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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

Sixteenth session
Geneva, 28-29 April 2009
Item 3 (b) of the provisional agenda

REFERENCE MODEL OF THE TIR PROCEDURE

Chapter 3 - Analysis

Note by the secretariat

I. BACKGROUND

1. At its 116th session, the Working Party requested the Informal Ad hoc Group on Conceptual and Technical aspects of Computerization of the TIR Procedure (further referred to as “the Expert Group”) to start working on Chapter 3 of the Reference Model, dedicated to the analysis of the e-Business-Requirements as contained in Chapter 2 (see ECE/TRANS/WP.30/232, paragraph 32).

2. At its thirteenth session, the Expert Group welcomed a first draft of Chapter 3 of the Reference Model as contained in document ECE/TRANS/WP.30/GE.1/2007/13. After an in-depth discussion, the Expert Group mandated the secretariat to align draft Chapter 3 with its findings, to propose data elements and a structure for the identified electronic messages and to

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draft the fall-back scenarios sequence diagram, for consideration at its next meeting (ECE/TRANS/WP.30/GE.1/2007/16, paras. 7-9).

3. At its fourteenth session, the Expert Group welcomed the revised Chapter 3, contained in document ECE/TRANS/WP.30/GE.1/2007/13 Rev.1 as well as the proposals for additional security elements in Informal Document GE.1 No.2 (2008). It reviewed the draft fall-back scenarios and the messages. It also mandated the secretariat to align Chapter 3 with its findings, to propose code lists for messages and to amend the class diagrams and messages with security data elements in a revised Chapter 3, for consideration at its next meeting (ECE/TRANS/WP.30/GE.1/2008/3, paras. 8-9).

4. At its fifteenth session, the Expert Group mandated the secretariat to organize a drafting group whose task would be to finalize the draft of Chapter 3, taking into account the findings of the Expert Group. At the kind invitation of Serbian Customs, the drafting group met in Belgrade on 28-29 January 2009. The drafting group reviewed each and every UML diagram, revisited the fall-back procedure and revised the messages. It provided the secretariat with clear instructions on how to further revise document ECE/TRANS/WP.30/GE.1/2007/13 Rev.2.

5. With the kind assistance of Mr. Hans Greven from the Dutch Customs, the secretariat prepared the underlying revision of Chapter 3.

II. ANALYSIS

6. The purpose of the analysis chapter is to translate the requirements identified in Chapter 2 (eBusiness requirements) into specifications that enable software developers and message designers to further design the eTIR system.

7. Analysis goals are:

- (a) To build a set of business objects from the requirements contained in Chapter 2;
- (b) To transform the requirements set out in Chapter 2 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.

8. In order to achieve those goals, Chapter 3 provides further detail on the dynamic aspects of the eTIR system and completes the more general description provided by the activity diagrams in Chapter 2. 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.

9. Furthermore, the class diagram in Chapter 2 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.

III. DEFINITIONS

10. At the request of the drafting group, the secretariat proposes to clarify the terms “declaration” and “advance cargo information” by means of introducing the following definitions in the glossary of the eTIR Reference Model and possibly amend Chapter 2 where it is necessary.

Declaration: *act whereby the holder, or his representative, indicates in the prescribed form an manner a wish to place goods under the TIR procedure.*

Advance cargo information: *information provided to the competent Customs authorities within the prescribed deadlines and in the prescribed form and manner of the intention of the holder to place goods under the TIR procedure or pursue a TIR transport.*

IV. FURTHER CONSIDERATIONS

11. The Expert Group may wish to discuss and further elaborate the revised version of the third Chapter of the eTIR Reference Model as contained in annex to this document and request the introduction of the definitions in the glossary.

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3. ANALYSIS

The analysis chapter is 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.

3.1. ACTIVITY ANALYSIS

The following sequence diagrams are devised on the basis of the activity diagrams presented in Chapter 2.3. They describe in details all interactions between the actors and the objects of the system.

