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Geneva, 27 September 2007
Item 8 (a) of the provisional agenda

CUSTOMS CONVENTION ON THE INTERNATIONAL TRANSPORT OF GOODS UNDER
COVER OF TIR CARNETS (TIR CONVENTION, 1975)

Revision of the Convention

Preparation of Phase III of the TIR revision process

Note by the secretariat[*]

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[*] This document contains the updated version of document ECE/TRANS/WP.30/GE.1/2007/2/Rev.1 as amended in accordance with the instructions given by the Informal Ad hoc Expert Group on Conceptual and Technical Aspects of Computerization at its twelfth session (Geneva, 12 June 2007) and the Working Party on Customs Questions Affecting Transport at its one-hundred-and-sixteenth session (Geneva, 13-15 June 2007). Amendments in relation to document ECE/TRANS/WP.30/GE.1/2007/2/Rev.1 are indicated by means of **bold underline** and deletions by means of ~~strike through~~.

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I.   BACKGROUND

1.   At its fourth session, the Informal Ad hoc Expert Group on Conceptual and Technical aspects of Computerization of the TIR Procedure (further referred as "the Expert Group") held first considerations with regard to preparing a high-level description of the eTIR Project (Informal document ExG/COMP/2004/10, paras. 15-17). At its seventh session, the Group continued its consideration on the basis of Informal document ExG/COMP/2004/23 drafted by the secretariat and of a presentation made by the European Commission. The Expert Group requested the secretariat to collaborate with the Commission to prepare a new document for its next session combining the ideas from the Commission's presentation and elements of Informal document ExG/COMP/2004/23.

2.   At their first meeting, the European Commission and the secretariat were of the view that it would be more effective to devise not one but two separate documents. The first document should present the general ideas on how the eTIR system would replace all functionalities integrated in the TIR Carnet with the aim of presenting it for endorsement to the WP.30 at its October 2005 session. The second document, intended for the Expert Group, should elaborate the ideas, contained in the first document, in the form of high-level functional specifications.

3.   At the eighth session, the experts from Customs authorities extensively discussed document TRANS/WP.30/GE.1/2005/2 prepared by the secretariat with the assistance of the European Commission and taking into account the guidelines provided by the Working Party in Informal document No. 9 (2005). They updated the document and requested the secretariat to prepare and distribute a revised version before 25 November 2005. They also mandated the secretariat to continue its work on the basis of the revised document and to draft for its ninth session a document on the possible steps that would lead to a fully computerized eTIR system.

4.   At its ninth session the Expert Group proposed to combine document TRANS/WP.30/GE.1/2005/2/Rev.1 with document TRANS/WP.30/GE.1/2006/3, containing a proposal of a step-by-step implementation of the eTIR project, and present this as the high level description of the eTIR project, to be included in the Reference Model at the next session of WP.30 for endorsement.

5.   At its tenth session the Expert Group extensively discussed document ECE/TRANS/WP.30/GE.1/2006/9, containing a proposal for the e-Business Requirement Chapter of the Reference Model, as prepared by the group of Customs experts, which had met in Ankara. The Expert Group agreed that, subject to a number of specific amendments, the document was providing the necessary information for inclusion as Chapter 2 of the Reference Model. It requested the secretariat to prepare and distribute a new document, containing the complete Chapter 2 of the Reference Model, which would combine and align the introduction contained in document ECE/TRANS/WP.30/2006/8 with the revised document ECE/TRANS/WP.30/GE.1/2006/9. This document was issued by the secretariat as document ECE/TRANS/WP.30/GE.1/2007/2.

6.   At its eleventh session, the Expert Group extensively discussed document ECE/TRANS/WP.30/GE.1/2007/2 containing draft proposals for Chapter 2 of the Reference Model. The Expert Group highlighted three areas where the document should be improved:

  – Alignment of the terminology used in draft Chapter 2 with the text of the TIR Convention, with the aim to clarify that the proposals are in line with the basic philosophy and structure of the TIR procedure;
  – Further linkage between Chapters 1 and 2 of the Reference Model, in order to ensure that the future eTIR system encompasses the computerization of all current procedures;
  – Refinement of technical issues raised by the IRU and others.

7.   The group proposed to convene a small drafting group composed of 2 to 3 Customs IT experts, 2 to 3 representatives for the private sector, who should be assisted by the UNECE secretariat. The drafting group should meet once with the mandate to, where appropriate, review, reformulate and amend document ECE/TRANS/WP.30/GE.1/2007/2 in line with the above instructions by the Expert Group.

8.   ~~The European Commission, Turkey as well as Serbia agreed to participate in this drafting group from the Customs side, whereas the IRU proposed to coordinate with its member associations and provide the experts representing the private sector. The drafting group was requested, when redrafting document ECE/TRANS/WP.30/GE.1/2007/2, to clearly highlight the changes with regard to the previous version of the document. The Expert Group requested the document to be available in all 3 official languages for its next meeting.~~ **The drafting group, which met in Belgrade on 6-7 March 2007 at the kind invitation of the Serbian Customs authorities, prepared document ECE/TRANS/WP.30/GE.1/2007/2/Rev.1. At its 12th session, the Expert Group discussed this document extensively, together with documents ECE/TRANS/WP.30/GE.1/2007/9 and ECE/TRANS/WP.30/GE.1/2007/10, submitted by the IRU after the Belgrade session. The documents describe technical issues in relation to the amended Chapter 2 of the Reference Model as well as various other issues of a strategic and/or legal nature. The Expert Group requested the secretariat to clarify some minor technical issues, in particular with regard to the aspect of back up scenarios, in the next version of Chapter 2 and referred other issues, which went beyond its conceptual/technical mandate, to the Working Party for further consideration at its one-hundred-and-sixteenth session (See ECE/TRANS/WP.30/GE.1/2007/11, para. 8). At its one-hundred-and-sixteenth session, the Working Party invited the Expert Group to submit document ECE/TRANS/WP.30/GE.1/2007/2/Rev.1 with minor technical improvements identified at the twelfth session of the Expert Group and taking into account issues of a strategic and/or legal nature to the Working Party for consideration and, possibly, adoption at its forthcoming session (ECE/TRANS/WP.30/232, paragraph 32).**

8.   The annex to this document contains the proposed Chapter 2 of the Reference Model of the computerization of the TIR Procedure as revised by **the secretariat after the twelfth session of the Expert Group and the one-hundred-and-sixteenth session of the Working Party** ~~the small drafting group~~. The specifications are compliant with the general guidelines for the computerization of the TIR system, as endorsed by the TIR Administrative Committee at its forty-second session (ECE/TRANS/WP.30/AC.2/85, paragraph 38).

II.   E-BUSINESS REQUIREMENT OF THE eTIR SYSTEM

9.   The e-business requirements Chapter starts with a high level description of the eTIR system providing an overview of the system on which the future functional and technical specifications of the project will be based. It provides not only a general view, but also establishes guidelines allowing for a step-by-step transition from the paper-based system to a computerized system.

10.   The Chapter follows with presenting the requirements in the form of a use case analysis of the two modules of the system: the international Customs management of guarantees and the exchange of information regarding TIR transports among Customs authorities.

III.   FINAL CONSIDERATIONS

11.   The ~~Expert~~ **Group** ~~Group~~ **Working Party may wish to adopt and the Administrative Committee** may wish to ~~discuss and amend~~**endorse** the annex and ~~possibly~~ request ~~its submission to WP.30 for endorsement~~**its inclusion as Chapter 2 into the Reference Model of the Computerization of the TIR Procedure.** The requirements presented in this Chapter will be the guideline for the future work of the Expert Group: Chapter 3 (Analysis) and Chapter 4 (Design).

<u>**Annex**</u>

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2. E-BUSINESS REQUIREMENTS

2.1. High-level description of the eTIR project

As elaborated in Chapter 1 of the Reference Model, the final objective of the computerization of the TIR procedure encompasses the computerization of the whole TIR Carnet life cycle from distribution, issuance and via the TIR transport to return and repository and it should, ultimately, be aimed at replacing the current paper TIR Carnet without changing the basic philosophy of the TIR Convention. In order to streamline the work towards this challenging objective, the Working Party agreed (and later confirmed) that the approach of the computerization process should be focused on the establishment of an international, centralized database, whose aim it is to allow the management by Customs of data on guarantees and the exchange of information between Customs authorities, being two elements of the TIR Carnet life cycle not computerized so far.

At the request of Contracting Parties, the development of an electronic declaration system is outside the scope of the eTIR project. However, the eTIR project will define standard declaration messages. The technical realization of declaration mechanisms will be left up to initiatives at national or private level. Other elements falling outside the scope of the eTIR project concern the approval of international organizations, national associations, transport operators and vehicles, the organization and functioning of the guarantee system, the management of a control system under Annex 10 and the administration of the TIR Convention.

The first part of this Chapter aims at providing a high level description of the international, centralized database, the eTIR international system, whose aim it is to complement developments and achievements at the national and private level relating to the computerization of the TIR Carnet life cycle. It also provides general guidelines for the smooth transition from the current paper based system to full computerization. The second part of the Chapter describes the functioning of the eTIR international system by means of use cases and activity diagrams.

2.1.1. Actors and roles

This section describes the different tasks and obligations related to the actors and their roles.

2.1.1.1. Customs authorities

Customs authorities can perform the following roles:

– Customs office of departure
– Customs office of destination
– Customs office of entry (en route)

- − Customs office of exit (en route)
- − Customs office of discharge.

2.1.1.2.   eTIR international system

The eTIR international system interfaces with the Guarantee Chain and will ensure the management by Customs of data on guarantees at international level. Moreover, in view of the fact that, within the eTIR system, electronic direct exchange of information between the Customs administrations located in the different Contracting Parties is neither currently feasible nor enforceable, it will facilitate the secure circulation of standardized information between Customs administrations.[1]

2.1.1.3.   Holder

The holder performs the TIR transport and is responsible for providing the related declaration data electronically and for presenting the goods to the relevant Custom offices referred to in Chapter 2.1.1.1 above.

2.1.1.4.   Guarantee Chain

The Guarantee Chain as described in this document is composed of an international organization, authorized by AC.2 to take on responsibility for the effective organization and functioning of an international guarantee system in accordance with the provisions of Article 6.2bis of the Convention and national associations, approved by Contracting Parties in accordance with the provisions of Article 6 and Annex 9, Part II of the Convention to act as guarantors. The Guarantee Chain provides the holder with an international guarantee i.e. a guarantee recognized by each of the Contracting Parties involved in the TIR transport.

2.1.2.   *Fundamental principles*

2.1.2.1.   eTIR International System brief

The eTIR international system is devised to allow the management by Customs of data on guarantees by Customs and the secure exchange of data between national Customs systems related to the international transit of goods, vehicles and/or containers according to the provisions of the TIR Convention.

Therefore, only a part of the information flow required for the functioning of the TIR procedure is managed by the eTIR international system. The following picture graphically represents the information exchange between the actors. It also shows that

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[1] In accordance with the instructions by the WP.30 at its 106th session, the eTIR system administration shall be established on the basis of an international, centralized database whose aim it is to facilitate the secure exchange of data between national Customs systems (TRANS/WP.30/212, para. 26).

the eTIR international system does not communicate with the holder. It is important to recall that the management of claims and the information to be provided by Customs authorities to authorized associations (under Article 42ter and an international organization (under Article 6.2bis) as provided for by Annex 10 of the TIR Convention are outside the scope of the eTIR project (see figure below).
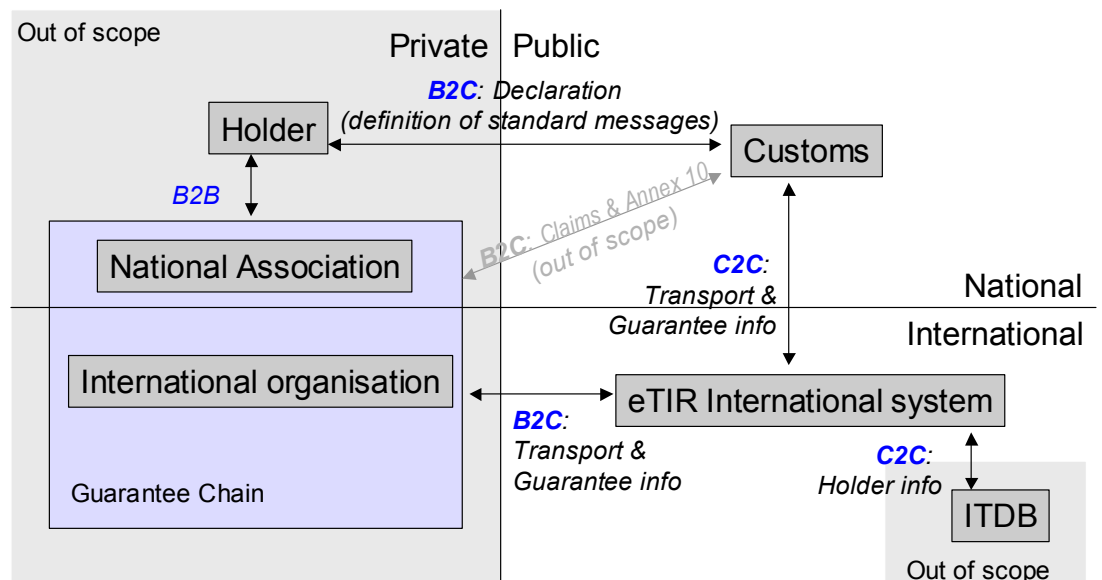
On the one hand, the Guarantee Chain transmits to the eTIR international system information on the guarantees it has issued to the holders so that they can be registered in the eTIR international system. The Guarantee Chain can also query at any time the status of guarantees it has issued and obtain related TIR transport information. On the other hand, Customs authorities use the eTIR international system to check the status of guarantees and to exchange information related to the TIR transport and to TIR operations.

