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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****Nineteenth session**

Belgrade, 13–14 September 2011

Item 3(b) of the provisional agenda

**Reference Model of the TIR procedure:****eTIR Reference Model, version 3.0****Amendment proposal on the introduction of international  
declaration mechanisms****Note by the secretariat****I. Mandate**

1. At its eighteenth session, the Informal Ad hoc Expert Group on Conceptual and Technical aspects of Computerization of the TIR Procedure, further referred to as the Expert Group, decided to further discuss, at its next session, a proposal to include international declaration mechanisms in the eTIR project, on the basis of a revised document to be prepared by the secretariat. In order to contribute to the preparation of the document, Czech Customs invited the secretariat for a working meeting in Prague on 15 and 16 August 2011. The present document first summarizes the background information relative to the declaration mechanisms included in the eTIR project, then it recalls the rationale behind the proposal to introduce international declaration mechanisms and, finally, it presents preliminary considerations and suggestions, as identified at the meeting in Prague, and, finally, introduces further issues for consideration by the Expert Group.

**II. Background**

2. At its sixth (26 and 27 October 2004) and seventh (26 and 27 May 2005) sessions, the Expert Group considered document ExG/COMP/2004/23, which contained various options for submitting declarations (see ExG/COMP/2004/23, Chap. 1.2.2.1. Declaration

methods). In brief, it was envisaged that transport operators could either transmit their declaration directly to Customs or send it through the eTIR international system. The document also envisaged the possibility to use Customs brokers (see ExG/COMP/2004/23, Chap. 1.2.2.3. Authorized third parties).

3. At the request of the Expert Group, the secretariat, with the assistance of the European Commission (EC), prepared a document combining ideas presented by the EC at the seventh session of the Expert Group with those contained in document ExG/COMP/2004/23 (see ExG/COMP/2005/9, para. 16). As a result, only one declaration mechanism was proposed in document TRANS/WP.30/GE.1/2005/2: the direct submission by the transport operator of the declaration to Customs (see TRANS/WP.30/GE.1/2005/2, Chap. 2.4.2. Declaration).

4. In the eTIR system, like in the TIR system, a TIR transport is composed of a chain of national TIR operations. In this respect and at various occasions, delegates and experts also questioned the issue of the once-only submission of advance cargo information, as envisaged in the eTIR project: i.e. the fact that transport operators only submit their advance cargo information once to (the Customs office of departure of) those countries where goods are loaded. At its 121st session, the Working Party considered document ECE/TRANS/WP.30/2008/8/Rev.2 on the issue and agreed that it provided the required clarifications on the method of submission of the Customs declaration as described in Chapter II of the eTIR Reference Model. As a consequence, it requested these clarifications to be introduced as Annex VI of the eTIR Reference Model (See ECE/TRANS/WP.30/242, para. 27).

5. At its eighteenth session, the Expert Group took note of Informal document GE.1 No.1 (2011) introducing two amendment proposal to version 3.0 of the eTIR Reference Model. One of these proposals aims at introducing international declaration mechanisms for reasons which are clarified below.

### **III. Current options and rationale for the introduction of international declaration mechanisms**

6. In the eTIR system, transport operators are requested to submit their TIR electronic declarations (or advance cargo information) to Customs authorities. Transport operators will actually face two requirements: the first is to generate messages in the proper format and the second is to be able to transmit them to Customs administrations. In practice, this can be done in three ways:

- First, the transport operators create and send electronic messages (United Nations Centre for Trade Facilitation and Electronic Business (UN/EDIFACT) or Extensible Markup Language (XML)) to Customs. This solution implies that the transport operator's Information Technologies (IT) system is able to generate the required messages and has the possibility to send them to Customs administrations, using the adequate communication protocols.
- The second option consists of using a Customs website (or web application) that allows transport operators to fill in the required information online. The website then ensures that the information is adequately communicated to the Customs IT systems.
- Ultimately, transport operators could use the services of Customs brokers. In some cases, the submission of electronic transit declarations by brokers is offered as part of a wider package of services.