3.1.1. Management by Customs of data on guarantees

3.1.1.1. Register/update guarantee chain information

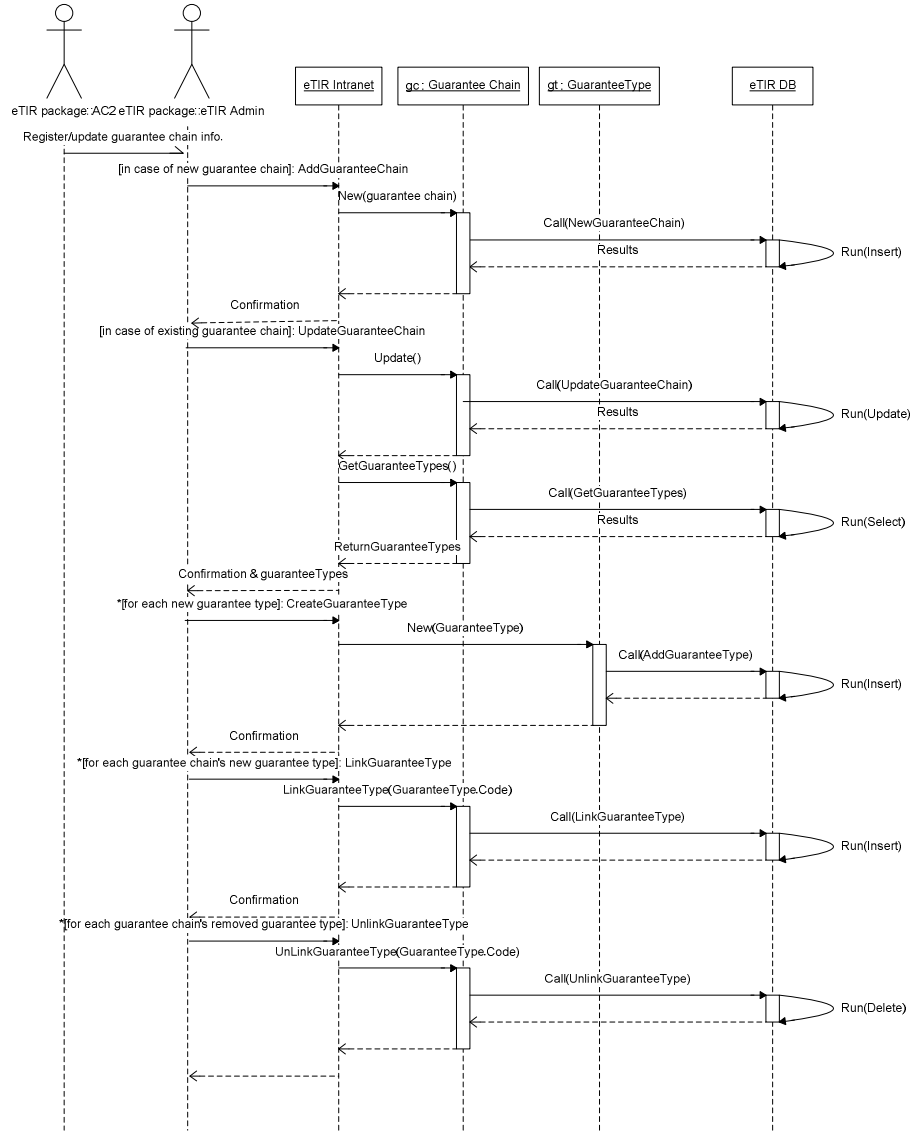


Figure 3.1: Register/update guarantee chain information sequence diagram

3.1.1.2. Register guarantee

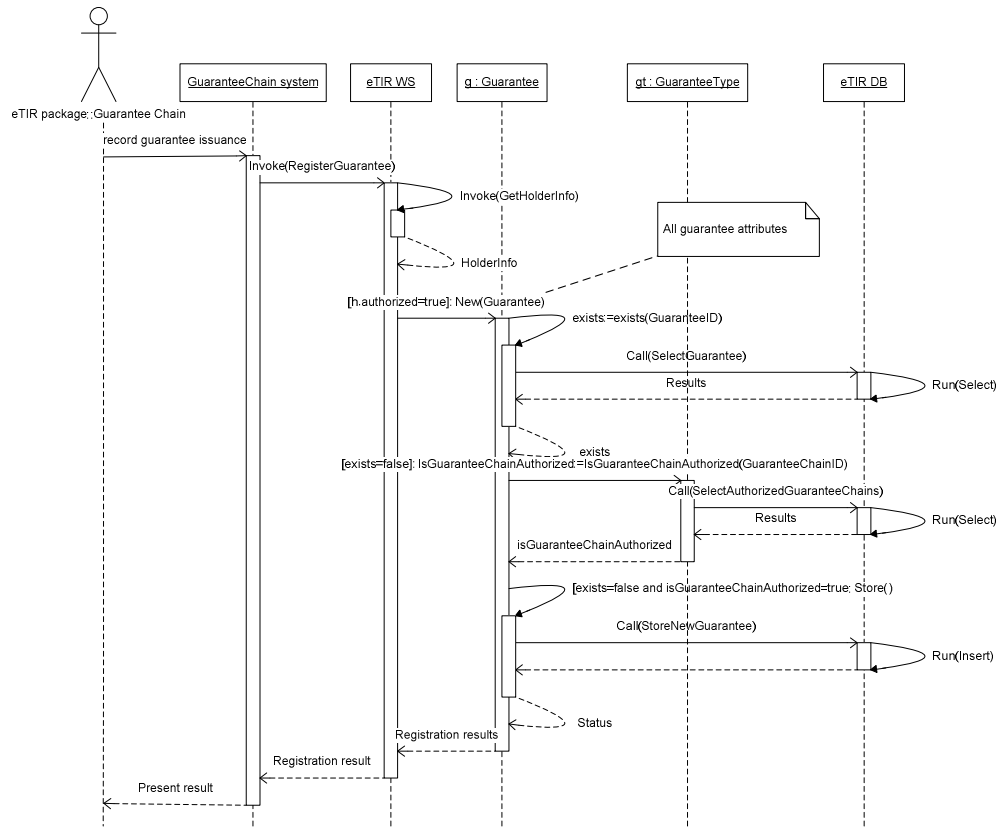


Figure 3.2: Register guarantee sequence diagram

3.1.1.3. Cancel guarantee

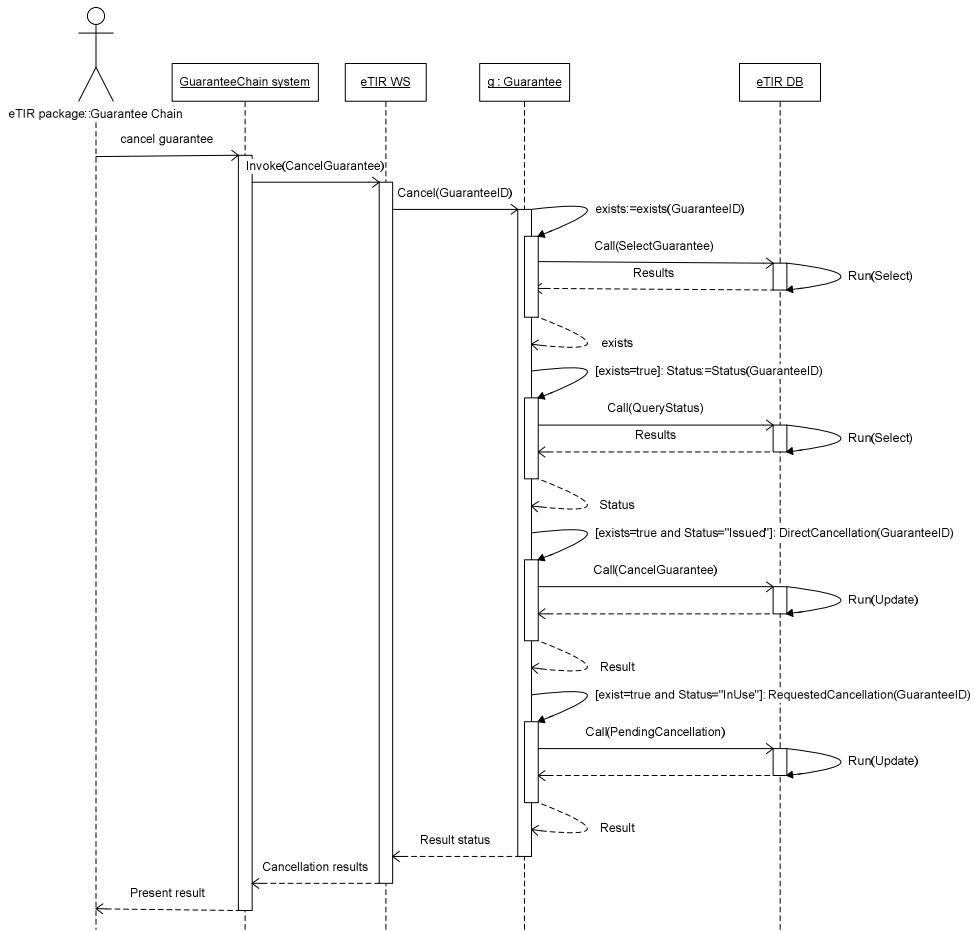


Figure 3.3: Cancel guarantee sequence diagram

3.1.1.4. Accept guarantee

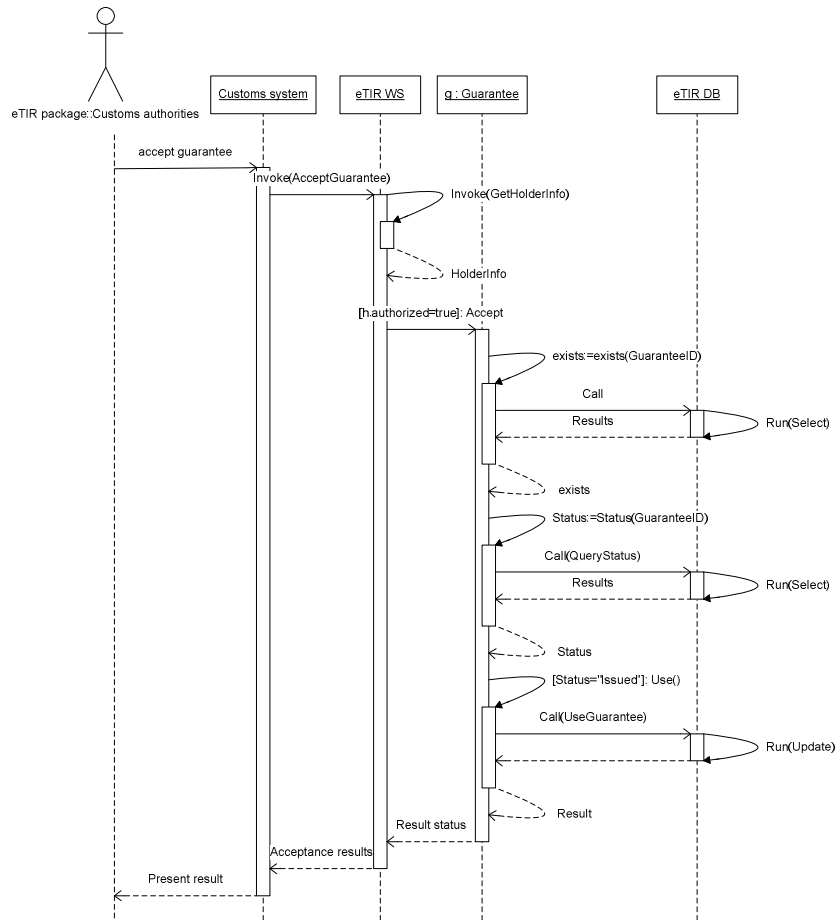


Figure 3.4: Accept guarantee sequence diagram