The management by Customs of the data on guarantees and the secure exchange of data between national Customs systems in relation to TIR transport information are therefore the two fundamental features of the eTIR international system. Guidelines will also be provided to promote harmonization, especially in the context of the dialogue between the holder and Customs authorities.

Communication, security and fallback solutions constitute other key features of the system.

2.1.2.2.   Management by Customs of data on guarantees

The management by Customs of data on guarantees requires a strong relationship between the Guarantee Chain and the eTIR international system. The Guarantee Chain sends information on each issued guarantee to the eTIR international system. The recording of this information in the eTIR international system is conditional on checks made against the International TIR database (ITDB) concerning authorized holders.

2.1.2.2.1.   Registration of the guarantee

After having issued a guarantee to the holder, the Guarantee Chain shall register it in the eTIR international system by sending a standard electronic message.

a.   Elements comprizing the registration of the guarantee

(i)   *Holder (M)[2]*

Information on the physical or legal person to whom the guarantee has been issued.

(ii)   *Guarantee Chain (M)*

Information on the Guarantee Chain.

(iii)   *Guarantee (M)*

Information on the guarantee (guarantee reference number, validity date, maximum number of operations, …)

2.1.2.2.2.   Cancellation of a guarantee

Once a guarantee has been registered in the eTIR international system, the Guarantee Chain may cancel any guarantee which has not yet been used. It may also cancel the validity of a guarantee which is in use but only for the TIR operations which have not yet started. Such cancellation will, however, only become effective at the start of the first consecutive TIR operation.

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[2] M: Mandatory; O: Optional; C: Conditional.

2.1.2.2.3. Verification of the guarantee[*]

The data on guarantees will be accessible to all Customs offices. If a holder presents to Customs a declaration covered by a guarantee which is not recorded in the eTIR international system or has been cancelled by the Guarantee Chain, then Customs authorities shall not accept it.

2.1.2.2.4. Querying guarantee status

Once a guarantee has been registered in the eTIR international system, the Guarantee Chain can query at any time the status of guarantees it has issued.

2.1.2.2.5. Transmission of TIR transport and TIR operation data

The eTIR international system forwards to the Guarantee Chain information on TIR transports and TIR operations related to the guarantees it has issued, other than information which is restricted to Customs.

2.1.2.3. Exchange of TIR transport and TIR operation information

2.1.2.3.1. Data handling at the beginning of the TIR transport

Once the Customs office of departure accepts the declaration, according to national procedures, it will send a message containing that information, together with additional

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[*] **IRU: "In line with paragraph 2.1.2.2.3 of the draft Reference Model it will be necessary for the Customs office of departure receiving and processing the declaration to verify the validity of the guarantee. As far as the IRU is concerned it will be necessary for the verification to be made to the guarantee chain – either indirectly or via the eTIR international database.**
There are a number of practical, operational and legal reasons why this is necessary, including the following: Although the guarantee data is originally furnished by the guarantee chain, the data stored in the eTIR international database cannot be relied upon as remaining accurate and reliable. The only way to ensure the accuracy and reliability of the guarantee data is to go to the source and to verify the guarantee against the data held by the guarantee chain. In this way, Customs can be assured, with absolute certainty, that the guarantee is valid and that the validity of the guarantee cannot subsequently be denied or questioned.
The requirement that the guarantee chain is responsible for confirming the validity of the guarantee can, through a loose analogy, be likened to the common situation concerning the use of credit cards. The decision to accept a charge made against a credit card is not made by the establishment requiring the payment or even the bank or institution that issued the card. Rather the decision rests with the credit card company. As this verification to the source is made electronically and instantaneously there is no appreciable delay in processing the request to use the credit card. In the same way the eTIR international system will have a permanent link to the guarantee chain's database – in those cases where verification of the validity is not done directly – an so there will be no delay. The IRU believes that this fundamental requirement would be a sine qua non required by any international organisation authorised under Article 6.2bis of the TIR Convention."(ECE/TRANS/WP.30/2007/15-ECE/TRANS/WP.30/GE.1/2007/10).

Customs data, to the eTIR international system, in line with agreed requirements. The latter will then store the declaration information and link it with the guarantee information. This information is then available, upon request, to all Customs offices.

a.   Recording of the elements comprizing the TIR transport (and its subsequent updates)

The elements required for the TIR transport recording are those of the TIR operation 'start information' (see point 2.1.2.3.2.a(i)) plus all the elements provided in the declaration(s) (see 2.1.2.4.2.a). In addition, the Customs office of departure provides the following element:

(i)   *Seals (C)*

Information on the seal(s) affixed to the vehicle(s) and/or container(s).

(ii)   *Identification marks (C)*

Identification marks of heavy and bulky goods.

(iii)   *References to other information (O)*

Reference to other information required for heavy and bulky goods, such as packing lists, photographs, drawings, etc.

2.1.2.3.2.   Data handling related to TIR operations

a.   Elements composing the TIR operation registration

(i)   *TIR operation start information*

The Customs office of departure/entry provides the following information:

Operation Reference Number and date of start (M)

Time limit for transit (O)

Time limit for the TIR operation.

National itinerary (O)

Customs office(s) at which the road vehicle, the combination of vehicles or the container together with the load have to be produced.

Customs office/officer (M)

(ii)   *TIR operation termination information*

The Customs office of destination/exit provides the following information:

Date of termination (M)

Reservations (M)

In case of doubts with regard to the TIR operation, the Customs office of destination or exit indicates that it has terminated the TIR operation with reservations.

Customs office/officer (M)

(iii)　　*TIR operation discharge information*

The Customs office of discharge is responsible for discharging the TIR operation and providing the following information:

Date of discharge (M)

Customs office/officer (M)

2.1.2.4.　Other aspects

2.1.2.4.1.　*Issuance of guarantees*

The holder requests a guarantee from the Guarantee Chain, which will, on the basis of international, national and internal rules, decide if the guarantee can be issued to the holder. The Guarantee Chain will then provide the holder with a guarantee reference number for that specific guarantee. This procedure is outside the scope of the development of the eTIR international system but is a prerequisite for its well functioning.

The Guarantee Chain registers the guarantee internationally as foreseen in point 2.1.2.2.1.

2.1.2.4.2.   Declaration[*]

The holder submits the declaration by electronic means to the Customs office of departure, making reference to a guarantee issued by a Guarantee Chain, using authentication mechanisms. The declaration shall be submitted prior to the presentation of the goods at the Customs office of departure.

Customs authorities shall, if satisfied, validate and accept the Customs declaration and transmit it to the eTIR International system. The eTIR international system forwards this information to the following Customs authorities involved in the TIR transport.[**]

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[*] **IRU: "There is no disagreement that the current paper TIR Carnet fulfils two functions: it is the Customs declaration and it is proof of the existence of the internationally recognized guarantee. Moreover, these functions are recognized as two of the five so-called pillars of the TIR system. In other words the intrinsic combination of these two related functions has to be viewed as the cornerstone of the TIR system. In view of the Contracting Parties decision that the computerisation of TIR should "maintain the basic philosophy and structure of the TIR procedure (report of the forty-second session of the AC.2 refers) it is not clear why the IRU has been asked to explain why the dual role of the TIR Carnet should be maintained in the computerized environment.**
During the Belgrade meeting the IRU representatives made reference to an "e-Carnet". The Customs representatives appeared to have difficulty understanding what was meant by this concept. It should be made clear that the IRU is not proposing the introduction of an e-Carnet as such – the term was used as a convenient term (and one that had a certain symmetry with the term eTIR) simply to describe the mechanism for providing the appropriate messages relating to the TIR declaration and proof of the TIR guarantee in a computerized environment.
In the context of eTIR, the international guarantee chain would ensure that the Holder had the means to submit his TIR declaration electronically. The declaration would comprise the appropriate messages corresponding to the goods manifest (in the equivalent paper system) and the guarantee data. The guarantee data would comprise information on the following elements: The Holder; the national guaranteeing association; the international organisation involved; the guarantee reference number; and the period of validity of the guarantee. This guarantee data would simultaneously be sent by the guarantee chain to the eTIR international database.
As far as the IRU is concerned this arrangement would enable Customs to manage the guarantee data registered in the eTIR international database whilst also preserving one of the basic philosophical characteristics of the existing TIR system."(ECE/TRANS/WP.30/2007/15-ECE/TRANS/WP.30/GE.1/2007/10).

[**] **At the Belgrade session, the IRU expressed the view that this description of the system was not in line with the current provisions of the TIR Convention (in particular Articles 1 (o) and 21). In its view, it is a requirement of international Customs law that the holder, as declarant, transmits the declaration to the Customs authorities in each Contracting Party involved in the TIR transport. Moreover, it pointed at legal complication in case divergences would be found between the Customs declaration, as submitted by the holder, and after its transmission to Customs authorities en route. This view was not shared by Customs representatives, who were of the opinion that the current provisions of the TIR Convention do not preclude that the eTIR international system would take care of transmitting the Customs declaration to the following Customs offices of entry en route, which would accept the Customs declaration when the goods would be represented at the border (see: ECE/TRANS/WP.30/2007/9-ECE/TRANS/WP.30/GE.1/2007/6, para. 5).**

The declaration is dealt with at national level between the holder and the Customs authorities, according to the standards defined by the eTIR project. The following elements shall be provided in the declaration since these elements are also part of the registration of the TIR transport information (see 2.1.2.3.1.a).

a.   Elements comprizing the declaration

(i)   *Holder (M)*

Information on the physical or legal person who is responsible for transporting the goods and submitting the declaration.

(ii)   *Guarantee (M)*

The guarantee reference number under which the TIR transport will be undertaken.

(iii)   *Goods (M)*

Information on the goods transported (e.g.: type, quantity, identifications, Customs office of departure, Customs office of destination, …).

(iv)   *Vehicles/Containers (M)*

Information on the vehicles and/or containers used to transport and /or carry the goods.

(v)   *Accompanying documents (O)*

Reference to all documents, paper or electronic, which are accompanying the declaration.

(vi)   *[Consignee (O)*

Information on the physical or legal persons to whom goods are shipped.]

(vii)   *Intended itinerary (Country level) (M)*

Countries intended to be involved in the TIR transport.

(viii)   *[Consignor (M)*

Information on the physical or legal persons from whom goods are shipped.]

(ix)   *[Subcontractors*

Information on the physical or legal person who performs the transport or a part of the transport on behalf of the holder.] *under discussion*

2.1.2.4.3. *Pre-arrival information*

One of the objectives of the eTIR international system, as defined by the Contracting Parties, is to provide Customs authorities with information prior to the arrival of cargos. This applies to information provided by the private sector as well as to information exchanged between Customs authorities. Therefore, the eTIR international system makes all information available to all authorized Customs offices concerned. Alternatively, automated messages could be sent from the eTIR international system to Customs authorities as soon as information is received.

2.1.2.5. Data exchange

2.1.2.5.1. *Central platform*

The eTIR international system is built around a central platform, which is a composed of hardware and software, including databases and web services. The databases serve to store and make the information available and acts as repository for all information concerning the TIR system, whereas the web services allow for an efficient and secure interfacing between the Contracting parties, the Guarantee Chain and the central platform.

2.1.2.5.2. *Communication*

The eTIR international system may use secure Internet connections to exchange messages.

2.1.2.5.3. *Standard messages*

The exchange of data with the eTIR international system is achieved by means of a set of predefined standard messages. All messages needed to ensure the functioning of the eTIR international system are described in Chapter 3.

