a template for the accompanying document and a detailed description of its usage, and activity diagrams that further clarify the usage of the various fallbacks components

1.2.1 Management by customs of data on guarantees

16. Guarantee related information is crucial for the well-functioning of the eTIR system, in particular for the customs office of departure. Therefore, particular emphasis is put on the analysis of use cases where the eTIR international system is not in a position to provide the required up-to-date guarantee data.

1.2.1.1 Register guarantee

17. Potential problems:

- (a) The guarantee chain system is not functioning;
- (b) The connection between the guarantee chain system and the eTIR international system is broken;
- (c) The eTIR international system is not functioning.

18. Fall-backs:

- (a) No functional fallback is foreseen;
- (b) The guarantee chain will transmit the information to the eTIR international system as soon as the connection is restored. If the connection problem extends to custom administrations and an unregistered guarantee is used for a TIR transport, customs administrations can use the web services or consult the web application developed by the guarantee chain;
- (c) The guarantee chain will transmit the information to the eTIR international system as soon as the system is restored. In the meantime, if an unregistered guarantee is used for a TIR transport, customs administrations can use the web services or consult the web application developed by the guarantee chain.

1.2.1.2 Cancel guarantee

19. Potential problems:

- (a) The guarantee chain system is not functioning;
- (b) The connection between the guarantee chain system and the eTIR international system is broken;
- (c) The eTIR international system is not functioning.

20. Fall-backs:

- (a) Within the opening hours of the eTIR service desk, the guarantee chain can contact the eTIR service desk to transmit the cancellation information;
- (b) The guarantee chain can contact the eTIR service desk to transmit the cancellation information or will transmit the cancellation information to the eTIR international system as soon as the connection is restored. If the connection problem extends to custom administrations, customs administrations can use the web services or consult the web application developed by the guarantee chain;
- (c) The guarantee chain will transmit the cancellation information to the eTIR international system as soon as the system is restored. In the meantime, customs administrations can use the web services or consult the web application developed by the guarantee chain.

1.2.1.3 *Accept guarantee*

21. Potential problems:

- (a) The customs system is not functioning;
- (b) The connection between the customs system and the eTIR international system is broken;
- (c) The eTIR international system is not functioning.

22. Fall-backs:

- (a) The eTIR procedure cannot start when the customs system in the first country of departure is not functioning;
- (b) As soon as the connection is restored, the customs system will send the accept guarantee message. In the meantime, the following customs administration will rely on the accompanying document to ascertain that the guarantee has been accepted;
- (c) As soon as the system is restored, the customs system will send the accept guarantee message. In the meanwhile, the following customs administration will rely on the accompanying document to ascertain that the guarantee has been accepted.

1.2.1.4 *Get holder information*

23. Potential problems:

- (a) The ITDB is not functioning;
- (b) The connection between the ITDB and the eTIR international system is broken.

24. Fall-backs:

- (a) The eTIR international system will use a local replica of the ITDB and include a warning code, informing that a replica of the ITDB is the source of the information and that the information might not be up to date;
- (b) Same as (a).

1.2.1.5 *Query guarantee*

25. The query guarantee use case has three functions:

- (a) allowing customs to obtain information on a guarantee (e.g. status or type);
- (b) allowing customs to obtain information related to TIR transports; and
- (c) allowing customs to obtain information related to TIR operations.

26. Potential problems:

- (a) The customs is not functioning;
- (b) The connection between the customs system and the eTIR international system is broken;
- (c) The eTIR international system is not functioning;
- (d) A previous country in the TIR transport used a fallback procedure.

27. Fall-backs:

- (a) (a) To request the status of a guarantee, customs authorities can consult the web application developed by the guarantee chain. (b) In order to obtain TIR transport information (mainly the declaration), the accompanying document will be used and, if necessary, the web application developed by the guarantee chain can be consulted. (c) The information on previous TIR operations can be obtained from the web application developed by the guarantee chain.

(b) (a) To request the status of a guarantee, customs authorities can use the web services or consult the web application developed by the guarantee chain. (b) In order to obtain TIR transport information (mainly the declaration), the accompanying document will be used and, if necessary, customs authorities can use the web services or consult the web application developed by the guarantee chain. (c) To obtain information on previous TIR operations, customs authorities can use the web services or consult the web application developed by the guarantee chain.