3.1.1.5. Get holder information

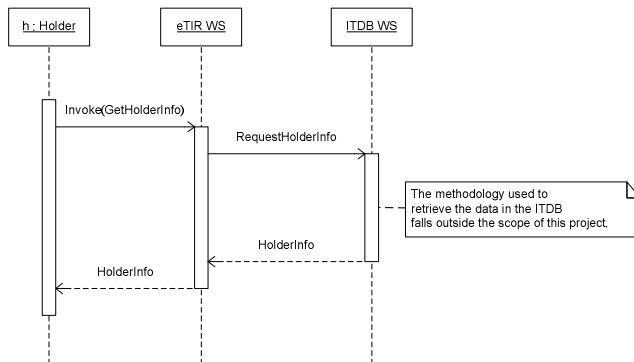


Figure 3.5: Get operator information sequence diagram

3.1.1.6. Query guarantee

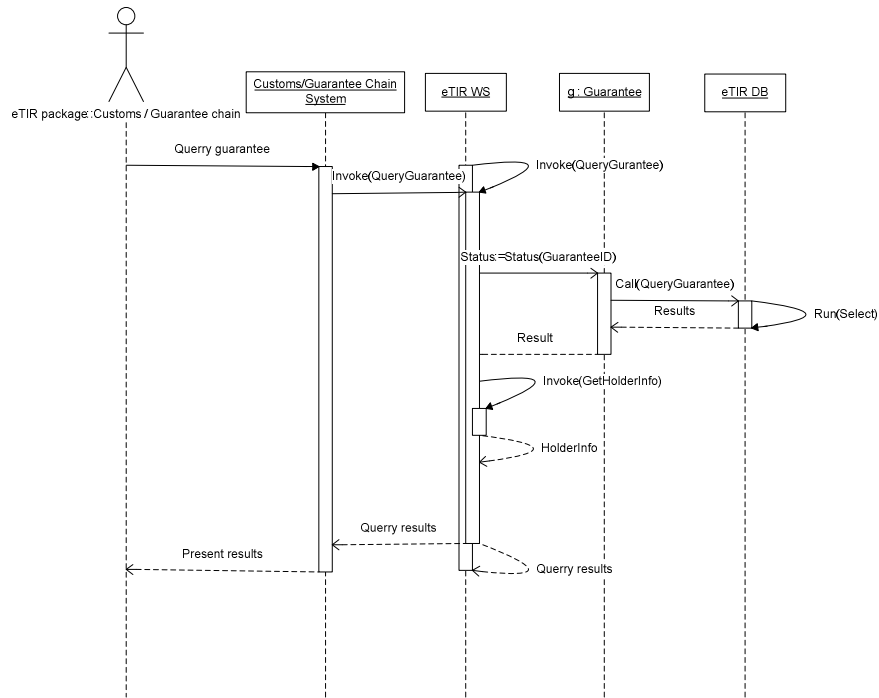


Figure 3.6: Query guarantee sequence diagram

3.1.2. Data exchange

3.1.2.1. Record consignment information

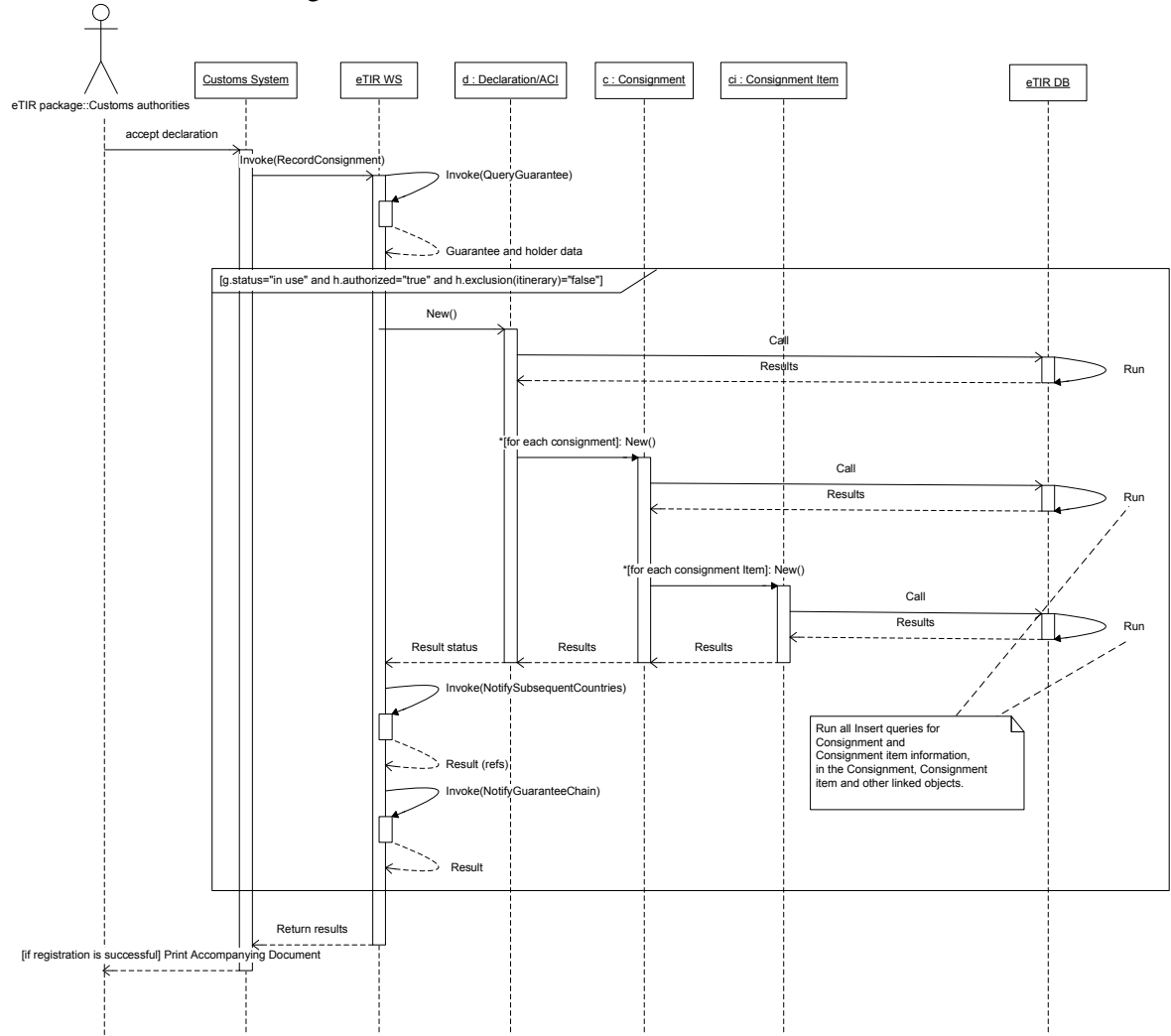


Figure 3.7: Record consignment information sequence diagram

3.1.2.2. Update consignment information

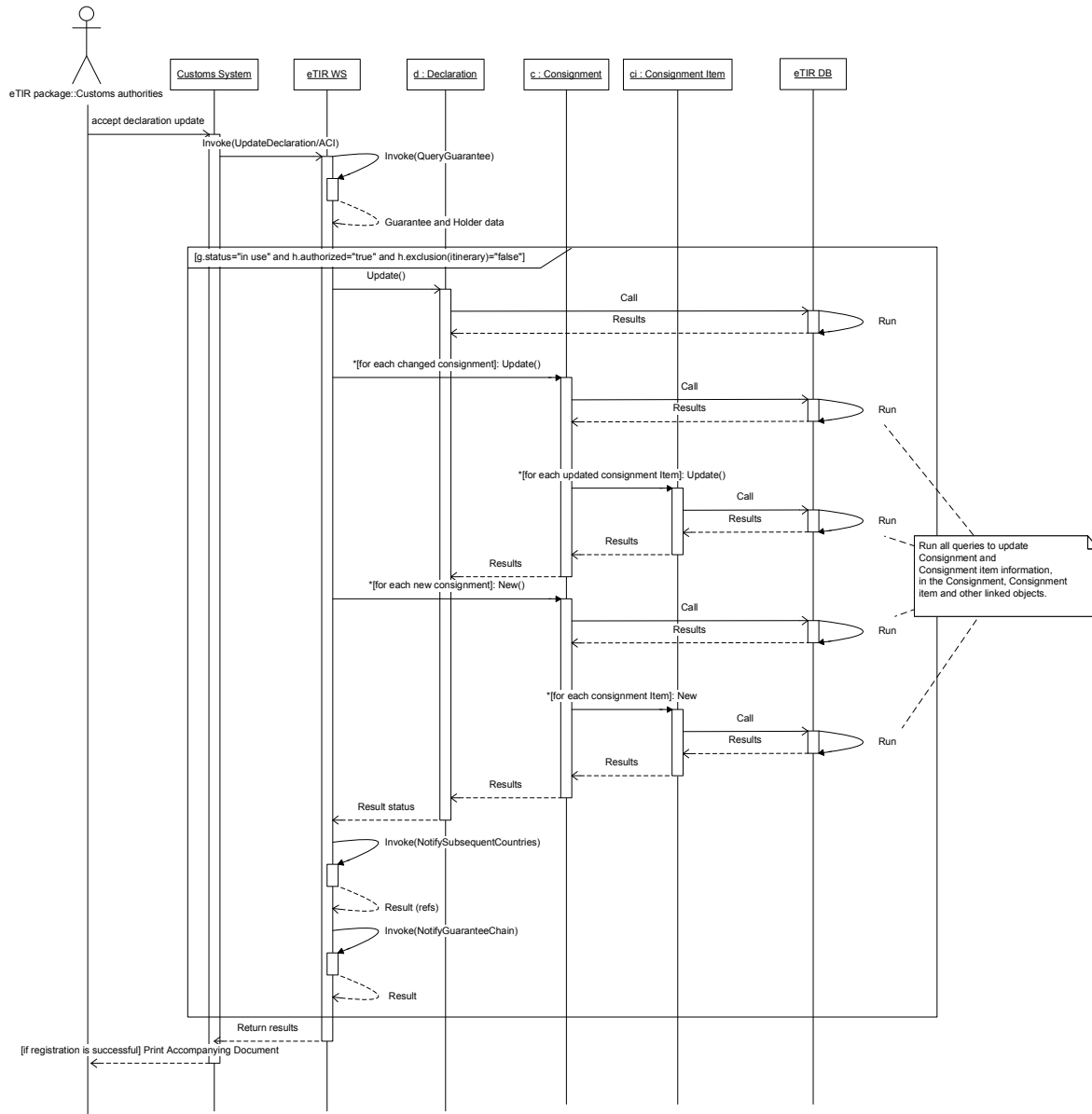


Figure 3.8: Update consignment information sequence diagram