2.1.2.6. Security

2.1.2.6.1. *The elements of security from the TIR Convention*

2.1.2.6.2. *Controlled access (Annex 9, Part II)*

Controlled access remains a major principle of the TIR system. The ITDB will be fully used to ensure that only authorized holders use the TIR system.

2.1.2.6.3. *Security data elements*

Data elements concerning supply chain security are contained in Chapter 3.

2.1.2.6.4. eTIR international system security

The eTIR international system is secured with security methods applicable to systems communicating via the Internet. Messages are encrypted and access is restricted to authorize users. The system is available 24/7.

2.1.2.7.   Accompanying document / Certified report

An accompanying document, printed by the Customs office of departure, provides all information regarding the TIR transport. This document also covers the need in case of accidents and incidents and replaces the certified report.

2.1.2.8.   Fallback solutions

On the one hand, if Customs offices or the Guarantee chain are not in a position to use the communication links between their systems and the eTIR international system (web services), the information will be securely transmitted to the helpdesk (See 2.1.3.2.6.). On the other hand, if Customs offices are not in a position to access the information related to a specific TIR transport using the web services, they will resort to the accompanying document to insert the required information into their system. In order to verify the correctness of the information contained in the accompanying document, they can contact the helpdesk.

Detailed fallback solutions for individual use cases are contained in Chapter 2.3. ~~In case of problems in the course of a TIR transport the accompanying document, will be used.~~

2.1.3.   Deliverables

2.1.3.1.   National deliverables

2.1.3.1.1.   National management of data

The national computer systems of the countries process electronically the data from and to the eTIR international system. The national applications are primarily focused on reception and validation of the electronic declaration as well as on the management of the TIR operations.

2.1.3.1.2.   Bridges to the eTIR international system

National computer systems communicate with the eTIR international system using a predefined set of standard messages and technology.

2.1.3.1.3.   User manuals and training

Customs administrations provide their Customs officers with the necessary documentation and training to ensure the proper use of the national parts of the eTIR international system. They can also provide documentation for holders.

2.1.3.2.   International deliverables

2.1.3.2.1.   Central databases

The central platform is based on a central database system, which stores the data and contains the functional rules that allow the functioning of the eTIR international system.

The databases contain information on the data on guarantees and their coverage, and link the issued guarantees with the holder. Moreover, they contain all data regarding the TIR transports linking them to the guarantee information.

2.1.3.2.2.   Web services

Web services implemented on the central platform allow authorized computer systems to interact securely with the eTIR international system. The web services provide, in a standard format, the functions which allow querying and updating the central database.

2.1.3.2.3.   Definitions of standard messages

All messages sent to or received from the eTIR international system are defined and listed in Chapter 3.

2.1.3.2.4.   Technical documentation

The technical documentation will ensure that the Customs authorities and the Guarantee Chain can develop their specific applications connected to the eTIR international system.

2.1.3.2.5.   User manuals and training for trainers

The user manuals and the training for trainers serve as basis for the development of national user manuals and national training programs. They describe the procedures, the best practices as well as all tools available in eTIR international system.

2.1.3.2.6.   Helpdesk

The helpdesk is available to Customs authorities and the Guarantee Chain to help in the implementation of the eTIR international system as well as ongoing operations **(i.e.: the helpdesk will provide fallback to transmit information in case the standard connections (web services) are not available. As a consequence, the helpdesk will need to be available 24/7/365).**

2.1.3.2.7. *Customs offices database*

A database in which information on all Customs offices involved in the eTIR international system is stored.

2.1.3.2.8. *Countries database*

A database containing information on all countries involved in the eTIR system.

2.1.3.2.9. *Authentication database*

In order to technically restrict access to the eTIR international system to those users who have been authorized, a security database is used.

2.1.3.3. Other required systems

2.1.3.3.1. *Authorized access database*

To ensure that guarantees are only issued to authorized holders, the eTIR international system links to the ITDB.

2.1.3.4. Languages and character sets

The eTIR international system will allow for the translation of all coded information in order to ensure the maximum transparency. In order to allow the transmission and display of all languages, the character set used by the eTIR international system is Unicode.
In case of textual descriptions, the language of the country where the information has been provided shall be used. Nevertheless, translations in other languages can also be provided and are sometimes required.

2.2. **Step-by step implementation**

The eTIR international system as defined in Chapter 2.1 is subdivided in two major modules: management by Customs of data on guarantees and data exchange, which should be developed simultaneously in order to obtain maximum benefits.

The full computerization of the TIR procedure depends on the complete implementation of both modules by all parties involved. Transitional steps will be required before all Contracting Parties of the Convention will exchange electronic information. In view of the wide geographical coverage of the TIR Convention and the different levels of technological developement of the countries concerned, the duration of the transition may vary from country to country.

2.2.1. *Management by Customs of data on guarantees module*

The management by Customs of data on guarantees module, as described in Chapter 2.1.2.2, allows the Guarantee Chain to electronically register in the eTIR international system all guarantees issued to the holders. Moreover, it enables Customs authorities to check the validity of the guarantee in the course of a TIR transport and before each TIR operation.

Introducing the management by Customs of data on guarantees into the eTIR international system will increase the security of the TIR system by making available, at any time, information on the validity of the guarantees. Moreover, by linking the consultation of the status of the guarantee to the ITDB, it will further secure the system by ensuring that unauthorized holders will not be allowed to perform TIR transports. Logically, it will also further discourage attempts to falsify the TIR Carnet.

The corner stone of the management by Customs of data on guarantees module is the registration of the guarantee by the Guarantee Chain. It implies the development of the eTIR international system with all related functionalities and the development or the amendment of a tool allowing for real-time transmission by the Guarantee Chain of guarantee data to the eTIR international system

2.2.2. *Data exchange module*

The second module of the eTIR project focuses on developing the TIR transport and TIR operations information exchange combining them with the guarantee information provided by the Guarantee Chain.

In view of the fact that not all Customs offices will immediately have access to the eTIR international system, the use of present paper TIR Carnet will be maintained and remains mandatory. Nevertheless, all eTIR compatible Customs offices will already be in a position to have access to and update the central system with TIR transport/TIR operation information.

It can be envisaged that one or more pilot projects concerning the exchange of data between Contracting Parties can be initiated, in line with the mandate provided by WP.30 (TRANS/WP.30/212, para. 21).

2.2.3. *Abolition of the present TIR Carnet: a geographical expansion*

Before being able to completely abandon the present paper TIR Carnet, all parties involved in a TIR transport will have to be able to securely exchange electronic information on the TIR transport, the TIR operations and on the guarantee. To enable a smooth transition towards a fully computerized TIR system, the use of the present paper TIR Carnet will be discontinued for itineraries where all Customs offices will be linked to the eTIR international system.

As a result, for those TIR transports where the TIR Carnet will no longer be required, the full implementation of the second phase of the eTIR project will become mandatory for all Customs offices involved. Issues with regard to rerouting are addressed in the analysis and design chapters.

2.2.4. Parallel projects

2.2.4.1. Declaration mechanisms

In parallel to the implementation of the eTIR international system, standard eTIR national electronic declaration mechanisms will also have to be developed, aided by guidelines established in the analysis chapter. In this context, it can also be envisaged that standard declaration mechanisms are facilitated by developments from Customs administrations or from the private sector, nationally or internationally.

2.2.5. Schedule

The eTIR sub-projects imply developments at public and private level. Moreover, the public developments will be of both an international and national nature.[3]

The following schedule does not provide any timeframe; it only aims at showing the dependencies between the various projects in their different phases of development. The national implementations of the projects by Contracting Parties will certainly not be achieved simultaneously. Therefore, the schedule below considers three different timeframes, covering the possibilities for countries to develop their projects at their own speed.

Sub-projects	Steps[4]					
eTIR project						
Public international	I	E	C	**T**		
Public national						
Contracting Party 1		*E*	*C*	***T***		
Contracting Party 2			*E*	*C*	***T***	
Contracting Party 3				*E*	*C*	***T***
Private[5,6]		*E*	*C*	***T***		

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[3] The same might apply to the private sector development but it is not the aim of this project to provide the private sector with instructions on how their systems will have to be developed or updated in order to meet the requirements of the eTIR project.

[4] The letters in the cells represent the different phases as identified in table 0.1 of the Reference Model (I: Inception, E: Elaboration, C: Construction, T: Transition). Steps in italics are performed at national level or at private sector level. Steps in bold need to be finalized before reaching the milestone (indicated by vertical lines).

[5] The well functioning of the private/public partnership is essential to successfully implement this project.

[6] The IRU emphasised that this part of the computerization has already been largely accomplished.

Parallel projects National declaration mechanism							
Contracting Party 1	*E*	*C*	*T*				
Contracting Party 2		*E*	*C*	*T*			
Contracting Party 3			*E*	*C*	*T*		
Private[7]	*E*	*C*	*T*				

Paper to electronic *step-by-step transition*				
1		2	3	4

2.2.5.1.   Paper to electronic step-by-step transition

The transition from the paper TIR Carnet to the eTIR system will be achieved progressively, with the completion and implementation of the projects at the national and international level. In the schedule above, four major steps are identified:

1: Before the eTIR international system will be in place, allowing the exchange of information between the Guarantee Chain and the eTIR international system as well as allowing countries to exchange data, the paper TIR Carnet and the actual private or public systems will remain the only possible tool for the management of the TIR procedure.

2: Once the eTIR international system is available and the Guarantee Chain interoperates with the system in order to provide the guarantee information, countries will start linking up to the eTIR international system, in order to obtain validation of the guarantees submitted by the holders.

3: When all Contracting Parties along a specific itinerary will have been computerized (the guarantee and data exchange modules as well as the declaration mechanisms), there will be no more need to use the present paper TIR Carnet for TIR transports along this itinerary. During this step, some TIR transports will continue to use paper TIR Carnets whereas others will be performed under cover of eTIR.

4: When all Contracting Parties of the TIR Convention will have implemented both modules as well as the appropriate declaration mechanisms, the present TIR Carnet will be completely abandoned.

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[7] It is envisaged that the private sector will provide declaration mechanisms, in particular to authorize holders submitting declarations in a country other than their country of registration.

2.3.   **Use cases analysis**

The elaboration of the use case analysis is based on the instruction by the WP.30 that the eTIR project should evolve around the establishment of an international centralized database in order to facilitate the secure exchange of data between national Customs systems and that the management of the data on guarantees, once the Guarantee Chain had issued a guarantee to an holder, should lie with Customs (ECE/TRANS/WP.30/226, para. 41).

2.3.1.   ***Management by Customs of data on guarantees use case***

The management by Customs of data on guarantees requires that the Guarantee Chain updates the guarantees directly in the eTIR international system right after having issued them to holders.

2.3.1.1.   Management by Customs of data on guarantees use case diagram
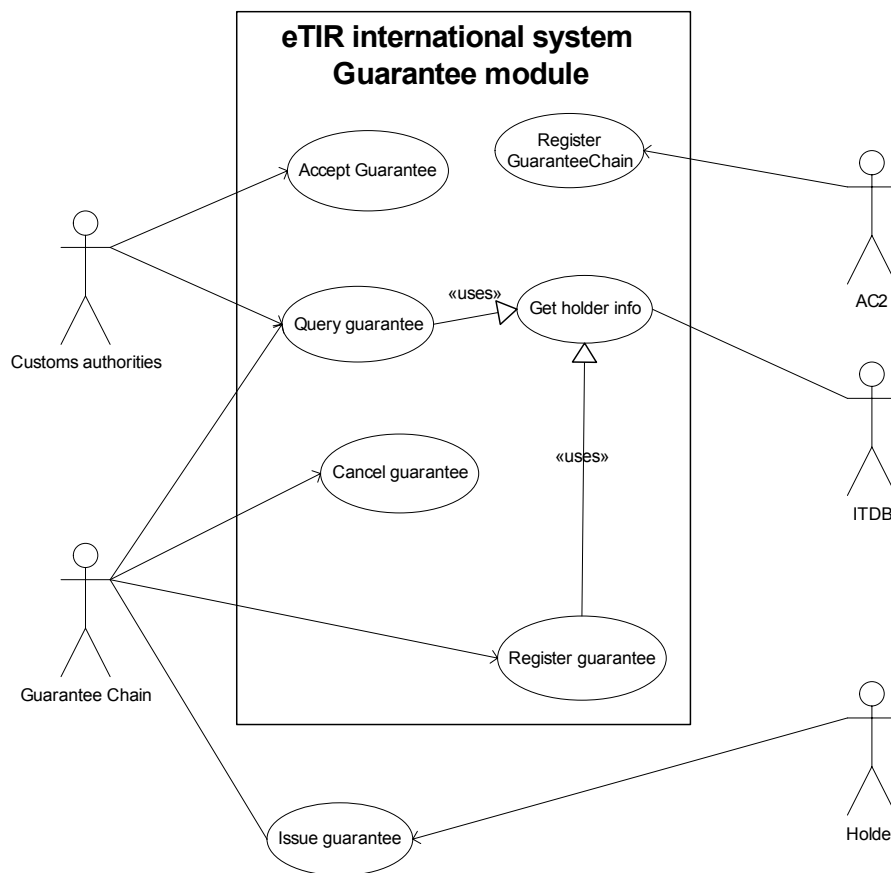

Figure 2.1 Customs management of guarantees use case diagram

2.3.1.2.   Guarantee state chart diagram

The guarantees registered in the eTIR international system will have their status updated all along the TIR transport. The following state chart diagram shows the various statuses as well as the transition even between them.

