eTIR web services - Messages E7-E8

E7 - Notify guarantee chain / E8 - Notification confirmation
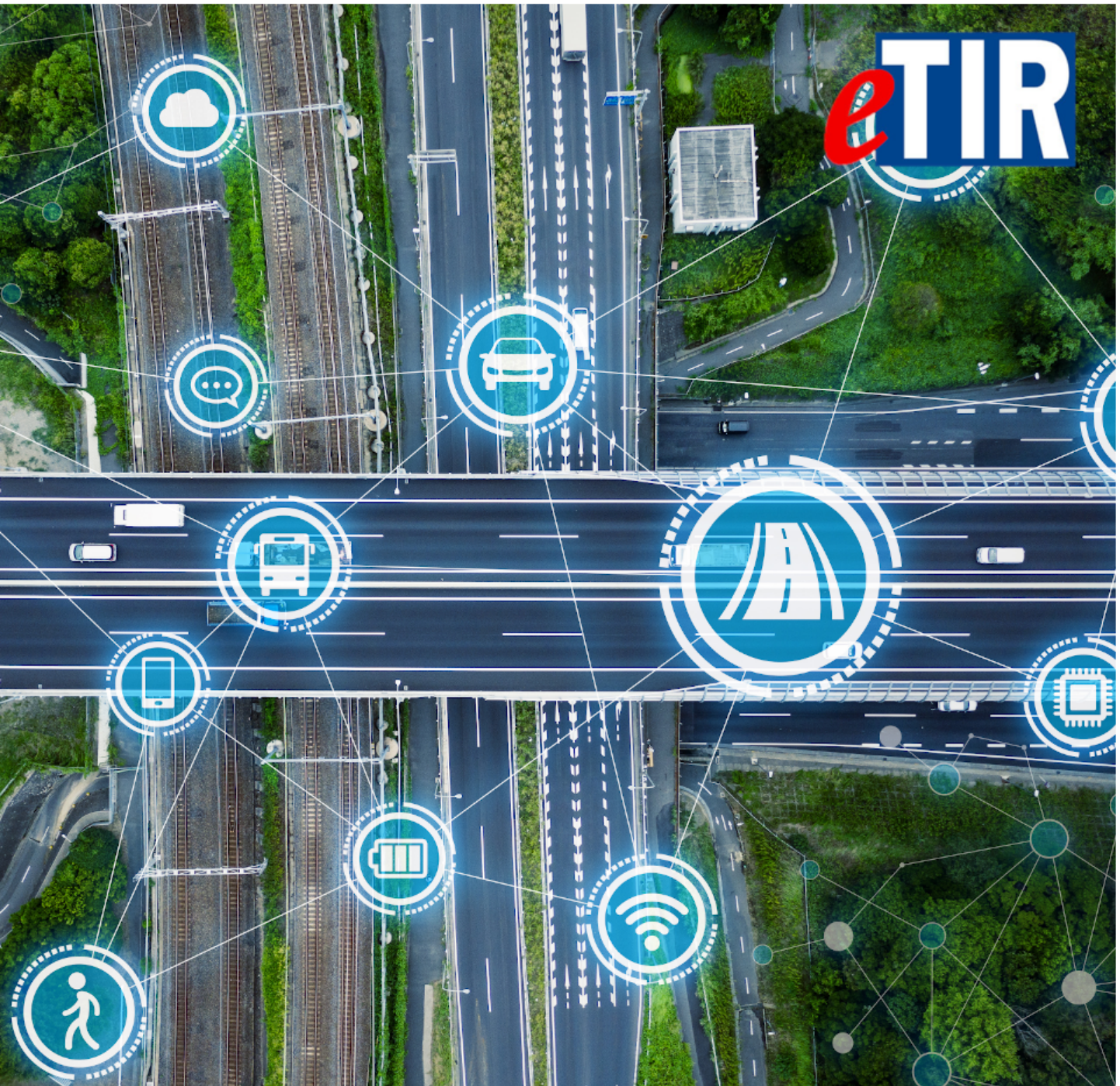
Table of Contents

1. Document revision note

ⓘ This document has been published on **17/11/2021**, and is valid for the **eTIR international system version 1.0** based on the **eTIR specifications version 4.3.0**.

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

2. Related documents

Project documents and collaboration platform

- eTIR documentation portal: https://etir.org/documentation

- Project guidelines for customs to connect to the eTIR international system : https://etir.org/documentation/project-guidelines-customs

- eTIR web services - Introduction document: https://etir.org/documentation/introduction

- eTIR web services - Messages I1-I2: I1 - Accept guarantee / I2 - Acceptance results https://etir.org/documentation/i1-i2

- eTIR web services - Messages I3-I4: I3 - Get holder information / I4 - Holder information https://etir.org/documentation/i3-i4

- eTIR web services - Messages I5-I6: I5 - Query guarantee / I6 - Query results https://etir.org/documentation/i5-i6

- eTIR web services - Messages I7-I8: I7 - Record declaration data / I8 - Record declaration data results https://etir.org/documentation/i7-i8

- eTIR web services - Messages I9-I10: I9 - Start TIR operation / I10 - Start results https://etir.org/documentation/i9-i10