3.1.2.3. Start of TIR operation

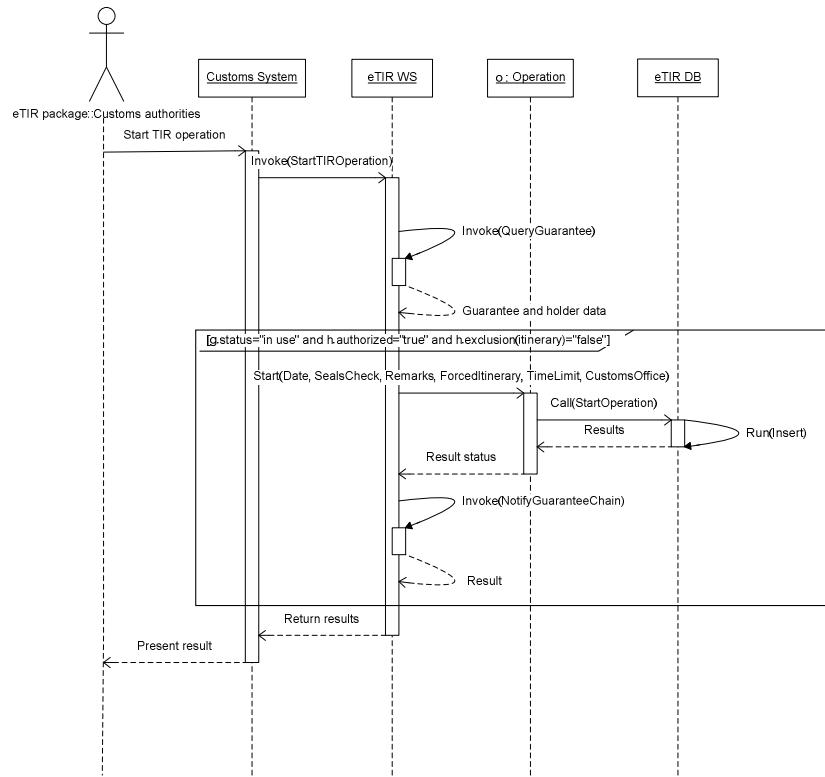


Figure 3.9: Start of TIR operation sequence diagram

3.1.2.4. Terminate TIR operation

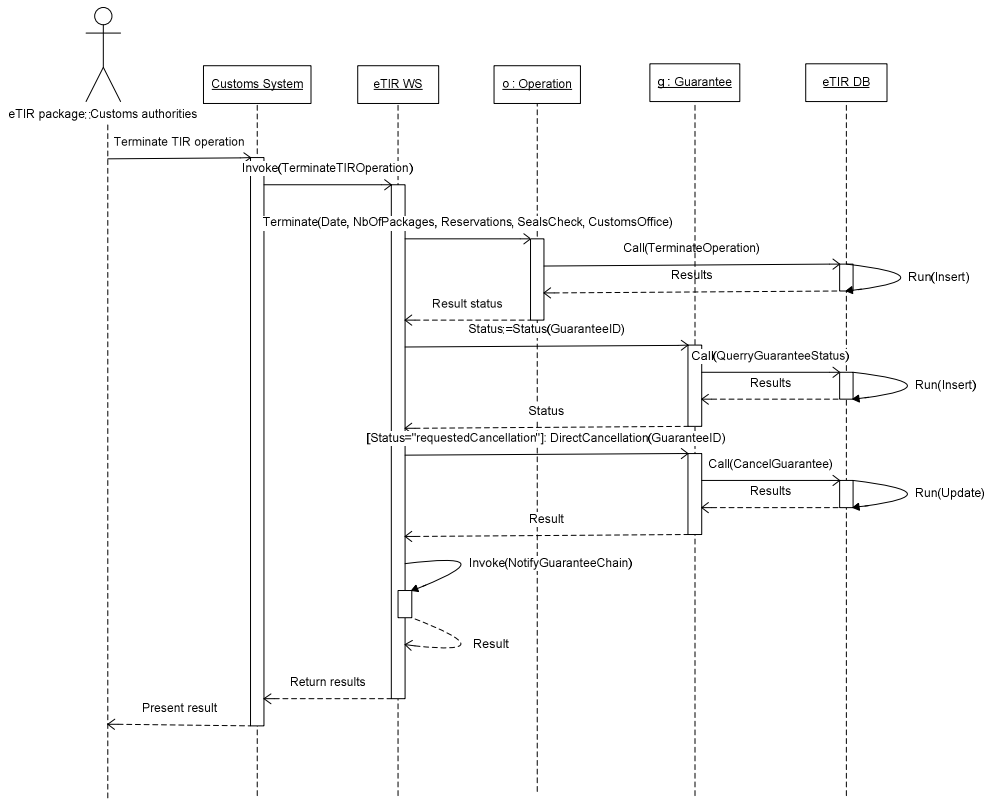


Figure 3.10: Terminate TIR operation sequence diagram

3.1.2.5. Discharge TIR operation

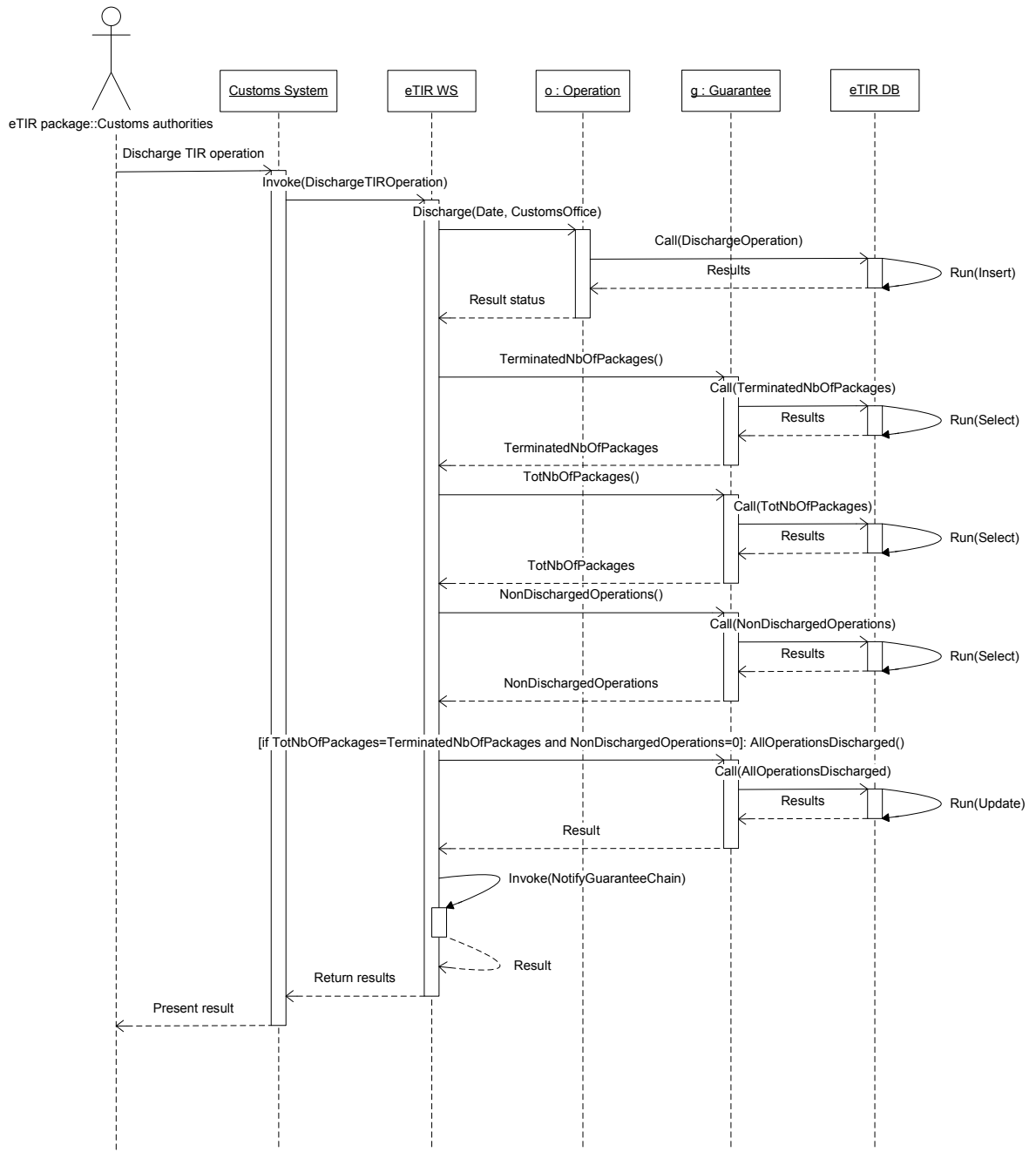


Figure 3.11: Discharge TIR operation sequence diagram

3.1.2.6. Notify guarantee chain

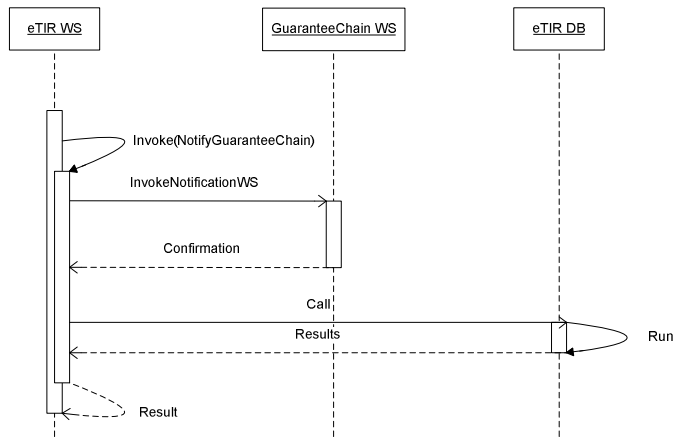


Figure 3.12: Notify guarantee chain sequence diagram