The guarantee status can be:

− Issued

− In use

− Proposed cancellation
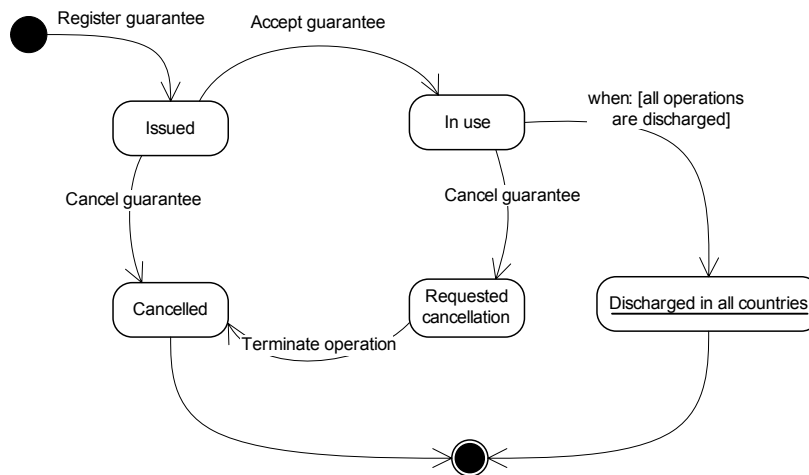
− Cancelled

− **<u>Discharged in all countries</u>**

Figure 2.2 Guarantee state chart diagram

2.3.1.3.   Register Guarantee Chain use case description

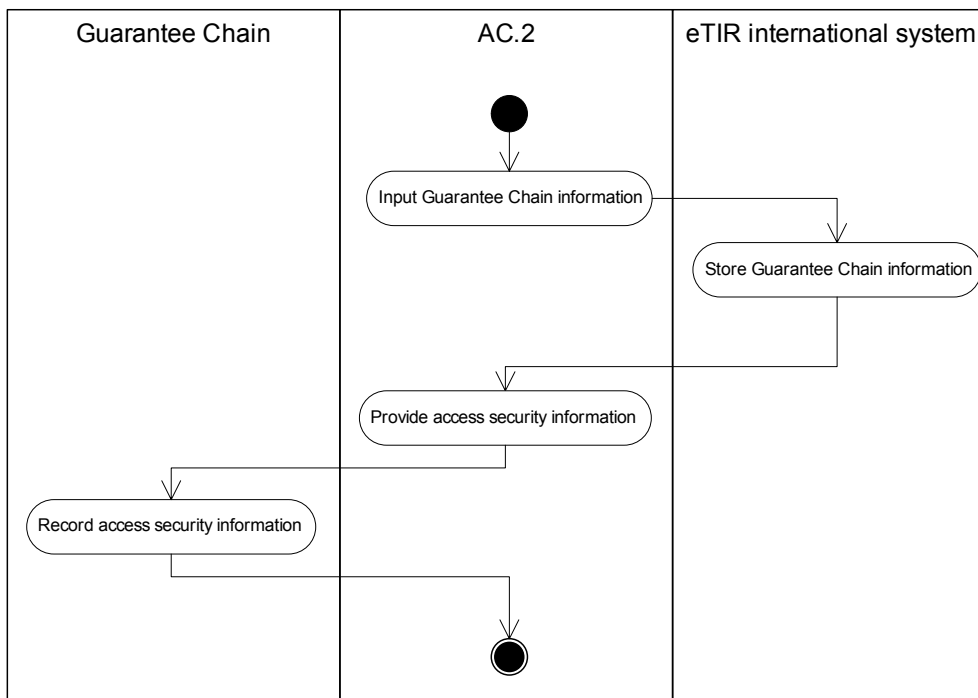| Name	**Register Guarantee Chain use case**
Description	Once the Guarantee Chain has been authorized, it is registered in the eTIR international system.
Actors	AC.2
Performance Goals	Only authorized Guarantee Chains can register guarantees in the eTIR international system.
Preconditions	-
Postconditions	-
Scenario	**Registration** The AC.2 authorizes an international organization to manage the Guarantee Chain in accordance with article 6.2bis of the TIR Convention. It records the Guarantee Chain in the eTIR international system and inserts the information on the type of guarantees it is allowed to register (including the geographical coverage of its guarantees). It also provides the necessary security information to the Guarantee Chain in order to allow it to access the system.
Alternative Scenario	-
Special requirements	-
Extension Points	-
Requirements Covered	-

2.3.1.4.   Register Guarantee Chain activity diagram

Figure 2.3 Register Guarantee Chain activity diagram

2.3.1.5.   Register guarantee use case description

Name	**Register guarantee use case**
Description	The Guarantee Chain registers each guarantee issued to a holder in the eTIR international system by sending an electronic message.
Actors	Guarantee Chain
Performance Goals	Any guarantee, issued to a holder, shall be registered in the eTIR international system before it can be used by a holder to accompany a declaration.
Preconditions	The holder, to whom the Guarantee Chain has issued a guarantee, must be authorized and registered in the ITDB and the eTIR international system should not contain a prior registration of the guarantee.
Postconditions	The guarantee information is stored in the eTIR international system with status "issued".
Scenario	**Registration** The Guarantee Chain issues a guarantee to a holder and sends a secure electronic message with all information regarding the guarantee to the eTIR international system. The eTIR international system checks if the guarantee has not yet been registered. Then it gets holder information, including its current status. In case the guarantee has not yet been registered and the holder is authorized, the system registers the guarantee and notifies the results of the registration of the guarantee to the Guarantee Chain. If the registration fails for any reason, the Guarantee Chain is informed accordingly.
Alternative Scenario	**Fallback scenario** If electronic messages cannot be sent to the eTIR international system, ~~the information can also be provided via a secured web interface. If both the electronic messaging and web interface are unavailable~~, the information **on guarantees** can also be sent by other secure means of communication **to the helpdesk**.
Special requirements	The Guarantee Chain cannot update any information it has registered in the eTIR international system. Only the cancellation of the guarantee is possible.
Extension Points	-
Requirements Covered	-

2.3.1.6.   Register guarantee activity diagram

Guarantee Chain	eTIR international system

- Notify guarantee issuance
- Check existence of guarantee
- [not existing]
- [Already registered]
- Get operator info
- [authorized]
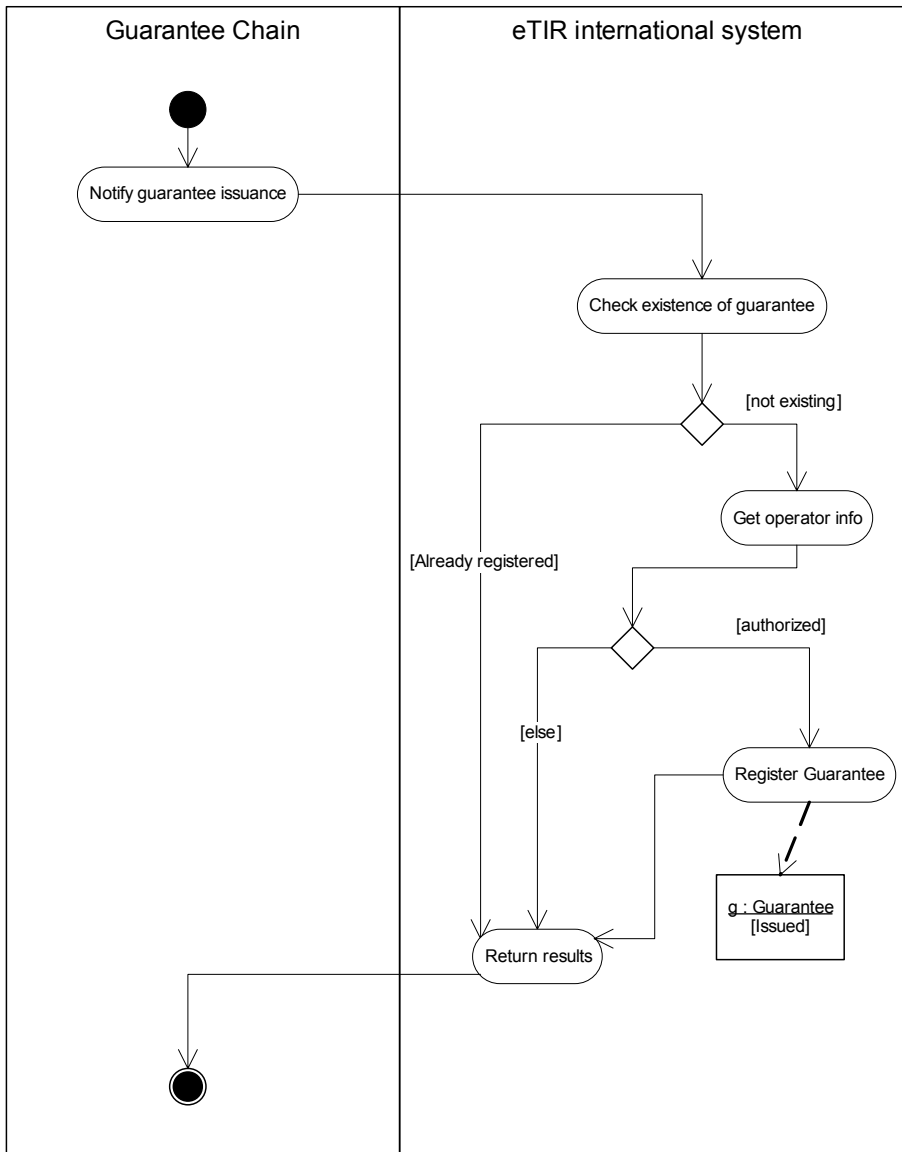- [else]
- Register Guarantee
- g : Guarantee [Issued]
- Return results

Figure 2.4 Register guarantee activity diagram

2.3.1.7.   Cancel guarantee use case description

Name	**Cancel guarantee use case**
Description	The Guarantee Chain cancels a guarantee after it has been issued to a holder by sending an electronic message to the eTIR international system.
Actors	Guarantee Chain
Performance Goals	-
Preconditions	The guarantee must have been registered and have the status "issued". The guarantee can also have the status "in use".
Postconditions	The guarantee status is changed to "cancelled", "requested cancellation" or remains in its current status.
Scenario	**Cancellation** The Guarantee Chain sends a secure electronic message to the eTIR international system to request the cancellation of a guarantee. First the eTIR international system checks that the guarantee is registered. Then in case the guarantee status is "issued", the eTIR international system changes the guarantee status to "cancelled". If the guarantee status is "in use", its status is turned to "requested cancellation".
Alternative Scenario	**Fallback scenario** If electronic messages cannot be sent to the eTIR international system, ~~the information can also be provided via a secured web interface. If both the electronic messaging and web interface are unavailable~~, the information **on cancellation of guarantees** can also be sent by other secure means of communication **to the helpdesk**.
Special requirements	
Extension Points	-
Requirements Covered	-

