

# eTIR international system conformance tests execution guidelines



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# 1. Introduction

This document describes the methodology and the sequence of actions that customs authorities of contracting parties of the TIR Convention, bound by its [Annex 11](#), should perform to validate the completion of their interconnection project with the eTIR international system, and their readiness to use the eTIR international system in Production.

It includes a description of all the types/levels of tests that will need to be passed, as well as the proposed methodology and communication management for this particular stage of the project. It also describes the associated procedures that are expected to be followed and completed.

This document is intended to be used as a final step/procedure, after the **implementation stage**, to be completed before using the eTIR international system for real-life TIR transports.



It is important to note that beyond the initial conformance tests completion, customs authorities are required to perform those tests again (in particular the level 2 ones) upon release of each major new version of the eTIR international system, or upon release of a minor version introducing breaking changes (for which the TIR secretariat would communicate on the specific conformance tests to be executed).

This procedure refers to technical documents that were used by the Information, Communication and Technology (ICT) team of the customs authorities being tested during the **implementation stage**:

- The [Project guidelines for customs to connect to eTIR](#) describing the proposed methodology to complete an interconnection project between a national customs system and the eTIR international system;
- The [Introduction document](#) which is the starting point for the implementation of all eTIR messages;
- The [I1/I2 messages](#) related to accepting the guarantee;
- The [I3/I4 messages](#) related to querying TIR Carnet holder status information (these messages are optional);
- The [I5/I6 messages](#) related to querying the guarantee (these messages are optional);
- The [I7/I8 messages](#) related to sending the declaration;
- The [I9/I10 messages](#) related to starting a TIR operation;
- The [I11/I12 messages](#) related to terminating a TIR operation;
- The [I13/I14 messages](#) related to discharging a TIR operation;
- The [I15/I16 messages](#) related to sending notifications to the customs;
- The [I17/I18 messages](#) related to refusing to start a TIR operation;
- The [I19/I20 messages](#) related to checking customs office information (these messages are optional);
- The [E9/E10 messages](#) related to receiving the advance TIR data;
- The [E11/E12 messages](#) related to receiving updates on the advance TIR data;
- The [E13/E14 messages](#) related to receiving the cancellation of the advance TIR data.

## 2. Target audience

This guide has been prepared for the customs management team as well as the ICT team in charge of implementing the eTIR procedure.

It is recommended to have an understanding of the [TIR Convention](#) (especially of its articles and its new [Annex 11](#)) and to be familiar with the [eTIR concepts](#).

## 3. Levels of conformance tests

As proposed in section IV.D.6 of the [eTIR technical specifications](#) (paragraphs 378 to 394), the conformance tests consist of a series of test scenarios, grouped by levels. Each level will assess a particular aspect, of increasing complexity, of the interconnection between the national customs system and the eTIR international system. All tests from a particular level of the conformance tests need to be validated before being able to move to the next level.

### **Level 0: pre-requisites**

represents all the pre-requisites required to be complete before being able to proceed with higher level conformance tests in particular, regarding ITDB data, focal point, and national customs system readiness.

### **Level 1: Connectivity**

aims to confirm that the communication channel between the national customs system and the eTIR international system is ensured, secured and stable from end to end.

### **Level 2: ETIR messages**

is intended to verify that each of the eTIR messages involving customs authorities is properly implemented, and that the national customs system is able to perform all tasks related to a TIR transport digitally, by sending appropriate messages to the eTIR international system.

### **Level 3: ETIR processes integration at customs offices**

is intended to verify that eTIR processes are fully integrated to the internal procedures used by the staff of customs authorities being tested. It refers primarily to the update of the national customs system but also to the internal communication and change management.

### **Level 4: (optional) International testing with neighboring countries**

is an optional testing level, that intends to perform actual TIR Transports between one or more neighboring countries managed using the eTIR international system in test environment.

## 4. Associated procedures

The following section describes the test procedures associated to each level of the conformance tests.

### 4.1. Level 0: pre-requisites

The following steps need to be achieved and validated by both the TIR secretariat and the Customs Authorities before being able to move on to level 1. They are presented in no particular order as most of them can be parallelized and some of them can even start before the conformance tests stage.