3.1.2.7. Notify subsequent countries

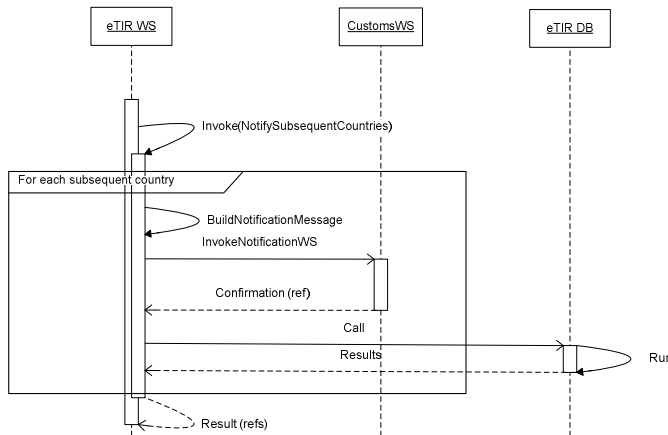


Figure 3.13: Notify subsequent countries sequence diagram

3.1.3. **Fall-back scenarios**

See document ECE/TRANS/WP.30/GE.1/2009/3.

3.2. **DATA ANALYSIS**

The class diagrams below are based on the class diagram presented in Chapter 2 and are aligned to the standard WCO transit data model version 3.¹ Whereas the class diagrams in Chapter 2 only contained the class names and the relationships between classes, they now show the attributes and methods of each class. The methods allow