2.3.1.8.   Cancel guarantee activity diagram

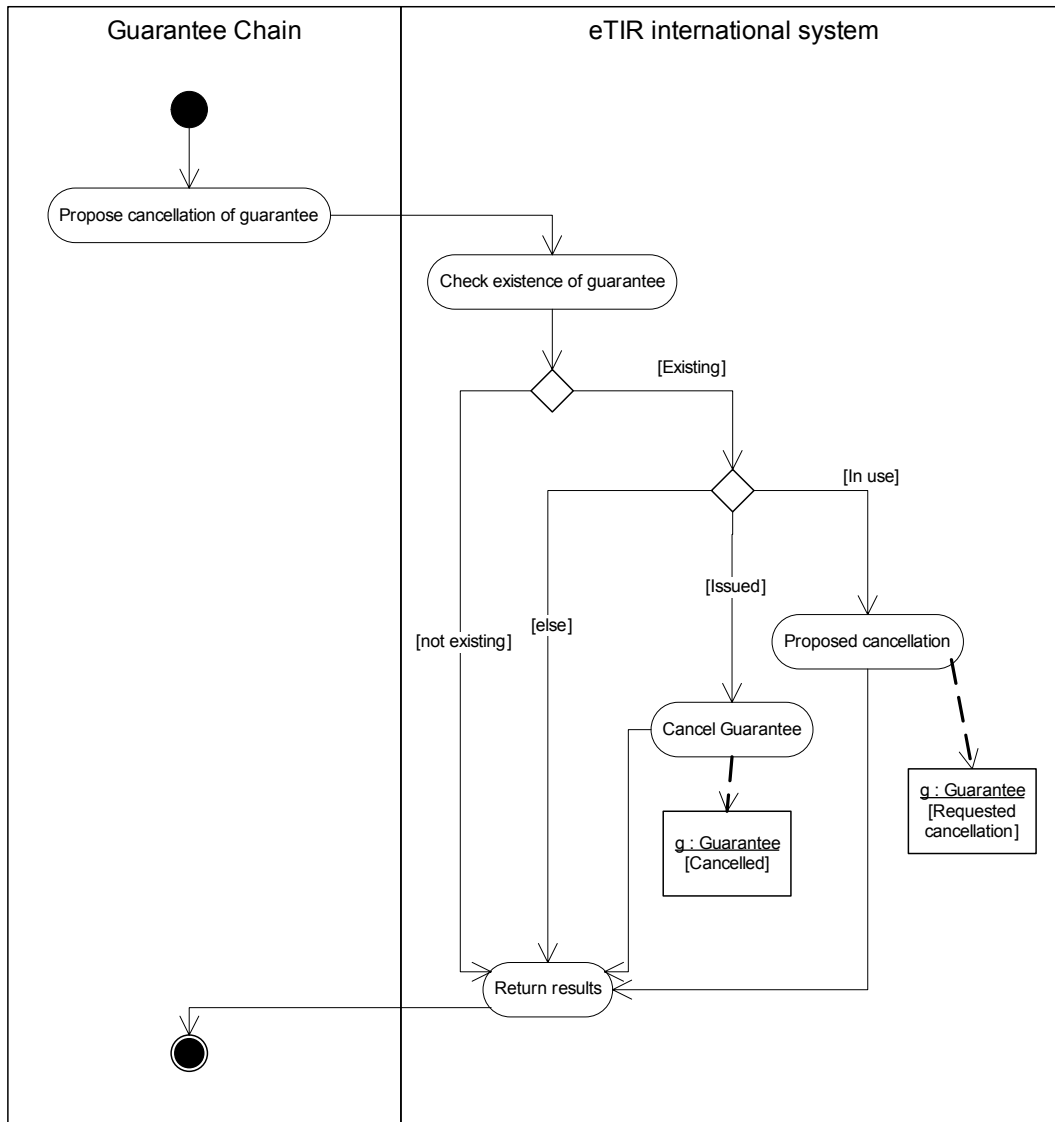*Figure 2.5 Cancel guarantee activity diagram*

2.3.1.9.   Accept guarantee use case description

Name	**Accept guarantee use case**
Description	The Customs authorities notify the eTIR international system that the guarantee has been accepted.
Actors	Customs authorities
Performance Goals	-
Preconditions	The guarantee must be registered and its status must be "under consideration" or "issued". The Customs authorities at departure must also have received a TIR declaration.
Postconditions	The guarantee status is changed to "in use" or remains at its current status.
Scenario	**Accept guarantee** Customs authorities send a secure electronic message to the eTIR international system informing that the guarantee has been accepted for a TIR transport.
Alternative Scenario	**Fallback scenario** If electronic messages cannot be sent to the eTIR international system, ~~the information can also be provided via a secured web interface. If both the electronic messaging and web interface are unavailable,~~ the information **on acceptance of guarantees** can also be sent by other secure means of communication **to the helpdesk**.
Special requirements	-
Extension Points	-
Requirements Covered	-

2.3.1.10.   Accept guarantee activity diagram

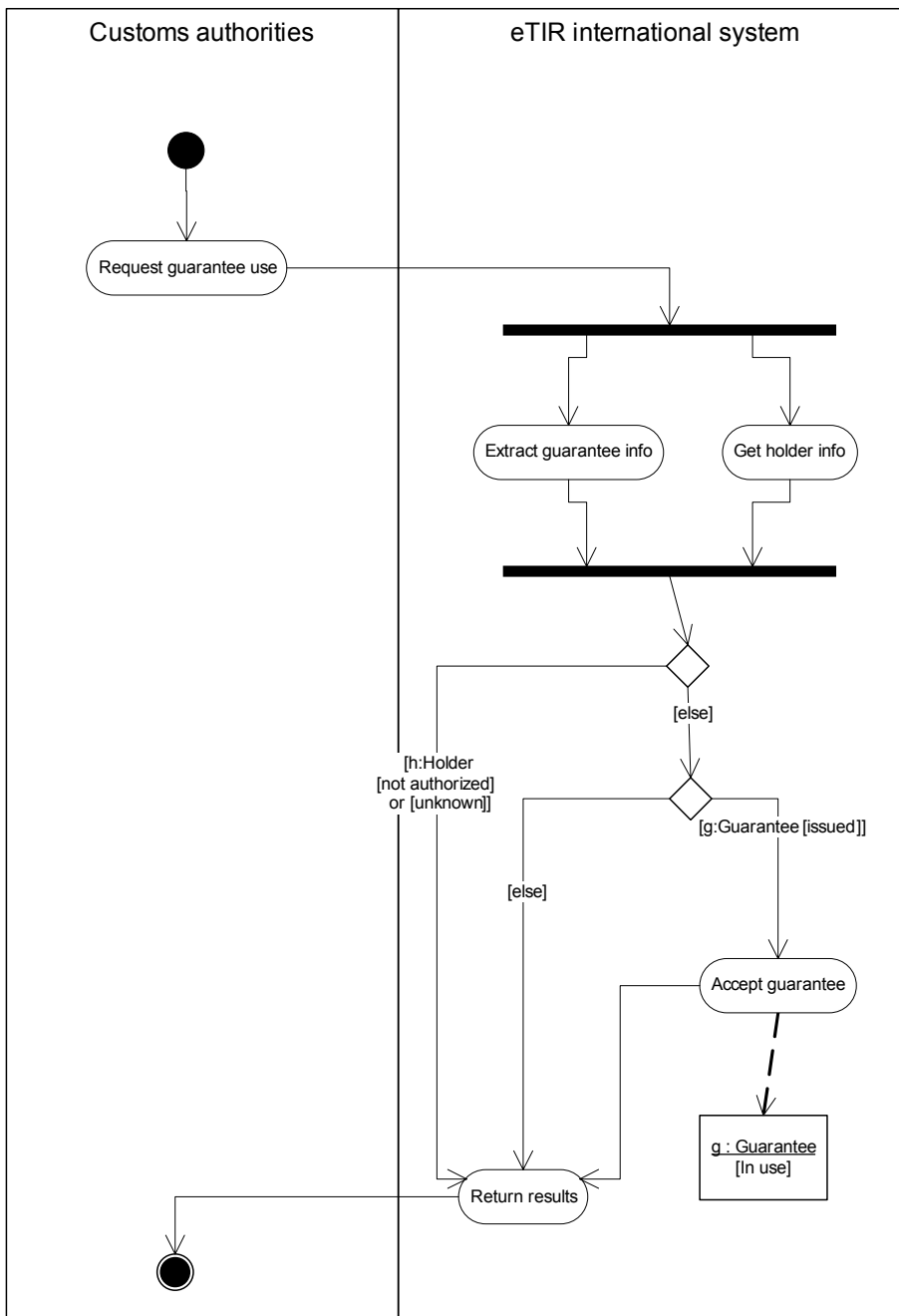*Figure 2.6 Accept guarantee activity diagram*

2.3.1.11. Get holder info use case description

Name	**Get holder info use case**
Description	The eTIR international system queries the ITDB and receives data on a holder.
Actors	ITDB
Performance Goals	-
Preconditions	-
Postconditions	-
Scenario	The eTIR international system sends a query to the ITDB about a holder. The ITDB returns the data about this holder or sends a message indicating that the holder is unknown.
Alternative Scenario	**Fallback scenario** The holder status is returned as "not available".

Special requirements	This use case is internal to the system and is used in the following use cases:
	• Register guarantee
	• Query guarantee
	• Accept guarantee
	
	The holder status can be:
	  − "unknown"
	  − "authorized"
	  − "not authorized"
	    ▪ Withdrawn
	    ▪ Permanently withdrawn
	    ▪ Excluded
	    ▪ End of activity
	  − "not available"

Extension Points	-
Requirements Covered	-

2.3.1.12.   Get holder info activity diagram

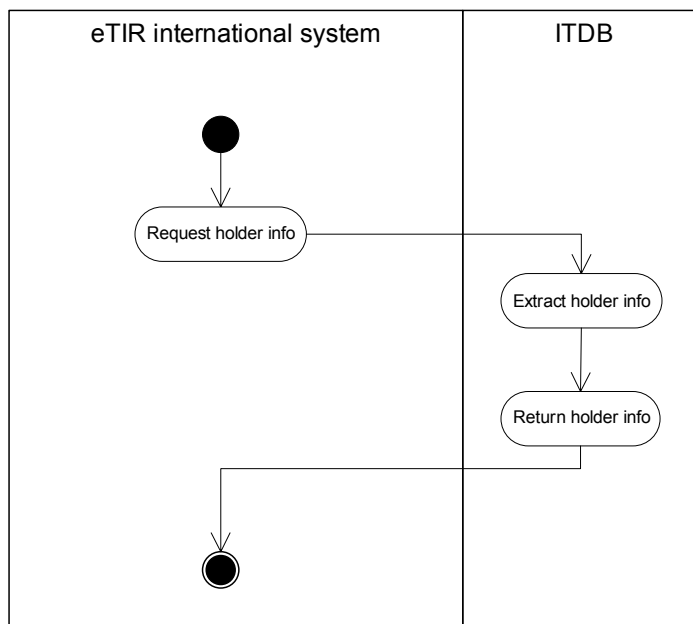*Figure 2.7 Get holder info activity diagram*

2.3.1.13.   Query guarantee use case description

Name	**Query guarantee use case**
Description	Customs authorities or a Guarantee Chain request the eTIR international system information on issued guarantees.
Actors	Guarantee Chain, Customs authorities
Performance Goals	-
Preconditions	-
Postconditions	-
Scenario	**Query the guarantee** A Guarantee Chain or Customs authorities send a secure electronic query to the eTIR international system. The eTIR international system extracts all data from the database concerning the guarantee and combines them with data on the holder (get holder info) and sends all information to Customs authorities or to the Guarantee Chain. If the guarantee has not yet been registered, the Customs authorities or the Guarantee Chain are informed accordingly.

Alternative Scenario	**Fallback scenario**
	Since Customs authorities and the Guarantee Chain are automatically notified of all updates regarding guarantees, no fallback procedure is foreseen in case the eTIR international system is temporarily down. They will have to try again at a later stage.
Special requirements	A Guarantee Chain can only query information on those guarantees which he has issued and which have been registered by the eTIR international system. The eTIR international system also provides him with information on TIR transports attached to the guarantees issued by him.
Extension Points	-
Requirements Covered	-

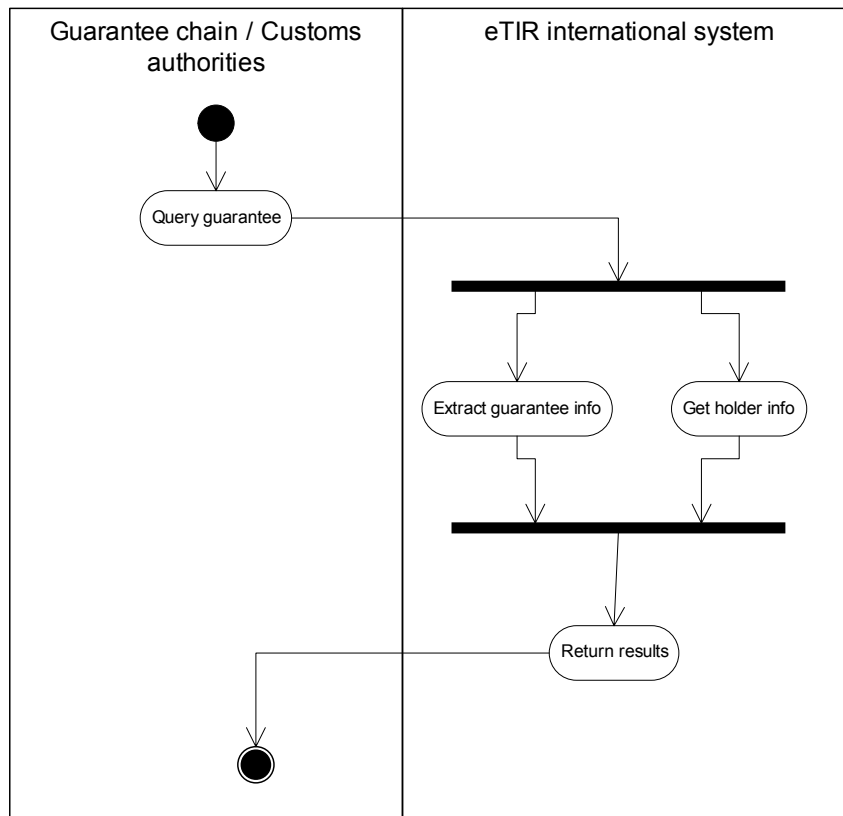2.3.1.14. Query guarantee activity diagram