1. Ensure all data is up-to-date in the [International TIR Data Bank \(ITDB\)](#):
  - a. Complete information related to users, customs authorities and the national association(s) has been provided and is up-to-date
  - b. Corresponding user accounts exist for both customs authorities and the national association(s)
  - c. Users know how to use the ITDB web application
  - d. Seals and stamps information has been provided and is up-to-date and validated by customs authorities
  - e. Customs office information has been provided and is up-to-date and validated by customs authorities
  - f. TIR Carnet holder information has been provided and is up-to-date and validated by both customs authorities and national association(s)
  - g. Within the customs authorities' organization, processes are defined, and roles assigned to regularly review and update all this information
2. A **conformance tests coordinator** has been designated, by customs authorities, to coordinate with the TIR secretariat and with the customs authorities' key stakeholders, to ensure the completion of all tests as defined in the conformance tests guide
3. If customs authorities use a new environment to conduct the conformance tests, the relevant IP addresses need to be communicated to the TIR secretariat to be whitelisted
4. Customs authorities have issued a dedicated X.509 certificate aligned with the [eTIR technical specifications](#) and this one has been installed on both environments that will be used for this stage
5. The metadata to be used by customs authorities are confirmed and properly recorded in the eTIR international system:
  - a. Name to be used in the metadata fields of the eTIR messages
  - b. Data related to the X.509 certificate for its validation
  - c. URLs of their Web services (I15, E9, E11 and E13 messages)

### 4.2. Level 1: connectivity

Although it should be already confirmed during the **implementation stage**, the TIR secretariat needs to verify if the connectivity is established between the national customs system and the eTIR international system. To do this, sending and receiving eTIR messages should be performed in both directions. Finally, validation of the proper signature of the eTIR messages and the validity of the X509 certificate should also be performed (as described in the **Access to eTIR web services** section of the [eTIR web services Introduction document](#)).



## 4.3. Level 2: eTIR messages

### General principles

The objectives of this level are to validate that the national customs system of the customs authorities being tested can:

- properly process data/eTIR messages received from the eTIR international system
- properly send eTIR messages, and in the right sequence

Debugging the messages should have been done during the **implementation stage**. If any test is failing, then customs authorities should return to the **implementation stage** until they are ready for **conformance tests stage**.



We will call **test scenario** a specific TIR transport. A **test scenario** is typically defined by a TIR declaration, and if needed a set of amendments. For example, a simple test scenario would be a TIR transport between two countries, with a single consignment, and loading and unloading points. Each **test scenario** is composed of **test cases** which is a term we use to express that in the course of a transport, a contracting party may have different roles to assume. In a test scenario, the contracting party can either be the country of departure or the country of destination, and may want to: change the seals or not, refuse to start the operation, etc. All of these constitutes the test cases of the test scenario.

The TIR secretariat prepared a set of transport test scenarios of increasing complexity (e.g.: single loading/unloading point, transport with amendments, multiple loading points...). These scenarios are continuously updated and are available upon request to the TIR secretariat. Each test scenario explores a transport use case and contains:

1. A description the test scenario
2. The detailed list of all the test cases along with the sequence of eTIR messages to be sent
3. The matching verifications done on the messages

The latest known [List of main conformance test scenarios](#) is available as annex to this document so that ICT experts from customs authorities can already prepare for all types of tests while implementing the eTIR messages during the **implementation stage**.

Before starting a set of tests (test scenario), the eTIR international system is required to receive a series of messages that will be generated by the TIR secretariat test framework. This prerequisite step is necessary to initialize the database, and to set the eTIR international system in a situation where it is ready to start the test scenario. Then, the test cases performed by customs authorities should be executed by their IT department centrally, by impersonating customs officers.



Since test scenarios are testing sequences of messages, it is important for the eTIR international system to receive all messages from the other virtual eTIR stakeholders present in the test scenario. To ensure this, an automated mechanism ensures that customs authorities being tested can always use the query mechanism (**I5 - Query guarantee** message) to retrieve accurate data before sending new eTIR messages.