¹ The WCO Council should approve the WCO data model version 3 by the end of 2008.

for interactions between objects and/or actors as presented in the sequence diagrams in Chapter 3.1. The attributes are used in Chapter 4 as the data elements of the electronic messages and, together with the relationships, serve to design database structures used in the eTIR international system.

Three class diagrams are presented separately to facilitate the reading. As a consequence, the classes guarantee, goods, Customs office, country, holder can be found in more than one diagram.

3.2.1. Management by Customs of data on guarantees class diagram

The management by Customs of data on guarantees class diagram presents the classes involved in providing guarantee-related information and the relationships between these classes.

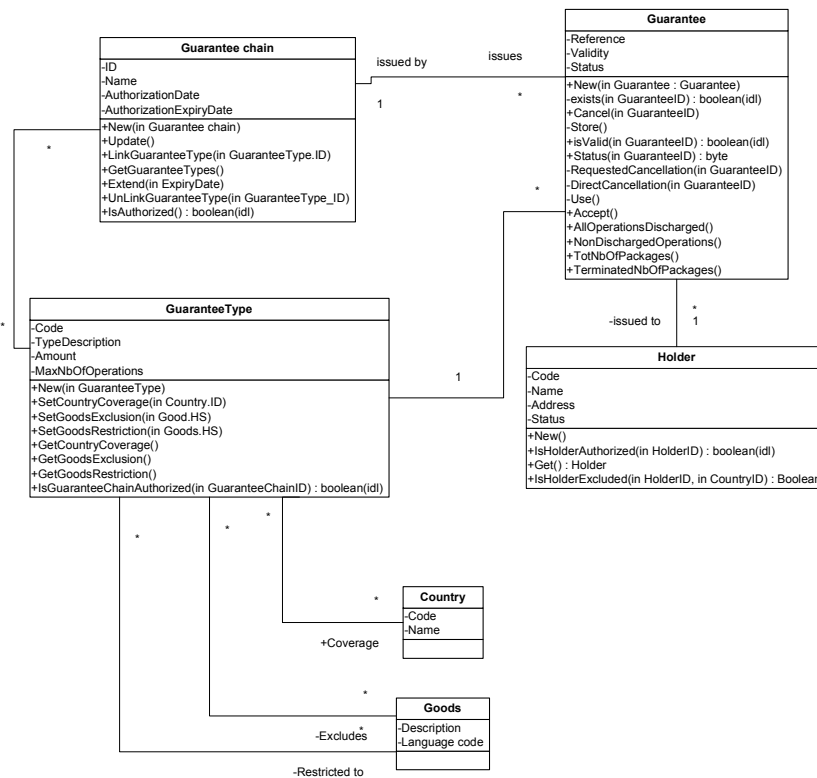


Figure 3.14: Customs management of guarantees class diagram

3.2.2. Declaration class diagram

The declaration class diagram presents the classes involved in the exchange of declaration-related information and the relationships between these classes.