(c) *Same as (b) .*

(d) *(a) No fallback required (b) No fall-back required. (c) Information related to previous TIR operations that were handled under the fallback procedure (including potential changes of the seals) can be found on the accompanying document .*

1.2.2 *Data exchange*

28. The exchange of TIR transport data is a key element of the eTIR system. Customs authorities provide the holder with an accompanying document as reference. The accompanying document will also be used in case the information cannot be exchanged electronically. The information on TIR operations is also important but is considered of secondary importance and, therefore, will not be subject to fall-back procedures other than stamping the accompanying document.

29. If a fall-back procedure is used in a country of pure transit (no loading or unloading of goods), the following countries can still use the standard procedure but information regarding the operation carried out under the fall-back procedure will only be available on the accompanying document until the information is transmitted at a later stage.

1.2.2.1 *Record declaration data*

30. Potential problems:

- (a) The customs system of the country of departure is not functioning;
- (b) The connection between the customs system of the country of departure and the eTIR international system is broken;
- (c) The eTIR international system is not functioning;
- (d) Subsequent countries could not be notified.

31. Fall-backs:

(a) The eTIR procedure cannot start when the customs system in the first country of departure is not functioning. At the following customs of departure, if the declaration is changed, customs authorities will manually amend the paper accompanying document, sign and stamp the changes. The declaration data will be sent to the eTIR international system as soon as the customs system is restored;

(b) The accompanying document produced by the customs system becomes the primary source of information for the TIR transport. The holder is informed that countries along the itinerary will not receive the declaration data. The holder remains responsible to comply with advance information requirements in subsequent countries;

(c) *Same as (b);*

(d) The eTIR international system informs the customs system that some subsequent countries could not be notified of the registration of the declaration data. The customs system will specifically mention on the accompanying document that some countries did not receive the adequate information. The holder is therefore informed that countries along the itinerary will not receive the declaration data. The holder remains responsible to comply with advance information requirements in subsequent countries.

1.2.2.2 *Start of TIR operation*

32. Potential problems:

- (a) The customs system is not functioning;
- (b) The connection between the customs system and the eTIR international system is broken;
- (c) The eTIR international system is not functioning .

33. Fall-backs:

(a) (a) Customs authorities (other than at the first customs office of departure) accept the accompanying document as source for the declaration, sign and stamp it (and indicate the new seals if required). The start information will be keyed-in and transmitted to the eTIR international system once the customs system is restored.

(b) Customs authorities (other than at the first customs office of departure) accept the accompanying document as source for the declaration, sign and stamp it (and indicate the new seals if required). The start information will be transmitted to the eTIR international system once the connection is restored.

(c) Customs authorities (other than at the first customs office of departure) accept the accompanying document as source for the declaration, sign and stamp it (and indicate the new seals if required). The start information will be transmitted to the eTIR international system once the system is restored.

1.2.2.3 *Terminate TIR operation*

34. Potential problems:

- (a) The customs system is not functioning;
- (b) The connection between the customs system and the eTIR international system is broken;
- (c) The eTIR international system is not functioning .

35. Fall-backs:

(a) Customs authorities accept the accompanying document, sign and stamp it (and indicate the new seals if required). The termination information will be keyed-in and transmitted to the eTIR international system once the customs system is restored.

(b) Customs authorities accept the accompanying document, sign and stamp it (and indicate the new seals if required). The termination information will be transmitted to the eTIR international system once the connection restored.

(c) Customs authorities accept the accompanying document, sign and stamp it (and indicate the new seals if required). The termination information will be transmitted to the eTIR international system once the system is restored.

1.2.2.5 *Discharge TIR operation*

36. Potential problems:

- (a) The customs system is not functioning;
- (b) The connection between the customs system and the eTIR international system is broken;
- (c) The eTIR international system is not functioning.

37. Fall-backs:

(a) Customs authorities postpone the transmission of the discharge information until the system is working;

(b) Customs authorities postpone the transmission of the discharge information until the connection is re-established;

(c) Customs authorities postpone the transmission of the discharge information until the system is working.

1.2.2.6 *Refusal to start of TIR operation*

38. Potential problems:

- (a) The customs system is not functioning;
- (b) The connection between the customs system and the eTIR international system is broken;
- (c) The eTIR international system is not functioning .