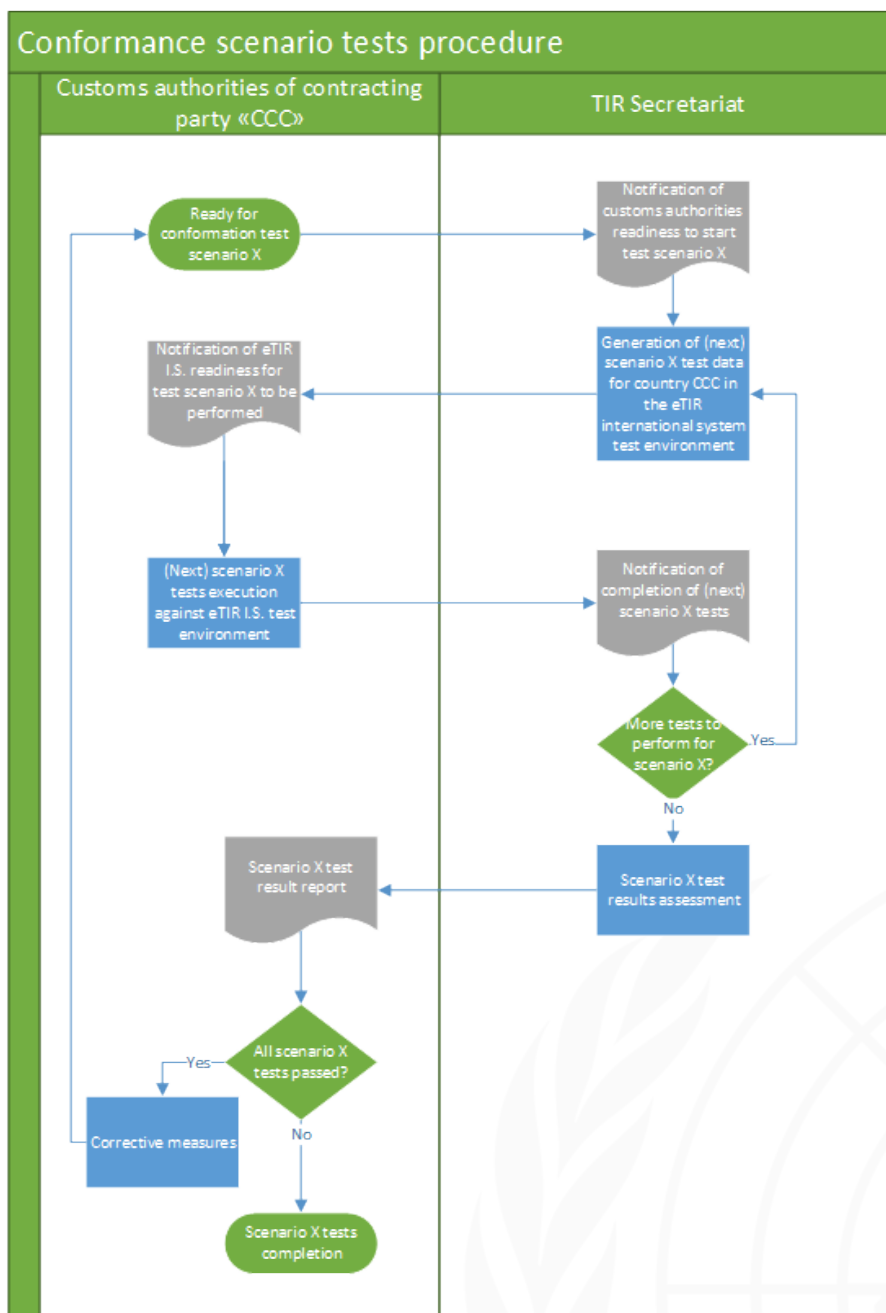
During the execution of the test scenarios, several messages should be sent by various actors. Basically, while the customs authorities will be tested, and all other eTIR stakeholders that will be simulated by the automated mechanism mentioned above. Attention should be paid to the coordination of the TIR secretariat and to customs authorities' team in order to ensure proper synchronization of the various messages to be sent. This can be achieved, either manually (the TIR

secretariat and customs authorities being tested closely liaise to see who should send the messages), or via a way that would give the possibility for customs authorities to signal when they are done with their messages (from a web portal for instance) which would allow them to be less dependent from the TIR secretariat, or yet another fully automated way that would detect once the appropriate messages are sent from customs authorities and would then continue sending the messages needed as per the instructions from the test scenarios.



At the moment, in order to allow for customs authorities to perform several attempts at sending the eTIR messages required by the test scenario and to allow for adjustment upon receiving errors, the preference is given to close coordination using live chat or group emails.