- eTIR web services - Messages I11-I12: I11 - Terminate TIR operation / I12 - Termination results https://etir.org/documentation/i11-i12

- eTIR web services - Messages I13-I14: I13 - Discharge TIR operation / I14 - Discharge results https://etir.org/documentation/i13-i14

- eTIR web services - Messages I15-I16: I15 - Notify customs / I16 - Notification confirmation https://etir.org/documentation/i15-i16

- eTIR web services - Messages I17-I18: I17 - Refusal to start TIR operation / I18 - Refusal results https://etir.org/documentation/i17-i18

- eTIR web services - Messages I19-I20: I19 - Check customs offices / I20 - Customs offices validation https://etir.org/documentation/i19-i20

- eTIR web services - Messages E1-E2: E1 - Register guarantee / E2 - Registration results https://etir.org/documentation/e1-e2

- eTIR web services - Messages E3-E4: E3 - Cancel guarantee / E4 - Cancellation results https://etir.org/documentation/e3-e4

- eTIR web services - Messages E5-E6: E5 - Query guarantee / E6 - Query results https://etir.org/documentation/e5-e6

- eTIR web services - Messages E9-E10: E9 - Advance TIR data / E10 - Advance TIR data results https://etir.org/documentation/e9-e10

- eTIR web services - Messages E11-E12: E11 - Advance amendment data / E12 - Advance amendment data results https://etir.org/documentation/e11-e12

- eTIR web services - Messages E13-E14: E13 - Cancel advance data / E14 - Cancel advance data results https://etir.org/documentation/e13-e14

Legal framework

- TIR Convention handbook: https://unece.org/fileadmin/DAM/tir/handbook/english/newtirhand/TIR-6Rev11e.pdf
- Annex 11 to the TIR Convention: https://etir.org/documentation/annex-11

eTIR specifications

- Introduction to the eTIR conceptual, functional and technical v4.3: https://etir.org/etir-introduction
- eTIR concepts v4.3: https://etir.org/etir-concepts
- eTIR functional specifications v4.3: https://etir.org/etir-functional-specifications
- eTIR technical specifications v4.3: https://etir.org/etir-technical-specifications

Additional resources

- eTIR XML schemas: https://etir.org/documentation/xsd-files
- eTIR code lists: https://etir.org/documentation/code-lists
- List of eTIR focal points: https://unece.org/list-etir-focal-points

3. Purpose

This document describes the **E7 - Notify guarantee chain** request message, and the **E8 - Notification confirmation** response message of the eTIR international system web services. It provides all the specifics required to use them (prepare or receive), explains how and when they should be used and explains the error codes that may be returned. It also contains examples and fallback procedures, if applicable.

4. Target audience

This guide is intended for the ICT teams of the guarantee chains in charge of interconnecting their guarantee chain systems to the eTIR international system.

5. Prerequisites

In order to ensure an implementation that delivers the best value and services to the guarantee chains, we recommend the ICT team in charge of establishing the connection to the eTIR international system web services to be accompanied by a subject-matter expert on the TIR Convention.

This document is to be read after having an understanding of the eTIR concepts and having read the eTIR functional specifications as well as the eTIR web services introduction document. It is highly recommended keeping the eTIR web services introduction document at hand as this document refers to many elements and diagrams that will be necessary and referred to when reading this document.

From a technical perspective, the following steps should have been completed at this point:

- the secured connection to one of the User Acceptance Testing (UAT) environments of the eTIR international system is established;

- the endpoint URL to the UAT environment is clearly identified and properly configured on the client side;

- all the tools required to connect, test and troubleshoot the messages are ready;

- eTIR web services - Messages E1-E2 should have been implemented and tested.

- **The guarantee chain system notification endpoint URL has been communicated to the TIR secretariat, and is configured and accessible to the eTIR international system.**

⚠️ All eTIR messages are identified and belong to a flow described in the eTIR web services introduction document (see dedicated section). It is key to respect this sequencing else the eTIR international system will return errors due to invalid sequencing of the message as described in the dedicated eTIR error code web page.

6. "E7 - Notify guarantee chain" / "E8 - Notification confirmation" messages

6.1. Sequence diagrams

The following sequence diagrams highlight the role and sequence position of the **E7 - Notify guarantee chain** and **E8 - Notification confirmation** messages in the different contexts where they can be used during a TIR transport.

> In the specific context of **E7 - Notify guarantee chain / E8 - Notification confirmation** messages, the eTIR international system sends the **E7 - Notify guarantee chain** request message to the guarantee chain system which replies using the **E8 - Notification confirmation** response message. The guarantee chain should be ready to receive and process this notification anytime. In addition, it is important to note that these notifications can be sent for several reasons and in different contexts.

In the eTIR specifications version 4.3.0, the **E7 - Notify guarantee chain** message can be sent by the eTIR international system in the following six cases which are further illustrated with the corresponding sequence diagrams below:

1. **New declaration data**: when the declaration of a TIR transport is received for the first time by the eTIR international system.

2. **Amended declaration data**: when the amendment to the declaration of a TIR transport is received by the eTIR international system.