Figure 2.8 Query guarantee activity diagram

2.3.2. *Data exchange use case*
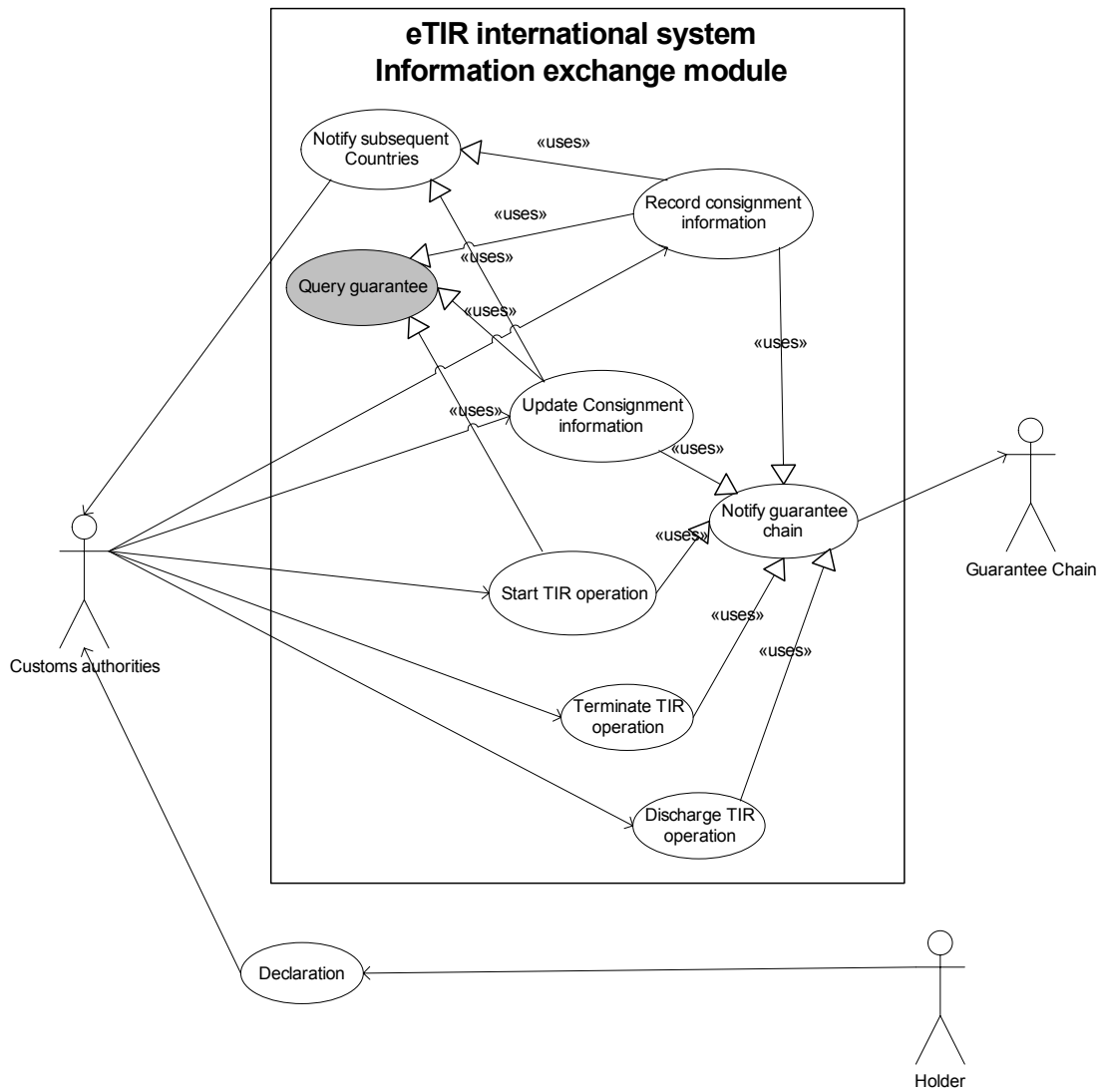
2.3.2.1.   Data exchange use case diagram

Figure 2.9 Data exchange use case diagram[8]

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[8] Use cases in grey are defined in chapter 2.3.1.

2.3.2.2.   Record consignment information use case description

Name	**Record consignment information use case**
Description	Information about the consignment is centrally stored.
Actors	Customs authorities
Performance Goals	
Preconditions	The guarantee must have been accepted (status "in use"). The declaration has been accepted by Customs Authorities.
Postconditions	-
Scenario	The first Customs office of departure will send all data contained in the electronic declaration together with the information on seals affixed to the eTIR international system after having accepted the declaration and sealed the loading unit. The eTIR international system provides all subsequent countries indicated in the itinerary and the Guarantee Chain with the information. Customs authorities will provide the holder with an accompanying paper document.
Alternative Scenario	**Fallback scenario** In case the transmission of information to the eTIR international system fails, the Customs authorities nevertheless accept the holder to start the TIR transport. Customs authorities will transmit the electronic data to the eTIR international system at the first opportunity. **In the meantime, other Customs authorities will obtain the required information from the accompanying document.**
Special requirements	
Extension Points	-
Requirements Covered	-

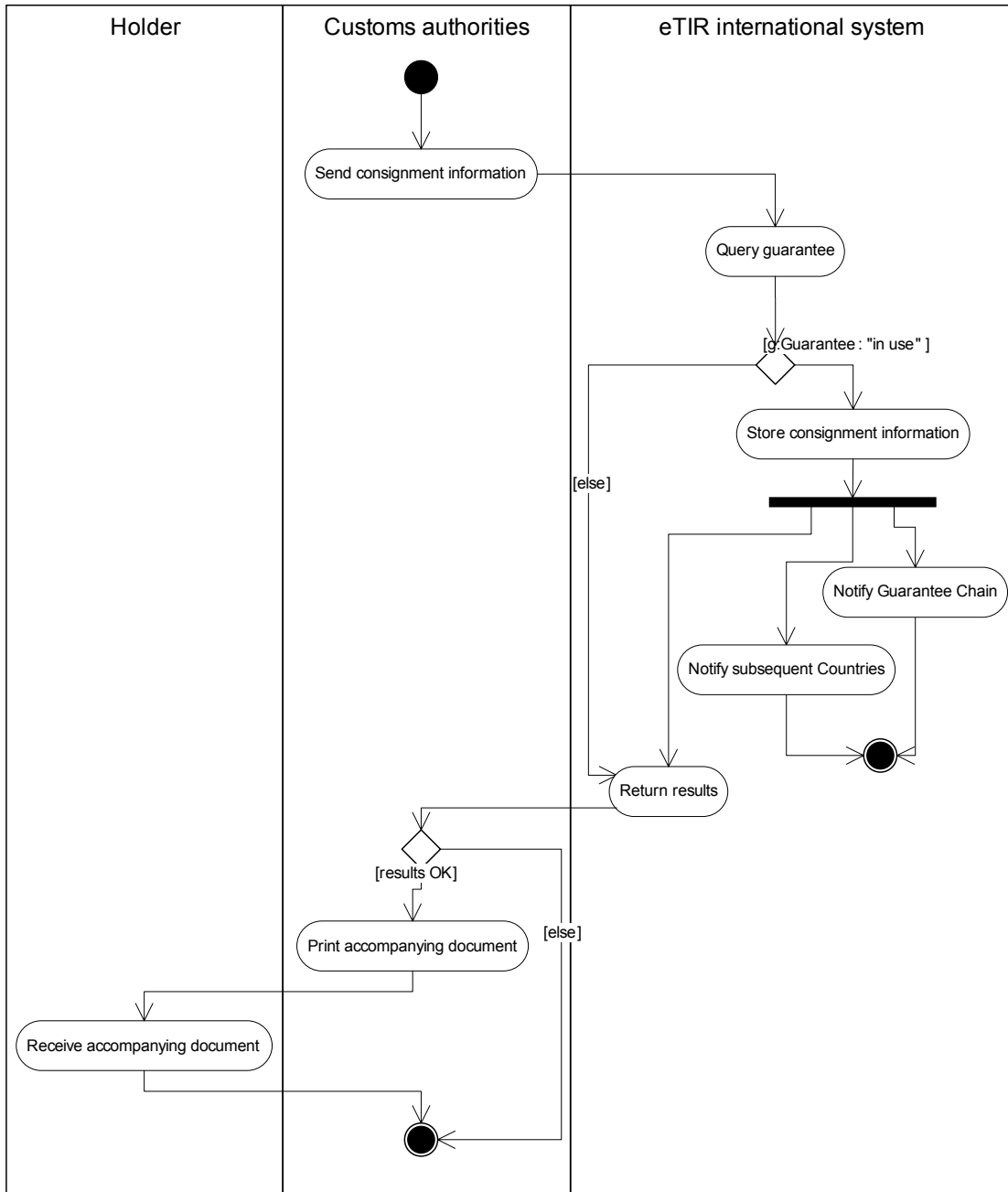2.3.2.3.   Record consignment information activity diagram

Figure 2.10 Record consignment information activity diagram

2.3.2.4.   Update consignment information use case description

Name	**Update consignment information use case**
Description	The information related to a declaration is updated after subsequent loading or partial unloading, after the truck and/or the goods have been submitted to checks, after the itinerary has been changed or after the vehicle has been changed.
Actors	Customs authorities, holder
Performance Goals	
Preconditions	The declaration updates have been accepted by Customs Authorities.
Postconditions	-
Scenario	**Intermediate loading points** The intermediate Customs office of departure will send all data contained in the declaration to the eTIR international system together with the information on the new seals, after having accepted the declaration and resealed the vehicle or container. The eTIR international system provides all subsequent countries indicated in the itinerary and the Guarantee Chain with the updated information.
Alternative Scenario	**Intermediate Unloading points** After having sent a termination message and unloaded the goods concerned, the intermediate Customs office of destination will send information on the new seals affixed. The eTIR international system provides all subsequent countries indicated in the itinerary and the Guarantee Chain with the updated information. Customs authorities provide the holder with an updated accompanying paper document. **Customs checks** Having removed the seals from the vehicle or container, performed the necessary checks and resealed the vehicle or container, Customs authorities send a message to provide the eTIR international system with information on the new seals affixed. The eTIR international system provides all subsequent countries indicated in the itinerary and the Guarantee Chain with the updated information. Customs authorities provide the holder with an updated accompanying paper document.