Upon completion, customs authorities shall notify the TIR secretariat that all test cases of a given scenario have been completed so that they can proceed with the test results review and confirm success of its completion.



## Incoming eTIR messages (E9, E11, E13, I15).

All test scenarios start with the first message received from the guarantee chain to register the guarantee, then from the TIR Carnet holder to receive advance TIR data. In the context of the conformance tests, the assumption should be made that the forwarding mechanism is always used to communicate the advance TIR data to the customs authorities being tested. These first eTIR messages (**E9 - Advance TIR data**, **E11 - Advance amendment data**, **E13 - Cancel advance data**), **\*I15 - Notify customs** messages are then considered as incoming messages from the perspective of the customs authorities being tested.

## Outgoing eTIR messages (I1, I3, I5, I7, I9, I11, I13, I17, I19, E9, E11, E13)

After the several pre-required eTIR messages have been sent/communicated, all test scenarios have a second phase where the customs authorities being tested shall send a set of eTIR messages (listed in the test scenario description) to the eTIR international system. However, depending on the test scenario and on their "position" in the itinerary (country of departure, country of transit, country of destination), several other eTIR messages might need to be sent by other actors first, and this is why it is important to communicate and coordinate with the TIR secretariat to notify them when they shall start sending the following eTIR messages (required to represent the fact that the TIR Carnet holder presents himself/herself to their border customs offices) and when they are done sending their messages.

## Test scenario assessment

The secretariat will then assert that no errors were triggered by the messages received. This includes not only faulty responses, but also messages sent out of sequence, messages sent multiple times other possible situations that may be reflected in the internal logs and eTIR database to ensure all messages were properly treated. The content of the eTIR messages sent by the customs authorities being tested will be verified and compared against the expected values based on the test scenario.

## Additional considerations

Some test scenarios are designed to intentionally send wrong **E9 - Advance TIR data** messages (incorrect structure and/or format of the fields, breach of conditions and rules, etc.) to verify that customs authorities being tested returns the appropriate error code(s), and that they do not follow up by sending **I7 - Record declaration data** messages.

When the customs authorities being tested send **I7 - Record declaration data** message, they are expected to also send in attachment the accompanying document, they generate from their own national customs system so its content can be verified too.

In regard to the declaration mechanisms, if there is a national declaration mechanism or if the national customs system is connected to TIR-EPD, additional and dedicated test scenarios will need to be completed to validate usual scenarios and prevent erroneous advance TIR data or advance amendment data to be processed by the national customs system.

## Fallback procedures

In addition, at this level, additional test scenarios will be designed to test the functional fallback procedures. For example, a sequence of messages that could not be communicated to the eTIR international system for any reason, will be resent in the correct sequence order as soon as possible, therefore testing the retry mechanism of the national customs system.



## 4.4. Level 3: eTIR processes integration at customs offices

### Integration of the eTIR messages in the eTIR processes and customs officers' user interface

The objective of these tests is to verify that the updated national customs system can be properly used in real situations (at customs offices) by its real end-users (the customs officers).

The customs authorities being tested will be required to demonstrate the user interface and user experience (flow of screens) in real-life situation. The demonstration shall be performed either in person, via screen-sharing methods or via video recording (not recommended).



it is important to note that level 3 tests can be evaluated in parallel to level 2 tests as some test scenarios may be overlapping/repeated.

An important aspect of these tests is to check how the eTIR errors received from the eTIR international system are displayed and handled (both human/entry errors and returned eTIR message errors) in particular in the context of **I9 - Start TIR operation**, **I11 - Terminate TIR operation** and **I13 - Discharge TIR operation** messages. All error messages displayed to the end users should be clear, comprehensive, and "actionable" (give indications on the follow-up actions to perform to either correct the problem or initiate a functional fallback procedure).

In addition to the tests already performed in level 2 regarding the requirements and recommendations listed in sections IV.D.1 to IV.D.5 of the [eTIR technical specifications](#), other tests may be performed during this level to verify additional aspects related to usability of the national customs system.