3. **New start of TIR operation**: when the start of a TIR operation is received by the eTIR international system.

4. **New termination of TIR operation**: when the termination of a TIR operation is received by the eTIR international system.

5. **New discharge of TIR operation**: when the discharge of a TIR operation is received by the eTIR international system.

6. **New refusal to start of TIR operation**: when the refusal to start a TIR operation is received by the eTIR international system.

6.1.1. Departure
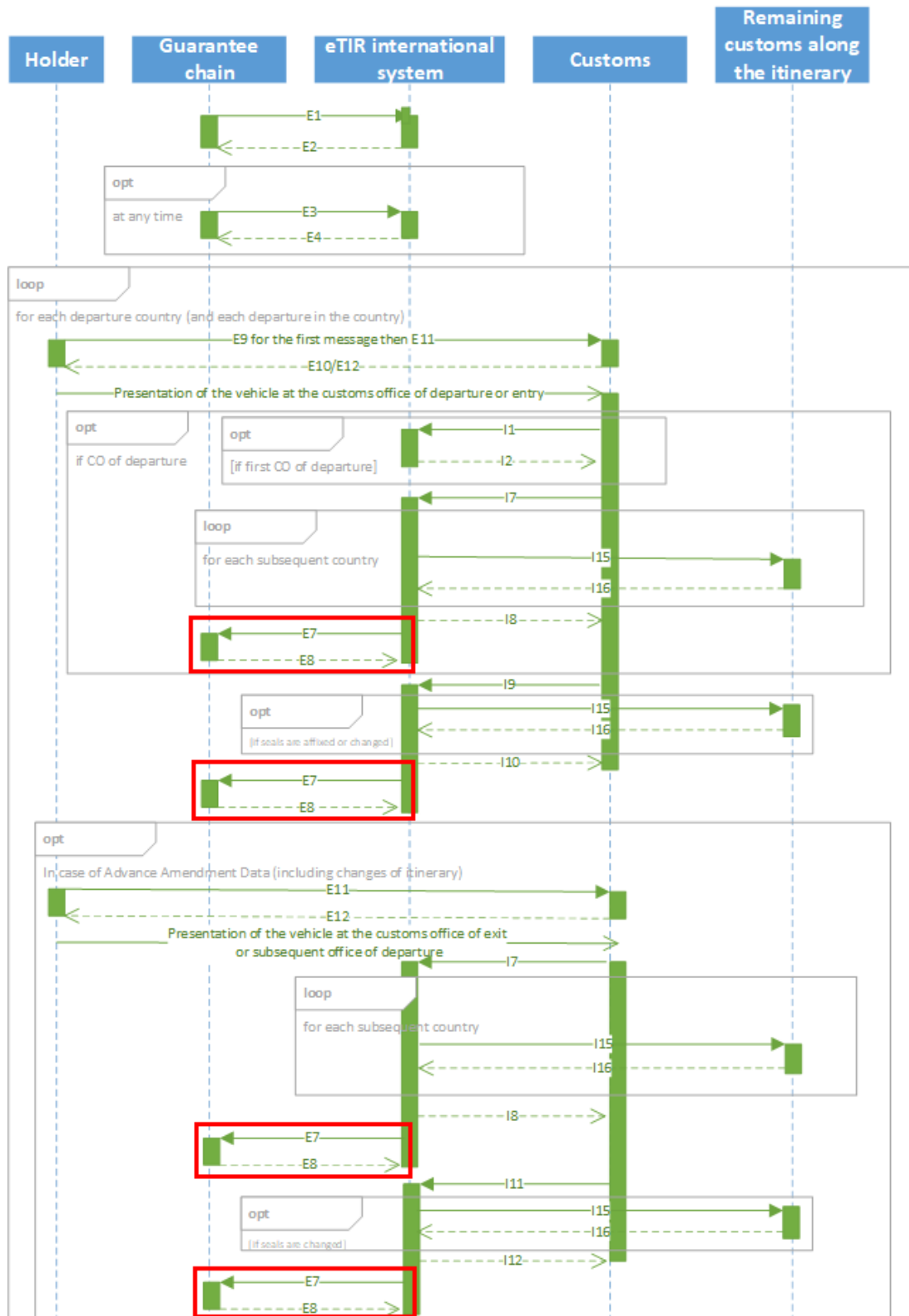
6.1.2. Transit
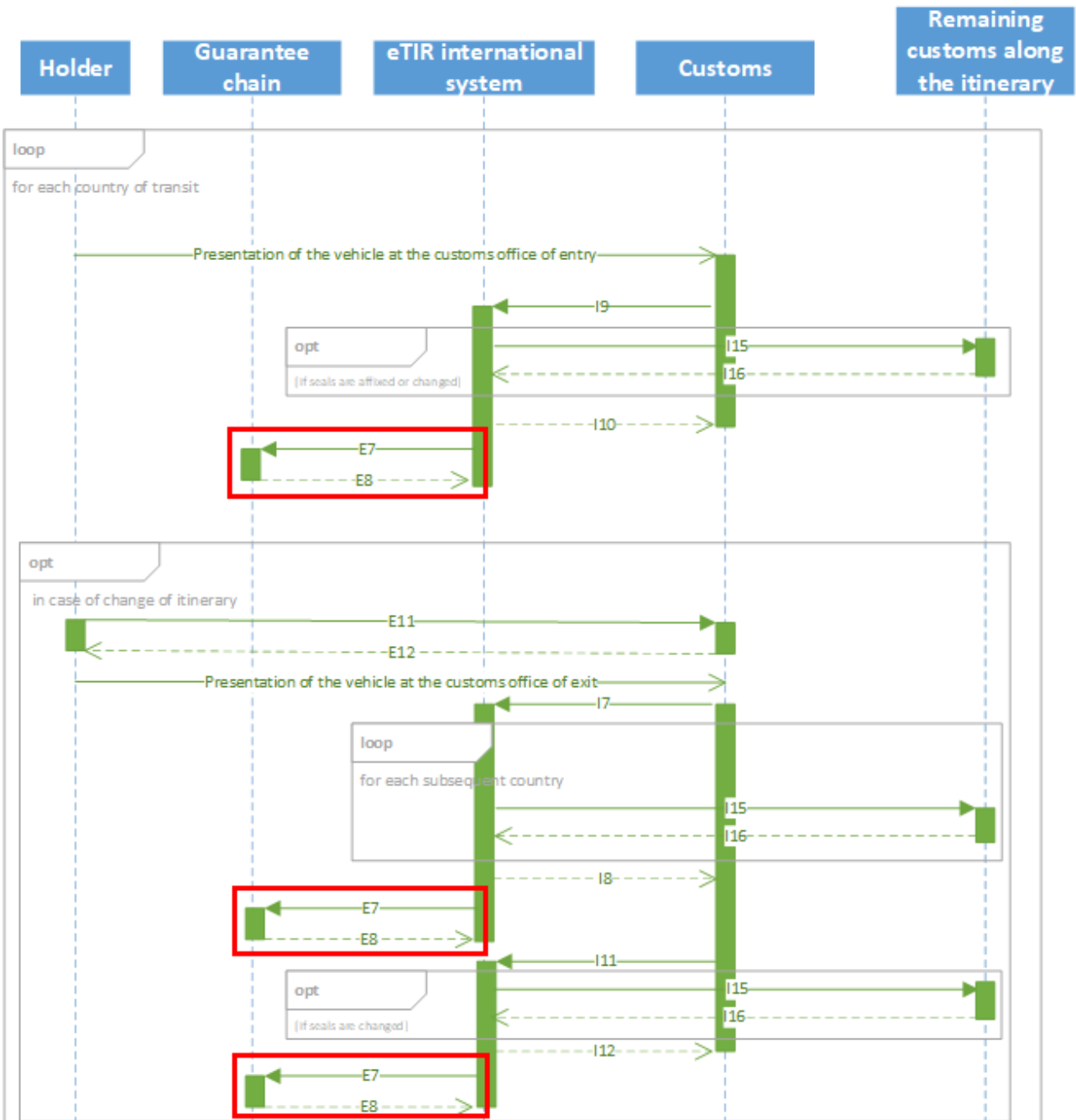
6.1.3. Destination
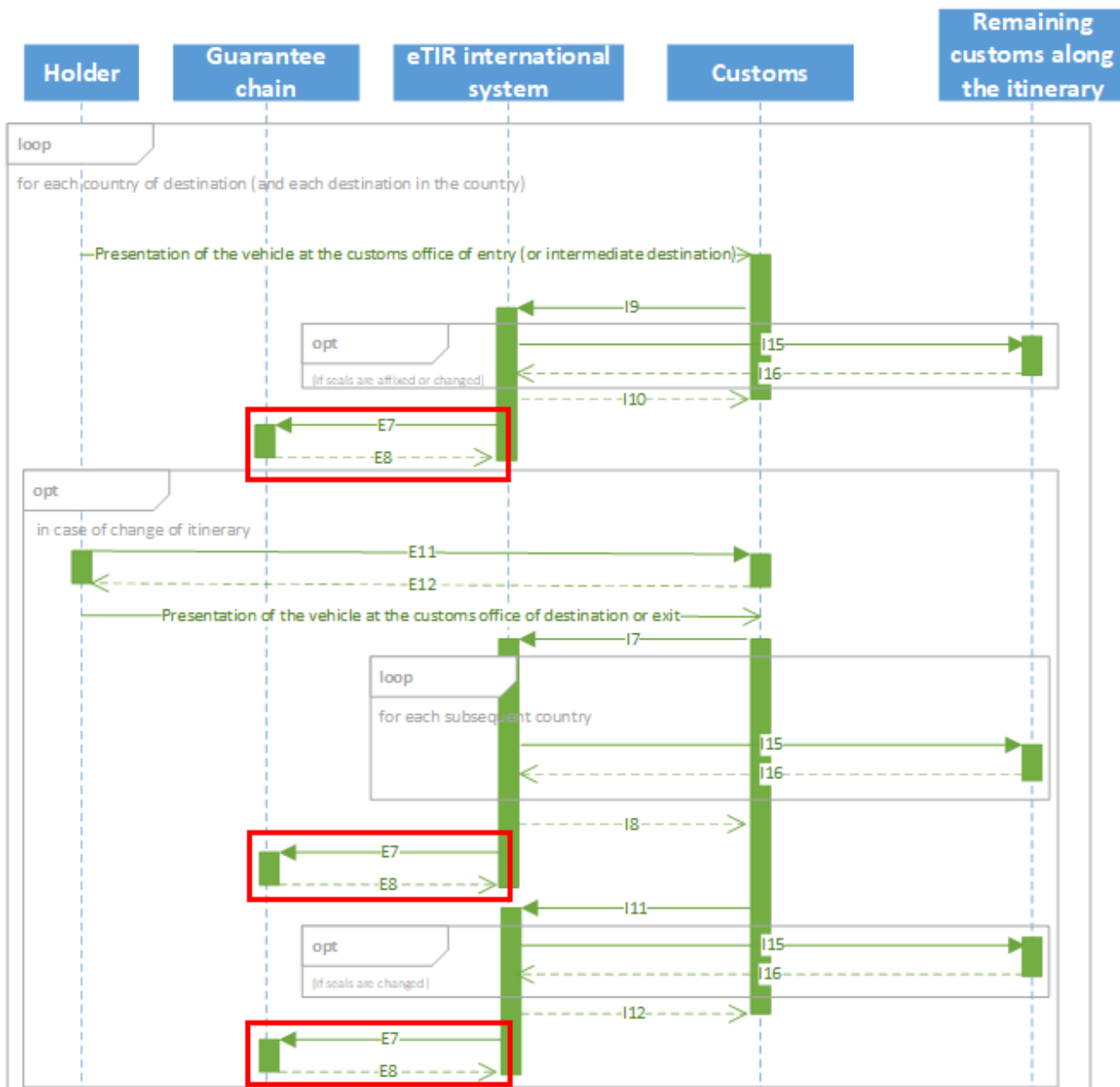
6.2. Message context