7. In the first option mentioned above, it is the responsibility of the transport operator to generate and transmit message to the Customs administration of the country where he

will begin the TIR transport. Although, in general, large transport companies should not have major problems to include special modules to their IT systems in order to automatically generate the proper messages, transmission aspects might remain complex if countries require users to be authenticated<sup>1</sup> before being able to send their messages. This could mean that transport operators might need credentials from each and every TIR country or at least from all countries where they intend to begin TIR transports.

8. In the second option, transport operators could face two types of problems. As in the first option, transport operators might be required to obtain credentials in order to login to Customs websites or a web application before being able to input their advance cargo information. Furthermore, websites or web applications are often devised only in the national language (sometimes including one or two additional foreign language), making them hard to understand for transport operators from other countries.

9. In the third option, the transport operator fully delegates to a Customs broker the task of generating and submitting messages to Customs.

10. All three options have financial implications for transport operators. The first option requires transport operators to develop or update their IT system to enable the automatic processing of information. This solution seems best fitted for large transport companies which use the TIR system on a regular basis. The second option is provided for free by Customs authorities, but requires transport operators to input information manually even if they receive the data in electronic form from traders, thus implying additional manual processing costs. Finally, transport operators have the possibility to purchase the services of Customs brokers, who might or might not include this service in wider packages of services.

11. Although it is positive that transport operators have various options to provide their TIR declaration, it is at the same time important that both the messages to be provided and, at least, some of the submission procedures are standardized across all TIR countries. One of the goals of the eTIR project is to devise standard electronic messages to be used by all eTIR actors. However, in 2005 it was decided that the submission procedure would be left to individual Contracting Parties, thus opening the door to a wide range of diverse procedures and requirements to be faced by transport operators. Having in mind the issues raised above, the secretariat, in consultation with International Road Transport Union (IRU), suggested re-introducing international declaration mechanisms that would allow transport operators from any country to submit their declarations to any Customs administration in a standardized way.

#### **IV. Preliminary considerations**

12. From the perspective of the eTIR project, the re-introduction of the international declaration mechanisms could be made in a rather simple manner as proposed in Informal document GE.1 No. 1 (2011) by means of re-introducing the phrase “Alternatively, the holder can make use of declaration mechanisms provided by either the eTIR international system or the private sector” to Chapter 2.1.2.4.2. of the eTIR Reference Model as well as the addition of a new, corresponding use case (see Annex). Such an amendment would allow the development of international declaration mechanisms from the private side

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<sup>1</sup> The issue of authentication was discussed by the Expert Group at its fifteenth session, see ECE/TRANS/WP.30/GE.1/2008/5, para. 7, and is further discussed in section IV.

(e.g. IRU's TIR Electronic Pre-Declaration (TIR-EPD)<sup>2</sup>) and also include a similar service in the eTIR international system.

13. The introduction of the international declaration mechanisms should nevertheless be further analyzed from both the legal and technical perspective.

## **1. Legal considerations**

### **a. Applicable legislation**

14. Within the appropriate legal framework<sup>3</sup>, many countries have already enforced the use of some kind of electronic authentication technique for documents to be sent and for replacement of handwritten signature to governmental agencies such as Customs such as an electronic signature. The conditions and rules for use of this electronic technique are usually determined by each contracting party. Electronic signatures are generated by means of electronic keys which are issued by a certification authority. Consequently, in the case where documents which have to be submitted to governmental agencies can only be signed with a key issued by certification authorities from that same country (which seems to be the case in many countries), users need certification keys from each and every country in which they conduct their business. With regard to the TIR system, this would mean that the TIR electronic declaration/advance cargo information might have to be signed separately for every country involved in a given TIR transport.

### **b. Possible options**

15. In order to overcome the financial costs and the administrative burden for transport operators to provide a multitude of electronic signatures or other electronic techniques for each declaration, two options could be considered. First, it could be envisaged that service providers would be authorized by Customs to submit and sign declarations on behalf of the transport operators, i.e. acting with the delegated authority by the transport operators as their direct representatives. Secondly, it could be envisaged that within the eTIR project an international certification authority, which would be recognized by all TIR countries, is developed (see the next section for technical details).

## **2. Technical aspects**

16. From a technical perspective, the creation of international declaration mechanisms will require to solve two problems. On the one hand, the development of platforms that would allow transport operators to communicate with any Customs authority and, on the other hand, the possible need to authenticate transport operators.