The following base UI/UX guidelines will be considered in the context of the User Interface evaluation that will be performed by the TIR secretariat and shall be considered by the customs authorities being tested during the **implementation stage** for the national customs system integration of the eTIR progresses:

1. Interaction Design
  - a. Avoid repetitive actions or make frequent activities feel effortless
  - b. Ensure that users can easily recover from errors
  - c. Ensure that users are adequately supported according to their level of expertise
  - d. Offer access to help/user guides without impeding user progress
2. Visual Design
  - a. Avoid having more than three primary colors
  - b. Visual hierarchy directs the user to the required action
  - c. Make most important items on top of the visual hierarchy
  - d. Make primary action visually distinct from secondary actions
  - e. Ensure interactive elements are not abstracted
  - f. Make form submission confirmation in a visually distinct manner
  - g. Have alert messages consistent and visually distinct
3. Information Architecture
  - a. Ensure that navigation is consistent
  - b. Leave room for growth
  - c. Typography

- d. Avoid having more than two distinct font types used
  - e. Ensure that fonts used for text content are at least 12px in size
  - f. Reserve uppercase words for labels, headers, or acronyms
  - g. Use different font styles or families to separate content from controls
  - h. Use different font size/weight between content types
4. User Interface
- a. Ensure UI elements proximity and alignment
  - b. Display progress indicator for multi-step workflows
  - c. Ensure foreground elements (like content and controls) are easily distinguished from the background

Particular attention will be brought to the following "no-go" test scenarios that should be prevented from happening and for which the customs officer should be guided on how to react, inter alia:

- Terminate a TIR operation before starting it
- Discharge a TIR operation before starting it
- Discharge a TIR operation before terminating it
- The TIR Carnet holder presents at the border without previously received **I15 - Notify customs** message
- Send a **I11 - Terminate TIR operation** message as the TIR Carnet holder presents its vehicle at the border without the previously received **I15 - Notify customs** message
- (With IT experts only), send a **I13 - Discharge TIR operation** message referring to an eTIR message that was not previously received.

## Change management

Another aspect required to be presented by the customs authorities being tested is the proposed/implemented change management plan, in particular: \* Customs officer training plan \* Communication plan \* Official announcement of launch of eTIR

## Fallback procedures

These tests involve specific scenarios that require the TIR secretariat to send accompanying documents the customs authorities being tested to see how they handle such a situation. In this level, all the functional fallback procedures, that could not be tested during level 2 testing, will be tested.

## 4.5. Level 4: international testing with neighboring countries

Level 4 testing is optional and should be initiated at the request of customs authorities. In such a case, they will need to find partnering contracting parties/customs authorities to performance the tests. Also, in this case, the guarantee chain is required to participate in the tests.

Such are intended to increase end-users confidence in the whole eTIR system as each actor would be represented for real and not simulated by the TIR secretariat and its test systems.

Ideally a real TIR Carnet holder shall be involved and initiate a test with a real transport. Defining such a test project may be used to draft a specific guide, or could be later included in the conformance tests scenarios.

The benefits of such a test project would be the following:

- Reassure other Contracting Parties on the viability of the eTIR system
- Accelerate the number of interconnection projects
- Improve customs officers training
- Advertise the eTIR system publicly.

## 5. Next step

Upon completion of the conformance tests, customs authorities now "conform to use eTIR" are invited to proceed with a joint launch in production of eTIR both in their national customs system and in the eTIR international system. This launch involves repeating the connectivity requirement steps described in the dedicated section of the [eTIR web services Introduction document](#)), but this time for Production environment.

Also note that after completion of this series of tests, customs authorities are now considered as "conform to use eTIR", and will be invited to participate in a survey to provide feedback and ensure continuous improvement of the conformance tests procedures.

## 6. Support and contact

Kindly note that in the context of the interconnections projects by customs, the eTIR service desk stands ready to assist contracting parties while interconnecting their national customs systems to the eTIR international system. Also, in case of questions or issues related to this document or to the eTIR international system, you can use the contact details below (contacts by email should be preferred).

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## 7. Version history

Date	Author	Document version	Notes	eTIR specification version
13/09/2022	TIR secretariat	1.0	Initial draft	4.3.8

## 8. Document revision note



This document has been published on **13/09/2022**, and is valid for the **eTIR international system version 1.0** based on the **eTIR specifications version 4.3.8**.

Please ensure you get the latest version of this document from the [eTIR documentation portal](#) or contact the eTIR service desk ([Support and contact](#)).

## 9. Annexes

### 9.1. List of main conformance test scenarios

(Coming soon)