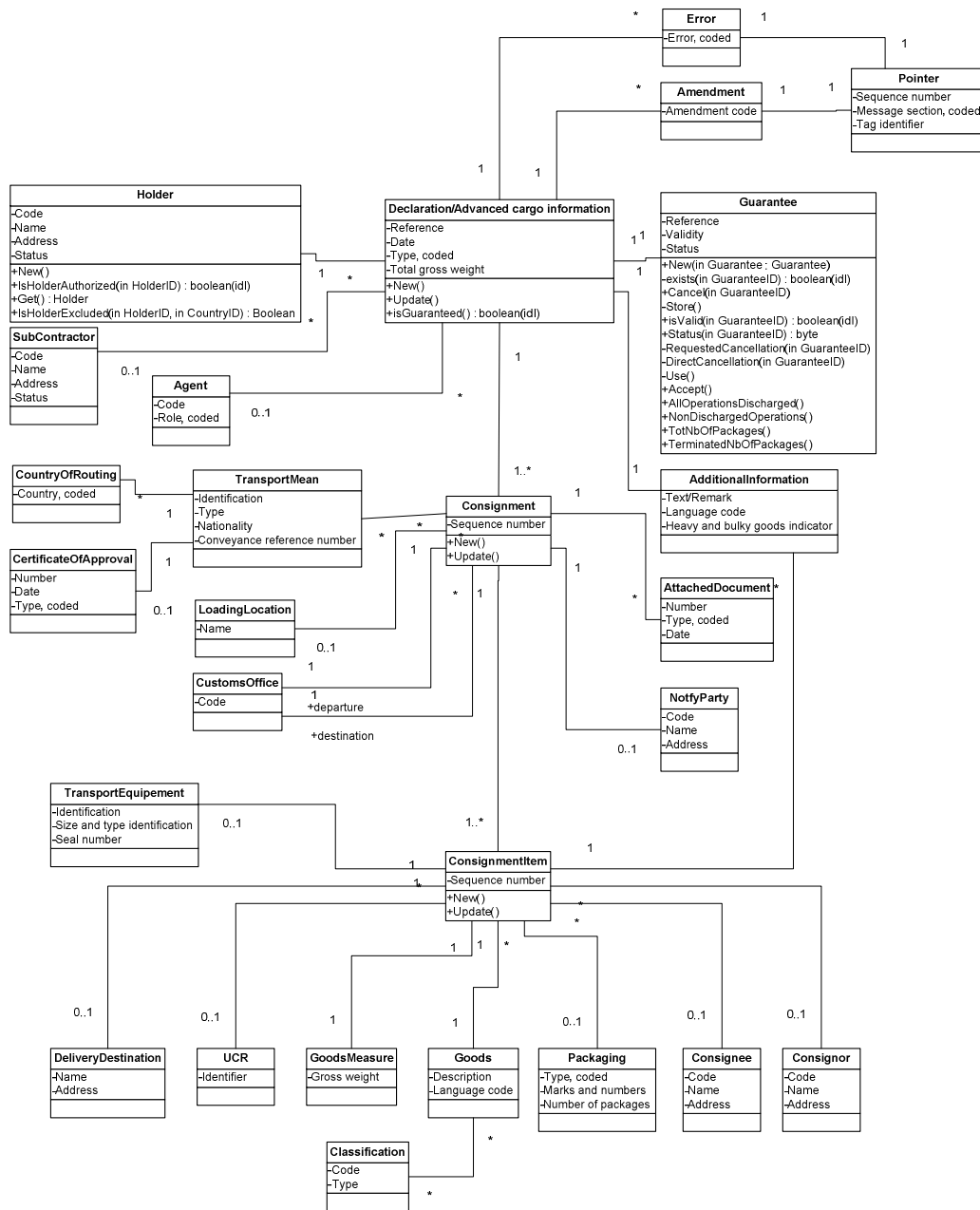


Figure 3.15: Declaration class diagram

3.2.3. TIR operations class diagram

The TIR operation class diagram presents the classes involved in the exchange of operation-related information and the relationships between these classes.

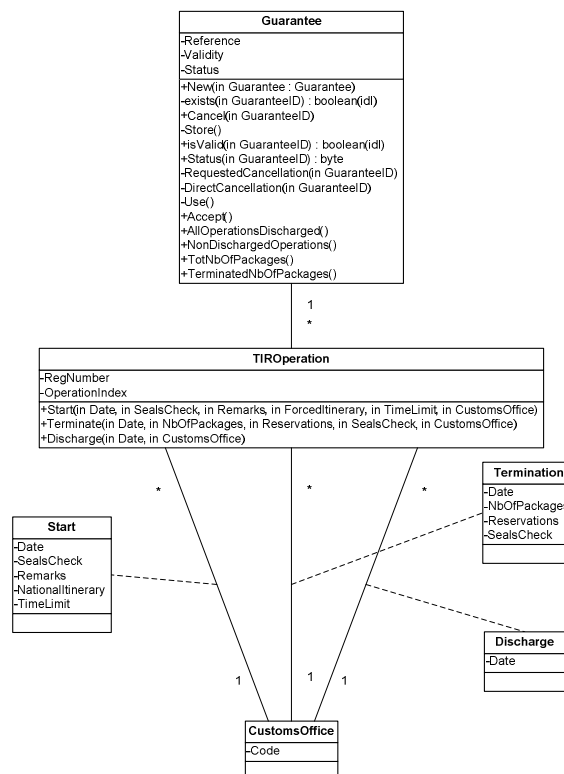


Figure 3.16: Data exchange class diagram

3.2.4. Lists of electronic messages

3.2.4.1. External messages

External messages are used to exchange information between Customs systems (including the eTIR international system) and other actors (guarantee chain and holder).

No.	Description	Response to:
E1	Register guarantee	-
E2	Registration results	E1
E3	Cancel guarantee	-
E4	Cancellation results	E3
E5	Query guarantee	-
E6	Query results	E5
E7	Notify guarantee chain	-

E8	Notification confirmation	E7
E9	Declaration	-
E10	Declaration confirmation	E9

3.2.4.2. Internal messages

Internal messages refer to the messages exchanged within the Customs international environment (between the eTIR international system and national Customs system).

<i>No.</i>	<i>Description</i>	<i>Response to:</i>
I1	Accept Guarantee	-
I2	Acceptance results	I1
I3	Get holder info	-
I4	Holder info	I3
I5	Query guarantee	-
I6	Query results	I5
I7	Record declaration	-
I8	Record declaration results	I7
I9	Update declaration	-
I10	Update declaration results	I9
I11	Start TIR operation	-
I12	Start results	I11
I13	Terminate TIR operation	-
I14	Termination results	I13
I15	Discharge TIR operation	-
I16	Discharge results	I15
I17	Notify Customs	-
I18	Notification confirmation	I17

3.2.5. *Electronic messages data elements*

See Informal document GE.1 No. 1 (2009).

3.2.6. *Conditions and rules*

See Informal document GE.1 No. 1 (2009).

3.2.7. *Code lists*

See Informal document GE.1 No. 1 (2009).