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<sup>2</sup> TIR-EPD is a service made available to transport operators who use TIR carnets issued by IRU and its member associations

<sup>3</sup> There are many initiatives in areas, meriting a separate study. On a general note, the United States Digital Signature and Electronic Authentication Law of 1998 could be mentioned, together with the European Union (EU) Directive 1999/93/EC of 13 December 1999 on a Community framework for electronic signatures. Within the context of Customs matters, reference is made to the Revised Kyoto Convention, in particular, Chapter 7 of its General Annex and to the EU Customs Code and its implementing provisions (EU regulations 9312/92 and 2454/93, as well as to the EU Modernised Customs Code (EU Regulation 450/2008)

**a. International submission of declarations**

17. Similarly to the national declaration mechanisms described in section III, international submission mechanisms would be made available as Electronic Data Interchange (EDI) messaging services and as web applications (e.g. TIR-EPD). The first will certainly have the preference of large transport operators undertaking numerous TIR transports and receiving information related to their transports in an electronic format. The second might be a preferred option for smaller transport operators that might not be willing to invest in an IT solution to submit just a limited number of TIR declarations per year.

**b. Authentication**

18. The traditional function of a signature on a Customs declaration in the form of paper document is (1) to give evidence of the provenance of a document (identity) and (2) to certify the intention of the identified individual with regard to the contents of the document. Thus, the signature on a transit declaration not only identifies the declarant but also certifies that the information on the declaration corresponds to the actual goods transported. The obligation and consequences of providing one's signature are reflected in provisions of applicable international or national law, such as, for the TIR Convention, the obligation for the TIR Carnet holder to sign all vouchers of the TIR Carnet as indicated in Rule number 12 of the Rules regarding the use of the TIR Carnet contained in Annex 1 of the TIR Convention).

19. In an electronic environment, the authentication is used to replace the first function, i.e. to confirm the identity of a person. The authentication can be made with a combination of factors belonging to three families: ownership factors (something a person has), knowledge factors (something a person knows) and inherence factors (something a person is or does). A commonly used factor authentication method (knowledge factor) is the combination of user name and password. More secure methods generally imply the use of electronic certificates issued by trusted certification agencies. In order to further secure the authentication mechanisms, those requesting a password or a certificate might be asked to prove their identity (e.g. presenting themselves to the certification agency with a passport or an identity card)

20. In an international framework, the issue of authentication remains a potential difficulty for transport operator, both for national and international declaration mechanisms, regardless of the submission method (EDI or web based). Indeed, the rules and laws governing the authentication vary from one country to the next and there is no mutual recognition of trusted certification agencies.

21. Before elaborating further on the issue and considering potential solutions, it is important to clarify the concept of authentication and how it relates to or differs from electronic signatures, authorization, encryption, hash codes or secured communication channels.

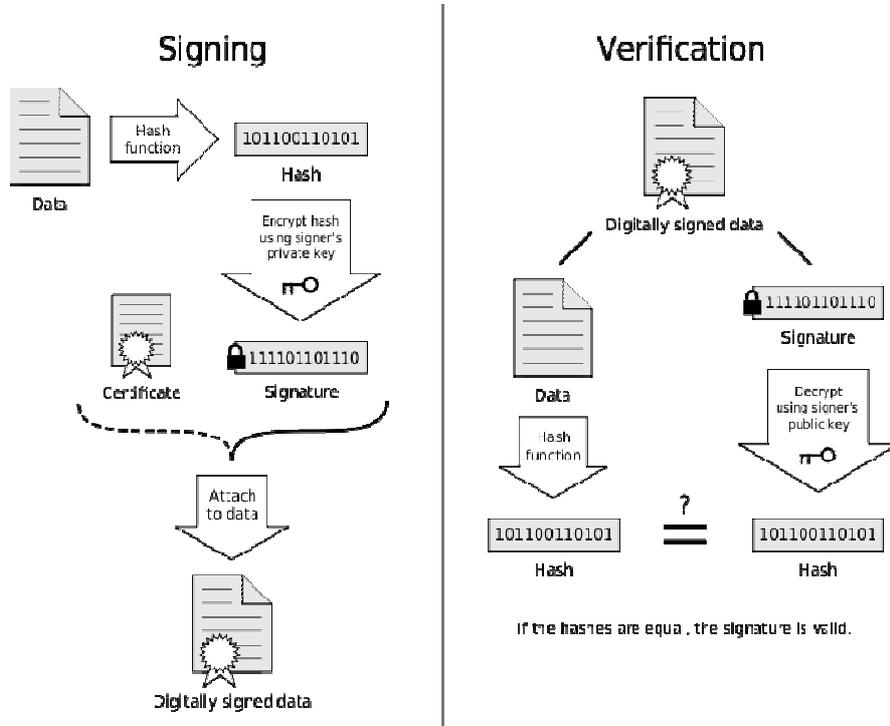
22. On Customs websites, it is often the case that a person needs to be first authenticated prior to being authorized to perform certain task, for example, submit information relative to a specific transport operation. The authentication and defined access rights are therefore pre-requisites of the authorization.