	Change of itinerary
	After having been informed by the holder that the routing of the transport has changed, Customs authorities send a message to provide the eTIR international system with information on the new itinerary. The eTIR international system provides all subsequent countries indicated in the itinerary and the Guarantee Chain with the updated information. It also informs the countries removed from the itinerary that the TIR transport will not transit their country. Customs authorities provide the holder with an updated accompanying paper document.
	Vehicles change
	After having been informed by the holder that a new vehicle (usually the tractor unit) will be used, Customs authorities send a message to provide the eTIR international system with information on the new vehicle. The eTIR international system provides all subsequent countries indicated in the itinerary and the Guarantee Chain with the updated information.
	Fallback scenario
	In case the transmission of information to the eTIR international system fails, the Customs authorities nevertheless accept the holder to start the TIR transport. Customs authorities will transmit the electronic data to the eTIR international system at the first opportunity. **In the meantime, other Customs authorities will obtain the required information from the accompanying document.**
Special requirements	
Extension Points	-
Requirements Covered	-

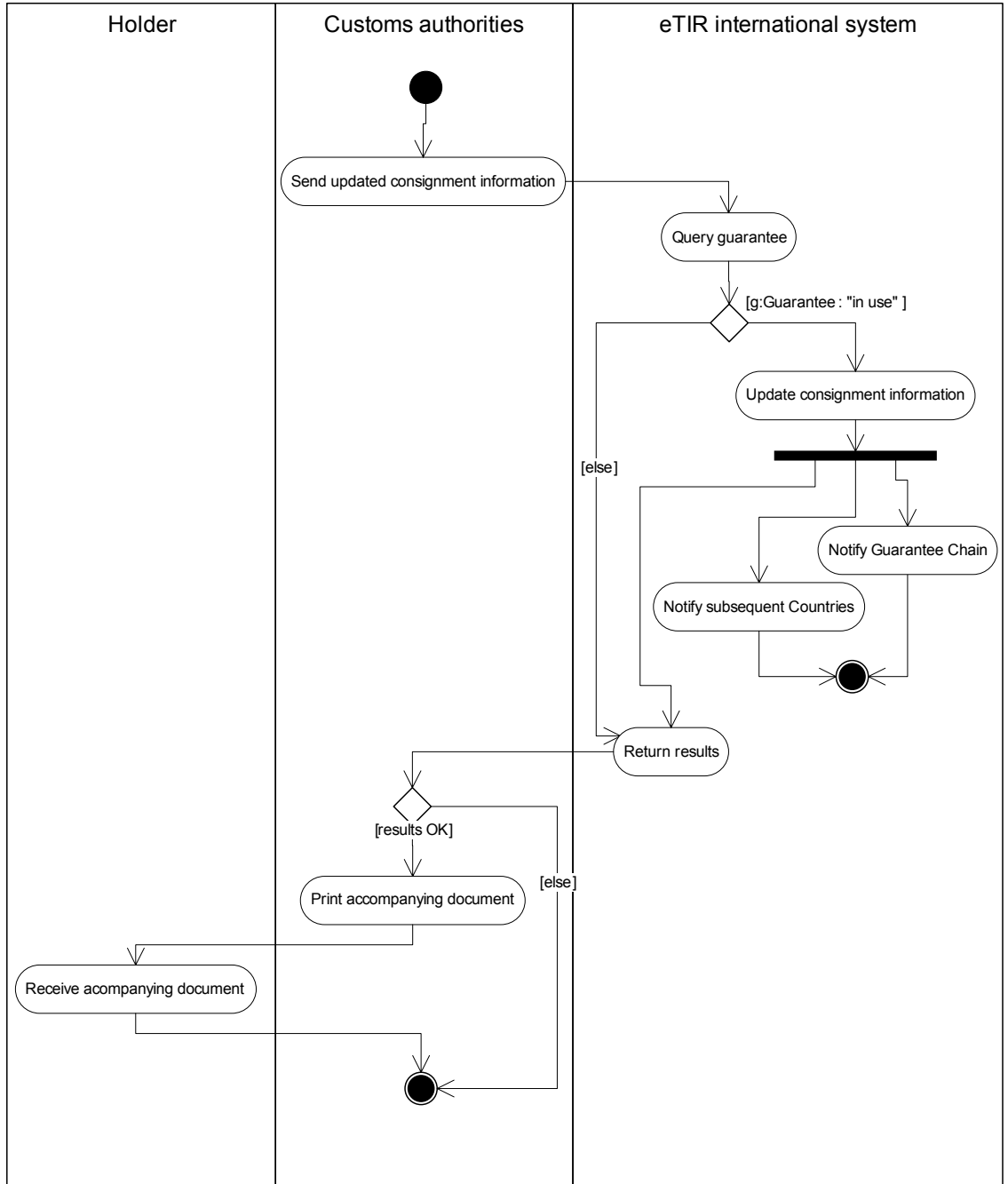2.3.2.5.   Update consignment information activity diagram

Figure 2.11 Update consignment information activity diagram

2.3.2.6.   Starting of TIR operation use case description

Name	**Starting of TIR operation use case**
Description	Customs authorities provide the eTIR international system with information regarding the start of a TIR operation.
Actors	Customs authorities
Performance Goals	-
Preconditions	Ensure the validity of the guarantee and the authorization for the holder.
Postconditions	-
Scenario	Customs authorities send a message to the eTIR international system notifying that a TIR operation has started. If the holder is authorized and the guarantee status is "in use", the eTIR system saves the information and notifies the Guarantee Chain of the start of a TIR operation.
Alternative Scenario	**Fallback scenario** If electronic messages cannot be exchanged with the eTIR international system, ~~the information can also be provided via a secured web interface. If both the electronic messaging and web interface are unavailable~~, the information regarding the start should be provided on paper to the holder and the status of the guarantee queried by other secure means of communication **from the helpdesk** ~~that will be made available~~. Customs authorities ~~should nevertheless continue to try sending~~ **will nevertheless send** the start message at a later stage or from another Customs office.
Special requirements	-
Extension Points	-
Requirements Covered	-

2.3.2.7.   Starting of TIR operation activity diagram
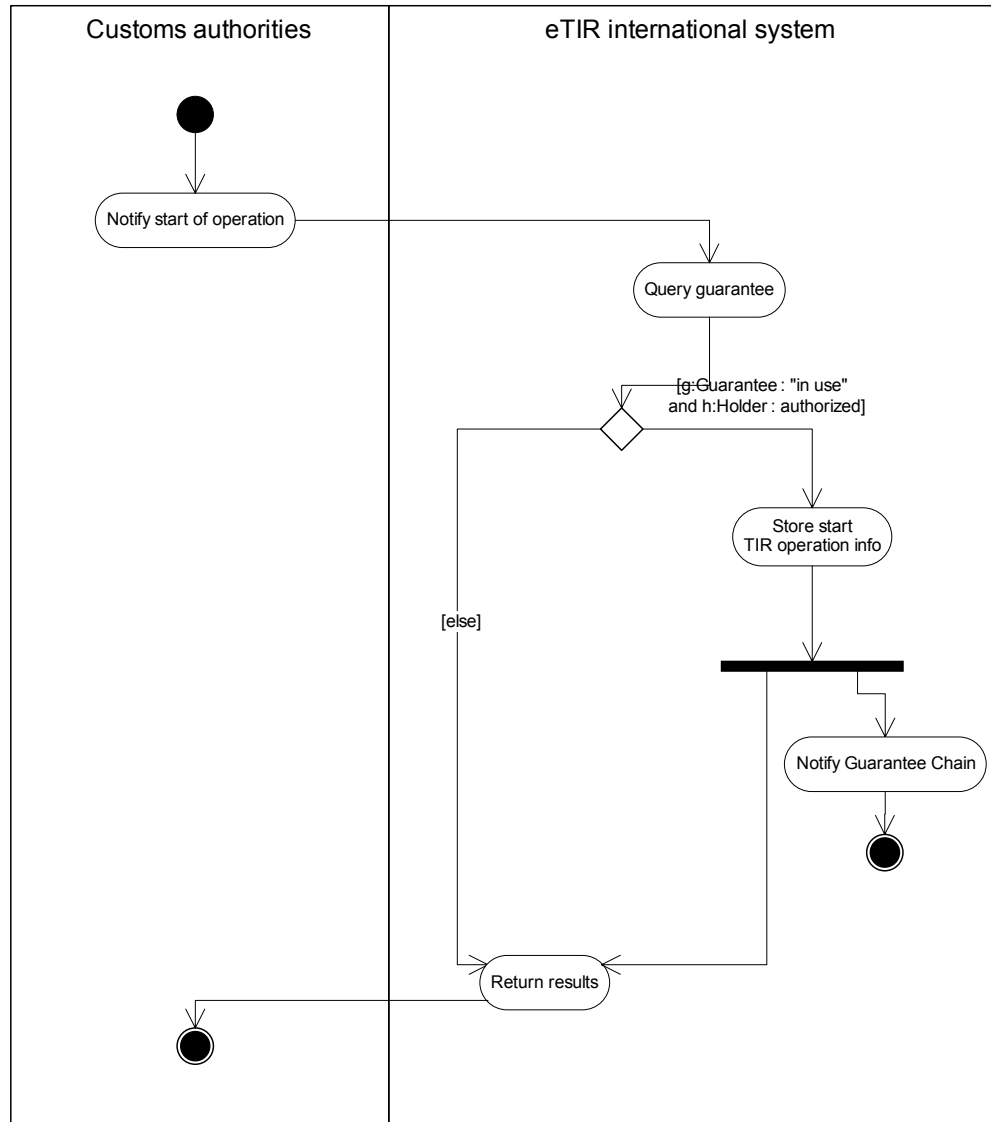

Figure 2.12 Starting of TIR operation activity diagram

2.3.2.8.   Terminate TIR operation use case description

Name	**Terminate TIR operation use case**
Description	Customs authorities provide the eTIR international system with information regarding the termination of a TIR operation.
Actors	Customs authorities
Performance Goals	-
Preconditions	-
Postconditions	-
Scenario	Customs authorities send a message to the eTIR international system notifying that a TIR operation has terminated. The eTIR system stores the information, changes the status of the guarantee to cancelled in case the Guarantee Chain has requested cancellation and notifies the Guarantee Chain of the termination of all TIR operations, including the final termination, providing the data as required by Annex 10 of the TIR Convention.
Alternative Scenario	**Fallback scenario** If electronic messages cannot be exchanged with the eTIR international system, ~~the information can also be provided via a secured web interface. If both the electronic messaging and web interface are unavailable,~~ the information regarding the termination should be provided on paper. Customs authorities ~~should nevertheless continue to try sending~~ **will nevertheless send** the termination message at a later stage or from another Customs office.
Special requirements	Termination can be made with reservations.
Extension Points	-
Requirements Covered	-

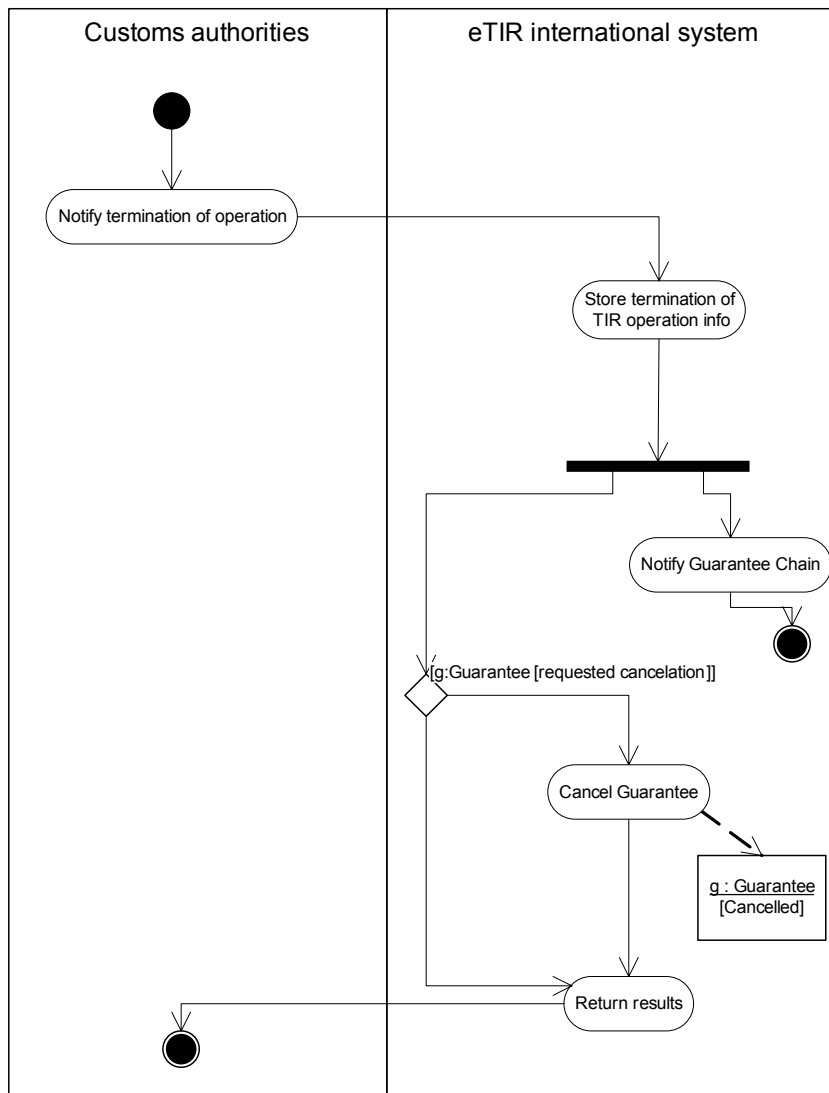2.3.2.9.   Terminate TIR operation activity diagram