The **E7 - Notify guarantee chain** is an informational message sent by the eTIR international system to notify the guarantee chain of the availability of new information regarding a TIR transport and its related guarantee. As a notification, it should be expected at anytime, and the contents of this message should be entirely processed.

The guarantee can have different states, and it is important to be aware of its life cycle, the figure below outlines them. For more information please refer to the eTIR specification section dedicated to the guarantee if you need more information.
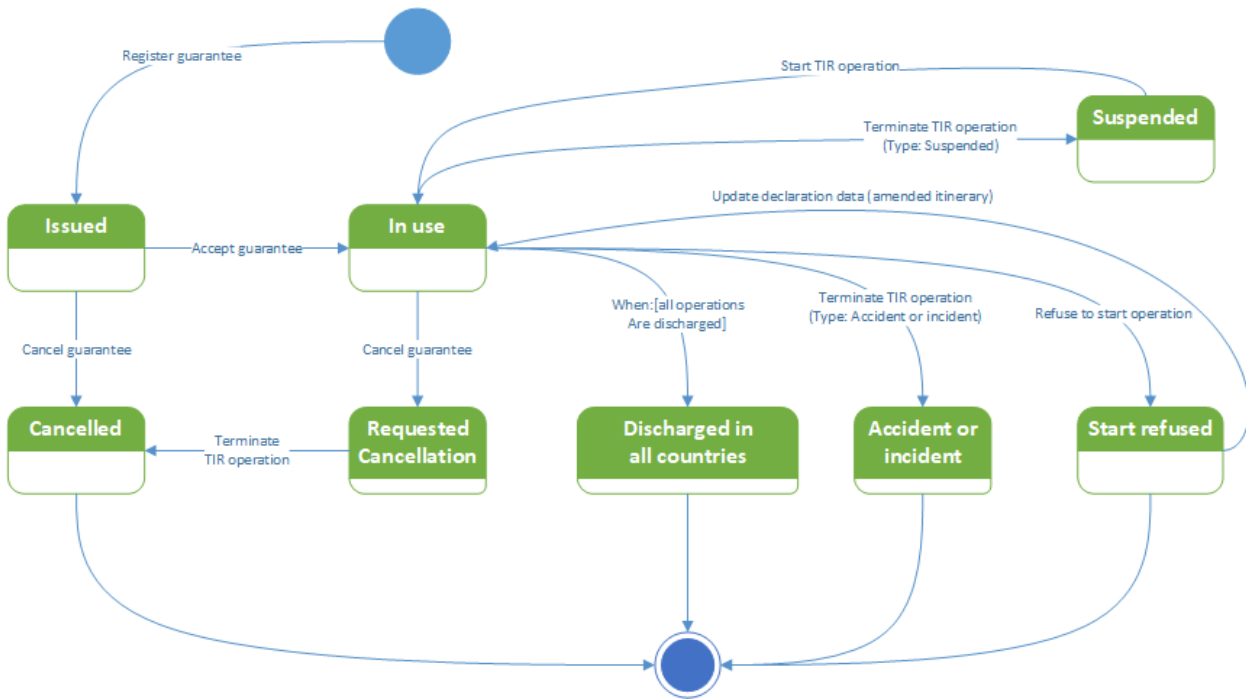
6.2.1. Message prerequisites

In order for this message to be properly interpreted by the eTIR international system, the following message(s) should have been exchanged before this one:

- E1 - **Register guarantee** and **E2 - Registration results** (between the guarantee chain system and the eTIR international system): the guarantee that was purchased by the holder must be firstly registered by the guarantee chain to the eTIR international system so it is known and usable in the system.