23. An electronic (digital) signature, when applied to an electronic document, does more than just identify the person who has signed it. It also ensures the integrity of the document, i.e. that the document received is identical to the document originally sent. Figure 1 shows graphically how the process works from a technical perspective. This type of digital signature uses a private key to generate the signature and a public key to decrypt the signature. In the eTIR system it is envisaged that a hash code will be used to ensure that the information provided by transport companies is identical to the one registered with

Customs. The hash code printed on the accompanying document by Customs could be compared with the hash code generated by using the original information by the transporter.

Figure 1

**Application and verification of a digital signature<sup>4</sup>**



24. In addition to authentication and document integrity, it might also be necessary for confidential information to ensure that the exchange of information cannot be read by third parties. This can be done for both EDI messages exchanges and web applications. Using principles similar to those used for digital signatures, a document or a communication can be encrypted and decrypted using a pair of public and private keys. Here again the most important aspect is to define which certification authority is authorized to issue certificates.

**c. Possible options**

25. All persons authorized to use the TIR system have to go through the authorization procedure contained in Annex 9 Part III of the TIR Convention. Once authorized, TIR Carnet holders are provided with their identification Number and they are ultimately registered in the International TIR Database (ITDB). Similarly, it would be easy to implement a mechanism that would allow national associations or Customs administrations to deliver internationally recognized electronic certificates together with the TIR Carnet holder's identification Number. If duly recognized in the TIR Convention, a certification authority could be created under international auspices and provide certificates for those transport companies that meet the requirements to use the TIR system.

<sup>4</sup> Image from [http://en.wikipedia.org/wiki/Electronic\\_signature](http://en.wikipedia.org/wiki/Electronic_signature)

## V. Further issues for consideration by the Expert Group

26. In order to facilitate the discussion of this complex issue, and in addition to having considered the various issues and options presented above, participants in the Expert Group are invited to coordinate at their national level in order to be in a position to answer to the following questions during the meeting:

- Bearing in mind that in the eTIR system the Customs declaration is lodged and accepted at the moment when the holder (or his representative) presents the goods, the vehicle and a reference to the advance cargo information to Customs, is there really a need to authenticate the holder at the time of the electronic submission of the advance cargo information?
- In your country, what is the state of play with regard to the use of authentication/electronic signatures? What are the future (legal and practical) steps?
- In your country, is it be possible to use signatures certified by foreign certification authorities? Is there any intention to change this?
- In your country, would it be possible to accept electronic signatures issued or certified by an internationally recognized certification authority (i.e. a certification authority that would be recognized by an international legal instrument, such as the TIR Convention)? Would your government oppose an amendment introducing such an authority in the TIR Convention?

## Annex

### Proposed amendments to the eTIR Reference Model

#### 1. Declaration mechanisms

Considering that various national electronic declaration mechanisms require some type of authentication, the electronic submission of declarations by transport operators to foreign Customs authorities might, at times, be difficult or requiring the paid services of third parties, such as Customs brokers. Bearing this in mind, it seems appropriate to include in the eTIR project alternative declaration mechanisms. One would be provided by the eTIR international system (allowing both the submission of EDI and keyed-in declarations) and the other one would be provided by the private sector itself, such as IRU's TIR-EPD.