Figure 2.13 Terminate TIR operation activity diagram

2.3.2.10. Discharge TIR operation use case description

Name	**Discharge TIR operation use case**
Description	Customs authorities provide the eTIR international system with information regarding the discharge of a TIR operation.
Actors	Customs authorities
Performance Goals	
Preconditions	-
Postconditions	-
Scenario	Customs authorities send a message to the eTIR international system notifying that a TIR operation has been discharged. The eTIR international system stores the information and notifies the Guarantee Chain of the discharge of the TIR operations constituting a single TIR Transport. When all goods have reached their final destination and all TIR operations covered by the guarantee have been discharged, the status of the guarantee is changed to "**discharged in all countries**" ~~"released"~~.
Alternative Scenario	**Fallback scenario** If electronic messages cannot be exchanged with the eTIR international system, the information can also be provided via a secured web interface. If both the electronic messaging and web interface are unavailable, Customs authorities ~~should nevertheless continue to try sending~~ **will nevertheless send** the discharge message at a later stage or from another Customs office.
Special requirements	-
Extension Points	-
Requirements Covered	-

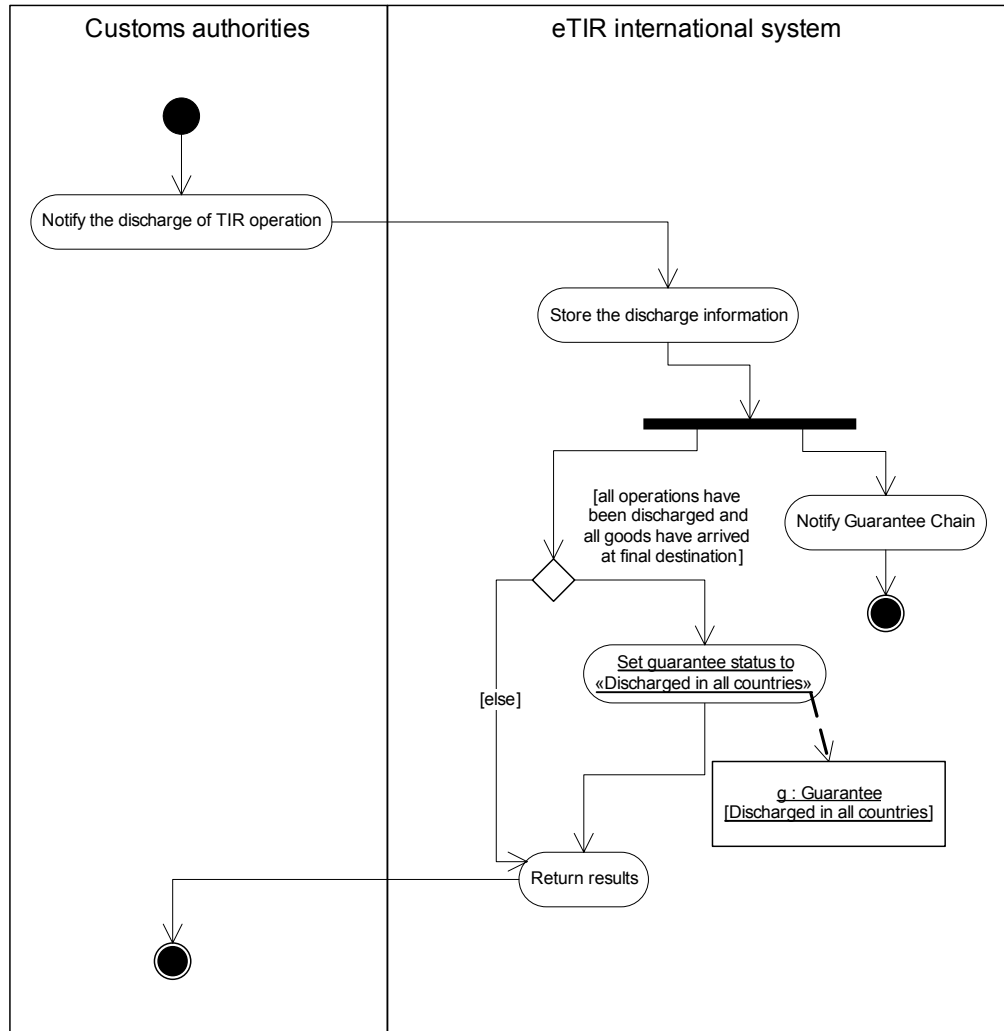2.3.2.11.   Discharge TIR operation activity diagram

Figure 2.14 Discharge TIR operation activity diagram

2.3.2.12.   Notify Guarantee Chain use case description

Name	**Notify Guarantee Chain use case**
Description	The eTIR international systems notifies the Guarantee Chain of changes in the information related to a guarantee it has issued.
Actors	Guarantee Chain
Performance Goals	
Preconditions	-
Postconditions	-
Scenario	The eTIR international system notifies the Guarantee Chain of changes in the information related to a guarantee it has issued by sending an electronic message.
Alternative Scenario	**Fallback scenario** In case any Guarantee Chain's computer system cannot be reached, the eTIR international system will continue to try sending the information. **A monitoring system will detect problems and trigger prompt and appropriate reactions.**
Special requirements	-
Extension Points	-
Requirements Covered	-

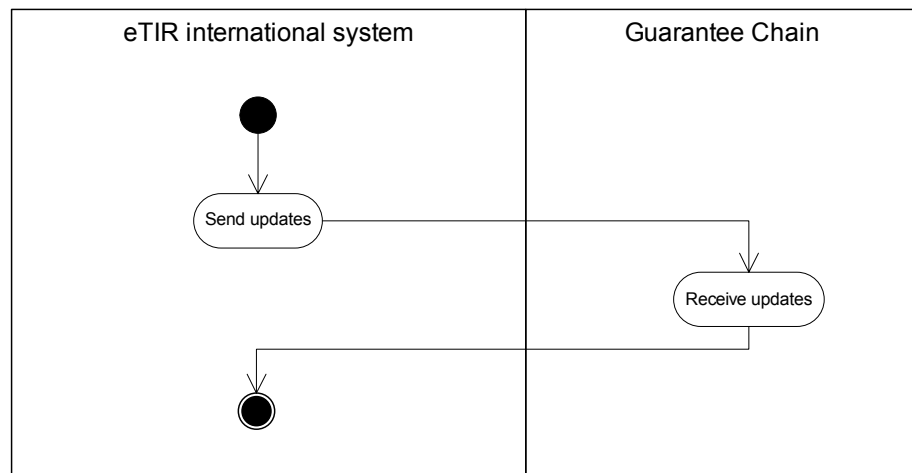2.3.2.13.   Notify Guarantee Chain activity diagram

Figure 2.15 Notify Guarantee Chain activity diagram

2.3.2.14.   Notify subsequent Countries use case description

Name	**Notify subsequent Countries use case**
Description	The eTIR international system notifies Customs authorities of information related to a consignment that will transit their territory.
Actors	Customs authorities
Performance Goals	
Preconditions	-
Postconditions	-
Scenario	The eTIR international system notifies Customs authorities of information related to consignments that will transit their territory by sending them electronic messages.
Alternative Scenario	**Fallback scenario** In case a national system is not available, the eTIR international system will continue to try sending the information. **A monitoring system will detect problems and trigger prompt and appropriate reactions.**
Special requirements	-
Extension Points	-
Requirements Covered	-

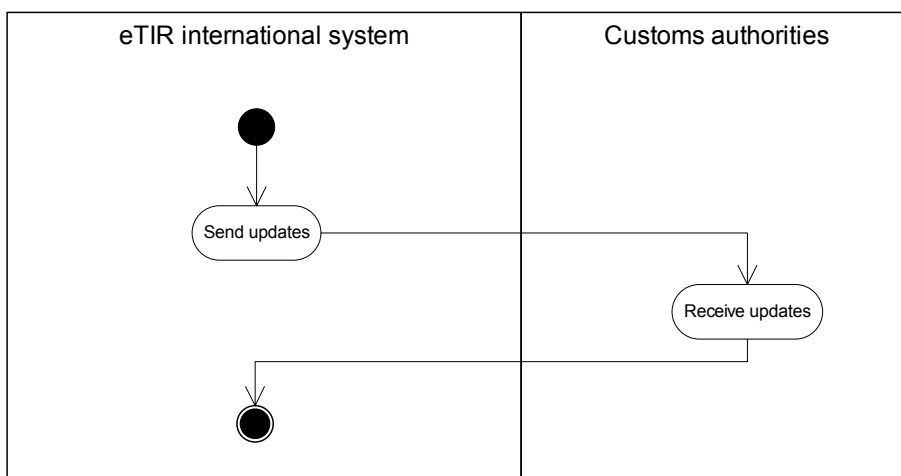2.3.2.15.   Notify subsequent Countries activity diagram

Figure 2.16 Notify subsequent Countries activity diagram

2.4.   **Class diagram**

The class diagram in Figure 2.17 is articulated around 3 main classes (in grey): the guarantee, the consignment and the TIR operation.

– The guarantee class, because the majority of information exchanged with the eTIR international system will be referenced by means of the GRN.

– The consignment class, because it links all information regarding the goods in transit.

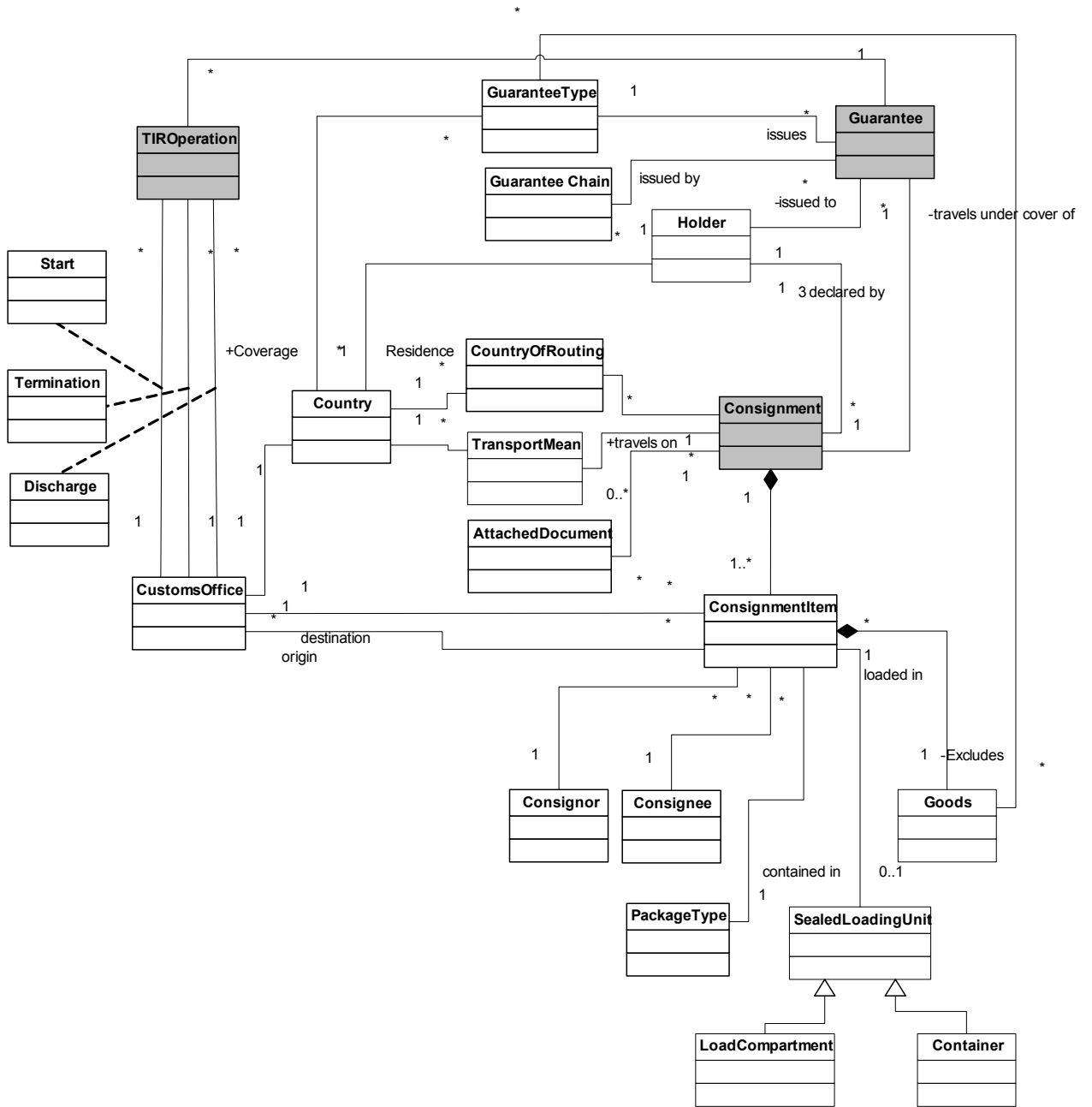– The TIR operation class, because it allows the exchange of information previously contained in the counterfoils.

Figure 2.17 eTIR class diagram

- - - - -