6.2.2. Endpoint URL and SOAP Action

Since the **E7 - Notify guarantee chain** message is sent by the eTIR international system to the guarantee, it requires the guarantee chain system endpoint URL to be configured in the eTIR international system to be properly communicated.

The SOAP action value to use is: **notifyGuaranteeChain** (so the WS-Addressing element should be set to *http://etir.org/v4.3:toGuaranteeChain/notifyGuaranteeChain*)

6.3. "E7 - Notify guarantee chain" request message

6.3.1. Description

The eTIR international system sends the **E7 - Notify guarantee chain** request message to the guarantee chain system to notify the guarantee chain of the availability of new information.

The XSD file related to the **E7 - Notify guarantee chain** message is available at the following URL: https://wiki.unece.org/download/attachments/106299941/WCO_eTIR_E7_1.xsd.

6.3.2. Field details

ℹ️ Kindly note that the metadata fields have been removed from this table has been removed to improve the readability, as it is part of every eTIR message. You can find the details about metadata in the eTIR introduction document dedicated section.

eTIR field name	Mapping to the XML element (XPath)	Status	Cardinality	Format	Code lists	Conditions	Rules
MESSAGE							
├ Message function, coded	Function	R	1..1	n..2	CL16		
├ Message identifier	ID	R	1..1	an..70			
├ Type, coded	TypeCode	R	1..1	an..3	CL26		
└┬ GUARANTEE	ObligationGuarantee	R	1..1				
└ Reference	ObligationGuarantee/ReferenceID	R	1..1	an..35			

6.3.3. Field descriptions & usages

ℹ️ Kindly note that the metadata fields have been removed from this table has been removed to improve the readability, as it is part of every eTIR message. You can find the details about metadata in the eTIR introduction document dedicated section.

eTIR field name	Mapping to the XML element (XPath)	Description	Usage
MESSAGE			

eTIR field name	Mapping to the XML element (XPath)	Description	Usage
├ Message function, coded	Function	Code describing the function of the message	The value should be, depending on the type of notification, either: "69" (New declaration data), "T2" (Amended declaration data),"68" (New start of TIR operation), "67" (New termination of TIR operation), "66" New discharge of TIR operation) or "T6" (New refusal to start TIR operation). Those codes will soon be included in the CL16 - Message function code (UN/EDIFACT 1225) code list.
├ Message identifier	ID	Unique identifier of the message	The value should be a Globally Unique Identifier (GUID) as detailed in the dedicated section of the introduction document
├ Type, coded	TypeCode	Code of the message type	The value should be set to "E7"
└┬ GUARANTEE	ObligationGuarantee	Class representing the guarantee of this TIR transport	
└ Reference	ObligationGuarantee/ReferenceID	Unique identifier of the guarantee	The value should be the unique identifier of the guarantee for this TIR transport

⚠ When reading the values of the second columns for both tables, note that the "LPCO/" XML base element has been removed to improve the readability, as it is repeated on every line.

6.3.4. Referred code lists

The following code lists are referred to in the field lists and should be considered when sending the message:

- CL16 - Message function code (UN/EDIFACT 1225)
- CL26 - Message types (eTIR)

> ℹ️ All code lists are described in the eTIR code lists document.

6.3.5. Example

The example below shows the XML data to be sent via POST method to the guarantee chain system endpoint URL to notify them of a new start of TIR operation (Message function: **T3 - New start of TIR operation**) for the TIR transport related to the guarantee **XF95001234**.

E7 - Notify guarantee chain request message

```xml
<?xml version="1.0" encoding="UTF-8"?>
<soap:Envelope xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/">
    <soap:Header>
        (...)
        <Action xmlns="http://www.w3.org/2005/08/addressing" soap:mustUnderstand="1">
            http://etir.org/v4.3/toGuaranteeChain/notifyGuaranteeChain
        </Action>
        <MessageID xmlns="http://www.w3.org/2005/08/addressing" soap:mustUnderstand="1">
            urn:uuid:e3e2a0ff-fc46-42f8-85d2-88d19c88a78e
        </MessageID>
        (...)
    </soap:Header>
    <soap:Body xmlns:wsu="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-utility-1.0.xsd"
               wsu:Id="id-77f51e50-328e-4a7f-a002-d807c6e5d320">
        <ns2:notifyGuaranteeChain xmlns="http://etir.org/v4.3/E7" xmlns:ns2="http://etir.org/v4.3/toGuaranteeChain"
                                   xmlns:md="http://etir.org/v4.3/DocumentMetaData">
            <DocumentMetadata>
                <md:ResponsibleAgencyCode>AJ</md:ResponsibleAgencyCode>
                <md:AgencyAssignedCustomizationCode>1</md:AgencyAssignedCustomizationCode>
                <md:AgencyAssignedCustomizationVersionCode>1</md:AgencyAssignedCustomizationVersionCode>
                <md:CommunicationMetaData>
                    <md:PreparationDateTime formatCode="208">20201122113346+0200</md:PreparationDateTime>
                    <md:Recipient>
                        <md:ID>recipientID</md:ID>
                    </md:Recipient>
                    <md:Sender>
                        <md:ID>senderID</md:ID>
                    </md:Sender>
                </md:CommunicationMetaData>
                <LPCO>
                    <Function>T3</Function>
                    <ID>f0b9fd0c-ded1-4e84-9bae-46761c48dab4</ID>
                    <TypeCode>E7</TypeCode>
                    <ObligationGuarantee>
                        <ReferenceID>XF95001234</ReferenceID>
                    </ObligationGuarantee>
                </LPCO>
            </DocumentMetadata>
        </ns2:notifyGuaranteeChain>
    </soap:Body>
</soap:Envelope>
```