In this context, IRU is ready to cooperate with the secretariat and share its experiences with the development of the TIR-EPD system.

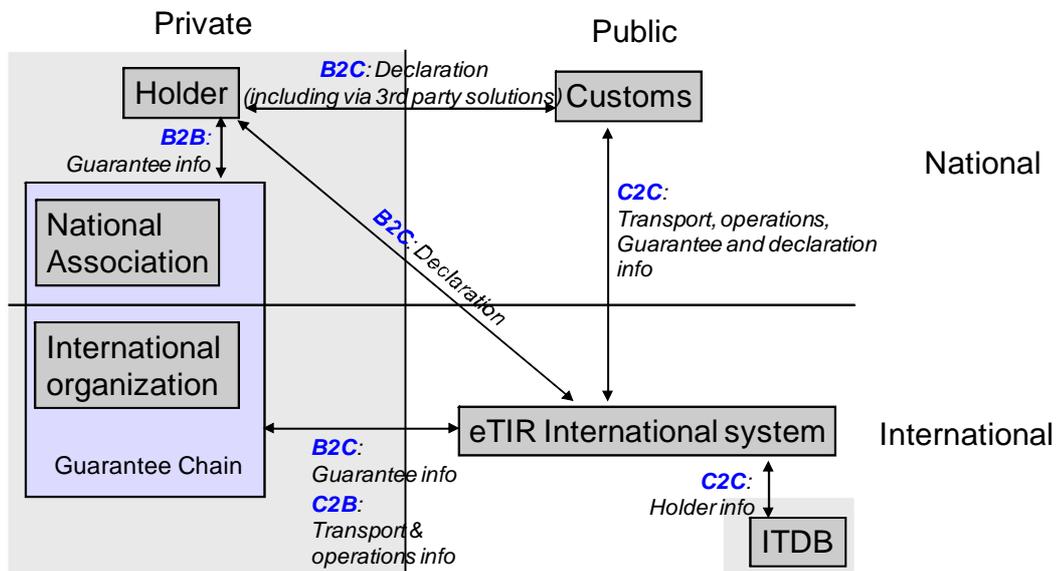
Subject to the acceptance of the below amendments, this proposal could be included in version 3.0 of the eTIR Reference Model:

##### Chapter 2.1.2.1. eTIR International System brief

[...]

Figure 2.1

##### The new public private partnership



[...]

##### Chapter 2.1.2.4.2. Declaration

The holder submits the advance cargo information 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. **Alternatively, the holder can make use of**