39. Fall-backs:

(a) Customs authorities (other than at the first customs office of departure) amend the accompanying document with the refusal to start operation information, sign and stamp it. The refusal to start information will be keyed-in and transmitted to the eTIR international system once the customs system is restored;

(b) Customs authorities (other than at the first customs office of departure) amend the accompanying document with the refusal to start operation information, sign and stamp it. The refusal to start information will be transmitted to the eTIR international system once the connection is restored ;

(c) Customs authorities (other than at the first customs office of departure) amend the accompanying document with the refusal to start operation information, sign and stamp it. The refusal to start information will be transmitted to the eTIR international system once the system is restored.

1.2.2.7 *Notify guarantee chain*

40. Potential problems:

- (a) The guarantee chain system is not functioning;
- (b) The connection between the guarantee chain system and the eTIR international system is broken.

41. Fall-backs:

(a) The eTIR international system puts the messages in a queue and will send them when the guarantee chain system is restored;

(b) The eTIR international system puts the messages in a queue and will send them when the connection is restored .

1.2.2.8 *Notify subsequent countries*

42. Potential problems:

- (a) The customs system of one country along the itinerary is not functioning;
- (b) The connection between the customs system of one country along the itinerary and the eTIR international system is broken.

43. Fall-backs:

(a) The eTIR international system puts the message in a queue and will send it as soon as the customs system is working. If the holder presents himself at a customs office, that did not receive the required information, the accompanying document will be used as source of information (see also 1.2.2.1, 1.2.2.2 and 1.2.2.3);

(b) The eTIR international system puts the message in a queue and will send it as soon as the connection is restored. If the holder presents himself at a customs office, that did not receive the required information, the accompanying document will be used as source of information (see also 1.2.2.1, 1.2.2.2 and 1.2.2.3).

1.2.2.9 *Advance TIR data*

44. Potential problems:

- (a) The customs system is not functioning;
- (b) The connection between the customs system and the eTIR international system is broken;
- (c) The eTIR international system is not functioning.

45. Fall-backs:

- (a) The eTIR international system notifies the holder or any system using the advance TIR data web service that the advance TIR data could not be sent and that an alternative declaration mechanism should be used;
- (b) Same as (a);
- (c) The holder or any system using the advance TIR data web service must try to use alternative declaration mechanisms.

1.2.2.10 *Advance Amendment data*

46. Potential problems:

- (a) The customs system is not functioning;
- (b) The connection between the customs system and the eTIR international system is broken;
- (c) The eTIR international system is not functioning.

47. Fall-backs:

- (a) The eTIR international system notifies the holder or any system using the advance amendment data web service that the advance amendment data could not be sent and that an alternative declaration mechanism should be used;
- (b) Same as (a);
- (c) The holder or any system using the advance amendment data web service must try to use alternative declaration mechanisms.

1.2.2.11 *Cancel Advance data*

48. Potential problems:

- (a) The customs system is not functioning;
- (b) The connection between the customs system and the eTIR international system is broken;
- (c) The eTIR international system is not functioning.

49. Fall-backs:

- (a) The eTIR international system notifies the holder or any system using the cancel advance web service that the cancel advance data could not be sent and that an alternative declaration mechanism should be used;
- (b) Same as (a);
- (c) The holder or any system using the cancel advance data web service must try to use alternative declaration mechanisms.

1.2.2.12 *Accident or incident*

50. Potential problems:

- (a) The customs system is not functioning;

(b) The connection between the customs system and the eTIR international system is broken;

(c) The eTIR international system is not functioning.

51. Fall-backs:

(a) Customs authorities accept the accompanying document, sign and stamp it (and indicate the new seals if required). The termination information (with type: Incident or accident) will be keyed-in and transmitted to the eTIR international system once the customs system is restored.

(b) Customs authorities accept the accompanying document, sign and stamp it (and indicate the new seals if required). The termination information (with type: Incident or accident) will be transmitted to the eTIR international system once the connection is restored.

(c) Customs authorities accept the accompanying document, sign and stamp it (and indicate the new seals if required). The termination information (with type: Incident or accident) will be transmitted to the eTIR international system once the system is restored.