⚠️ Some field original contents have been shortened (**…**) in this document for the sake of readability, in particular the whole **header/security** content that is described in the eTIR web services introduction document.

6.4. "E8 - Notification confirmation" response message

6.4.1. Description

The guarantee chain system returns the **E8 - Notification confirmation** response message to the eTIR international system to confirm the reception of the notification.

The XSD file related to the **E8 - Notification confirmation** message is available at the following URL: https://wiki.unece.org/download/attachments/106299941/WCO_eTIR_E8_1.xsd.

6.4.2. Field details

ⓘ Kindly note that the metadata fields have been removed from this table has been removed to improve the readability, as it is part of every eTIR message. You can find the details about metadata in the eTIR introduction document dedicated section.

eTIR field name	Mapping to the XML element (XPath)	Status	Cardinality	Format	Code lists	Conditions	Rules
MESSAGE							
├ Message function, coded	Function	R	1..1	n..2	CL16		
├ Original Message Identifier	FunctionalReferenceID	R	1..1	an..70			
├ Message identifier	ID	R	1..1	an..70			
├ Type, coded	TypeCode	R	1..1	an..3	CL26		
└┬ ERROR	Error	D	0..*			C006	
├ Error, coded	Error/ValidationCode	R	1..1	an..8	CL99		
└┬ POINTER	Error/Pointer	R	1..*				
├ Sequence number	Error/Pointer/SequenceNumeric	R	1..1	n..5			
└ Location	Error/Pointer/Location	R	1..1	an..512			

6.4.3. Field descriptions & usages

ⓘ Kindly note that the metadata fields have been removed from this table has been removed to improve the readability, as it is part of every eTIR message. You can find the details about metadata in the eTIR introduction document dedicated section.

eTIR field name	Mapping to the XML element (XPath)	Description	Usage
MESSAGE			
├ Message function, coded	Function	Code describing the function of the message	The value should be "6" (Confirmation) if the request was processed correctly. If at least one error is described in this message, the value should be "27" (Not accepted)
├ Original Message Identifier	FunctionalReferenceID	Unique identifier of the request message associated with this response	The value should be the one mentioned in the message identifier field of the request message (E7)
├ Message identifier	ID	Unique identifier of the message	The value should be a Globally Unique Identifier (GUID) as detailed in the dedicated section of the introduction document
├ Type, coded	TypeCode	Code of the message type	The value should be set to "E8"
└┬ ERROR	Error	Class representing the list of errors, if any	
├ Error, coded	Error/ValidationCode	Code of the error type	The value should be the code of the error from the list Error code (eTIR)
└┬ POINTER	Error/Pointer	Class representing the pointer to the erroneous field, if any	
├ Sequence number	Error/Pointer/SequenceNumeric	Index of the error in the list	The value should be the 1-based index of the error in the list
└ Location	Error/Pointer/Location	Location of the erroneous field	The value should be the location of the erroneous field following the XPath syntax. Additional details regarding the location of the fields per error code are available on the page dedicated to errors

⚠️ When reading the values of the second columns for both tables, note that the "Response/" XML base element has been removed to improve the readability, as it is repeated on every line.

6.4.4. Referred code lists

The following code lists are referred to in the field lists and should be considered when sending the message:

- CL16 - Message function code (UN/EDIFACT 1225)
- CL26 - Message types (eTIR)
- CL99 - Error code (eTIR)

> ℹ️   All code lists are described in the eTIR code lists document.

6.4.5. Conditions and rules

The following condition(s) of the eTIR conditions list are referred to in the field lists and should be considered in the message:

- **C006:** IF (MESSAGE.Message function, coded) = '6' OR '11' OR '44' OR '45'
  THEN EMPTY (ERROR)
  ELSE IF (MESSAGE.Message function, coded) = '10' OR '27'
  THEN NOT EMPTY (ERROR)

6.4.6. How the guarantee chain system should process the information received in the notification

Upon reception, the **E7 - Notify guarantee chain** message should be validated and any error found should be returned in the **E8 - Notification confirmation** message.