**declaration mechanisms provided by either the eTIR international system or the private sector.**<sup>5</sup>

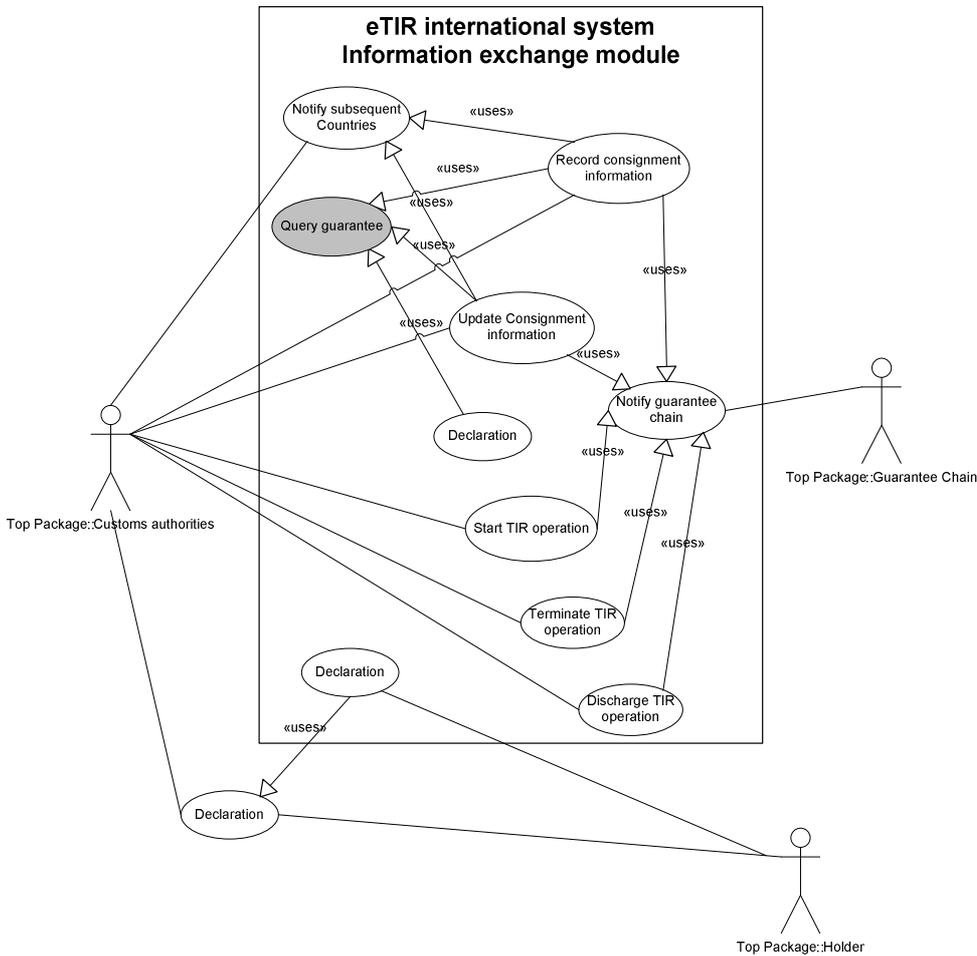
[...]

**Chapter 2.1.3.2.2. Web services**

Web services implemented at 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, **as well as the centralized submission of advance cargo information.**

**Chapter 2.3.2. Data exchange use case**

Figure 2.2  
**Customs management of guarantees use case diagram**



[...]

<sup>5</sup> Amendments to the text of version 3.0 are in **bold-underlined**. All figures presented in this document describe the alternative procedures.

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New Chapter 2.3.2.16. Advance cargo information use case description

Table 2.15

## Advance cargo information use case description

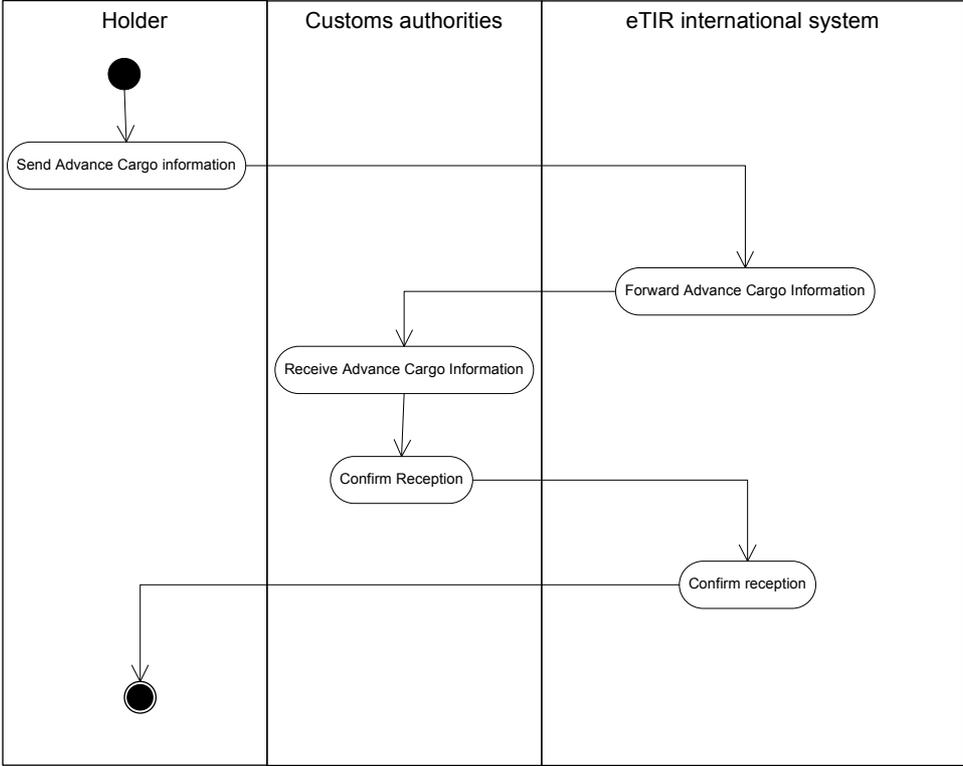
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<b><u>Name</u></b>	<b><u>Declaration use case</u></b>
<b><u>Description</u></b>	<b><u>The holder transmits an advance cargo declaration to the eTIR international system that then forwards it to the Customs authorities of the country of first Customs office of departure.</u></b>
<b><u>Actors</u></b>	<b><u>Holder, Customs authorities</u></b>
<b><u>Performance Goals</u></b>	
<b><u>Preconditions</u></b>	<b><u>The holder is registered in the Authentication database (see 2.1.3.2.10)</u></b>
<b><u>Postconditions</u></b>	<b><u>:</u></b>
<b><u>Scenario</u></b>	<b><u>:</u></b>
<b><u>Alternative Scenario</u></b>	<b><u>Fallback scenario</u></b> <b><u>In case transmission by means of web services is not available, the holder can use the eTIR website or other available declaration mechanisms.</u></b>
<b><u>Special requirements</u></b>	<b><u>:</u></b>
<b><u>Extension Points</u></b>	<b><u>:</u></b>
<b><u>Requirements Covered</u></b>	<b><u>:</u></b>

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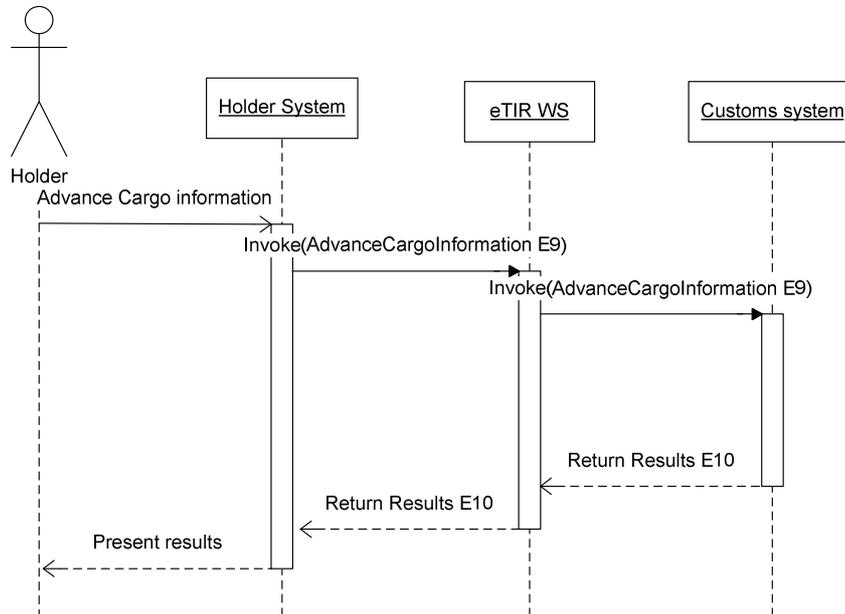
**New Chapter 2.3.2.17. Advance cargo information activity diagram**

Figure 2.17  
**Advance cargo information activity diagram**



**New Chapter 3.1.1.2.8 Advance cargo information**

Figure 3.15:  
**Advance cargo information sequence diagram**



**New Chapter 3.1.2.2.8. Advance cargo information**

**Potential problems:**

1. **The Customs system is not functioning.**
2. **The connection between the Customs system and the eTIR international system is broken.**
3. **The eTIR international system is not functioning.**

**Fall-backs:**

1. **The eTIR international system notifies the holder that the declaration could not be forwarded and proposes the use of the eTIR website or alternative declaration mechanisms.**
2. **The eTIR international system notifies the holder that the declaration could not be forwarded and proposes the use of the eTIR website or alternative declaration mechanisms.**
3. **The holder shall try to use the eTIR website or alternative declaration mechanisms.**