Depending on the event triggering the communication of the notification, the eTIR international system will fill the **Message function, coded** field of the **E7 - Notify guarantee chain** message to communicate on the nature of the change. Since the guarantee chain does not about know all the changed information related to this event, it should use the **I5 - Query guarantee** message to retrieve updated information about the TIR transport and its related guarantee.

6.4.7. Applicable error codes

As the eTIR international system may return error codes, the eTIR web services introduction document contains a dedicated section describing how and where to find those error codes in the response messages. Find below the list of error codes that may be returned as part of the **E8 - Notification confirmation** response message as well as the recommended actions to address them:

100 - Invalid message

Kindly check the message itself and its format as it is not recognized by the eTIR international system. Kindly contact the eTIR service desk to send the content of the message communicated, the timestamps and the steps to reproduce this issue in order to address it.

101 - Missing field

Kindly check the message parameters, in particular the parameters marked as mandatory in the message description section of this document, and make sure that all mandatory parameters are part of the message.

102 - Invalid domain for the value

Kindly check the coded parameter, its values and corresponding code lists. Make sure that each coded parameter is using one of the values of the corresponding code list.

105 - Field value length exceeded

Kindly check the parameter value lengths. Make sure that each parameter length does not exceed the max length as defined in the documentation in the Format column.

106 - Invalid pattern

Kindly check the pattern of the parameter value as it does not match the requirements set for this attribute in XML Schema Definition of the message.

107 - Invalid field

Kindly check the element specified as it may not follow the order defined in the XML Schema Definition of the message.

300 - Invalid Operation

Kindly check the message content as it triggered a technical error in the eTIR international system but this one could not identify the source of the issue.

304 - Customs office not found

Kindly check the format and value of the customs office ID in the message and make sure it matches the value received in previous messages. If it does, kindly check the existence of the customs office and its status using ITDB web service or ITDB web application.

400 - eTIR internal errors

Kindly contact eTIR support (see Support and contact) to send the content of the message communicated, the timestamps and the steps to reproduce this issue in order to address it.

> ℹ The full list of error codes can be found on the dedicated error code list web page.

6.4.8. Example

The example below shows the XML data of the **E8 - Notification confirmation** message sent to the eTIR international system endpoint URL, by the guarantee chain system, in response to the POST of the **E7 - Notify guarantee chain** message received from the eTIR international system. This response message (Function code **6 - Confirmation**) of the type **E8**, containing no error codes, describes a confirmation of the reception of the notification by the guarantee chain. Therefore, it should be considered that the notification has been duly received and recorded in the guarantee chain system.

> ℹ It is important to understand that the absence of error in the **E8 - Notification confirmation** response message is the key indicator that the guarantee chain system has effectively recorded the change.

E8 - Notification confirmation response message

```xml
<?xml version="1.0" encoding="UTF-8"?>
<soap:Envelope xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/">
    <soap:Header>
        (...)
        <Action>http://etir.org/v4.3/toGuaranteeChain/notifyGuaranteeChainResponse</Action>
        <MessageID>urn:uuid:234ef5f6-08e6-4296-a983-32fadf1c8330</MessageID>
        (...)
    </soap:Header>
    <soap:Body xmlns:wsu="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-utility-1.0.xsd"
            wsu:Id="id-a30a22f7-784c-45ca-b31f-ba1ac89bde21">
        <ns2:notificationConfirmation xmlns:ns2="http://etir.org/v4.3/toGuaranteeChain"
                                      xmlns:md="http://etir.org/v4.3/DocumentMetaData" xmlns:ns3=
"http://etir.org/v4.3/E8"
        >
            <ns3:DocumentMetadata>
                <md:ResponsibleAgencyCode>AJ</md:ResponsibleAgencyCode>
                <md:AgencyAssignedCustomizationCode>1</md:AgencyAssignedCustomizationCode>
                <md:AgencyAssignedCustomizationVersionCode>1</md:AgencyAssignedCustomizationVersionCode>
                <md:CommunicationMetaData>
                    <md:PreparationDateTime formatCode="208">20201122113346+0200</md:PreparationDateTime>
                    <md:Recipient>
                        <md:ID>senderID</md:ID>
                    </md:Recipient>
                    <md:Sender>
                        <md:ID>recipientID</md:ID>
                    </md:Sender>
                </md:CommunicationMetaData>
                <ns3:Response>
                    <ns3:Function>6</ns3:Function>
                    <ns3:FunctionalReferenceID>f0b9fd0c-ded1-4e84-9bae-46761c48dab4</ns3:FunctionalReferenceID>
                    <ns3:ID>ec8682bc-f3b2-48b9-a4de-f03c3fa8f9d9</ns3:ID>
                    <ns3:TypeCode>E8</ns3:TypeCode>
                </ns3:Response>
            </ns3:DocumentMetadata>
        </ns2:notificationConfirmation>
    </soap:Body>
</soap:Envelope>
```

⚠️ Some field original contents have been shortened (…) in this document for the sake of readability, in particular the whole **header/security** content that is described in the eTIR web services introduction document.

7. Fallback procedures

The eTIR international system features a technical fallback mechanism to ensure the best chances for all notifications to be communicated and acknowledged.

The eTIR international system uses a queuing system to retry sending notifications. The diagram below illustrates this fallback mechanism:
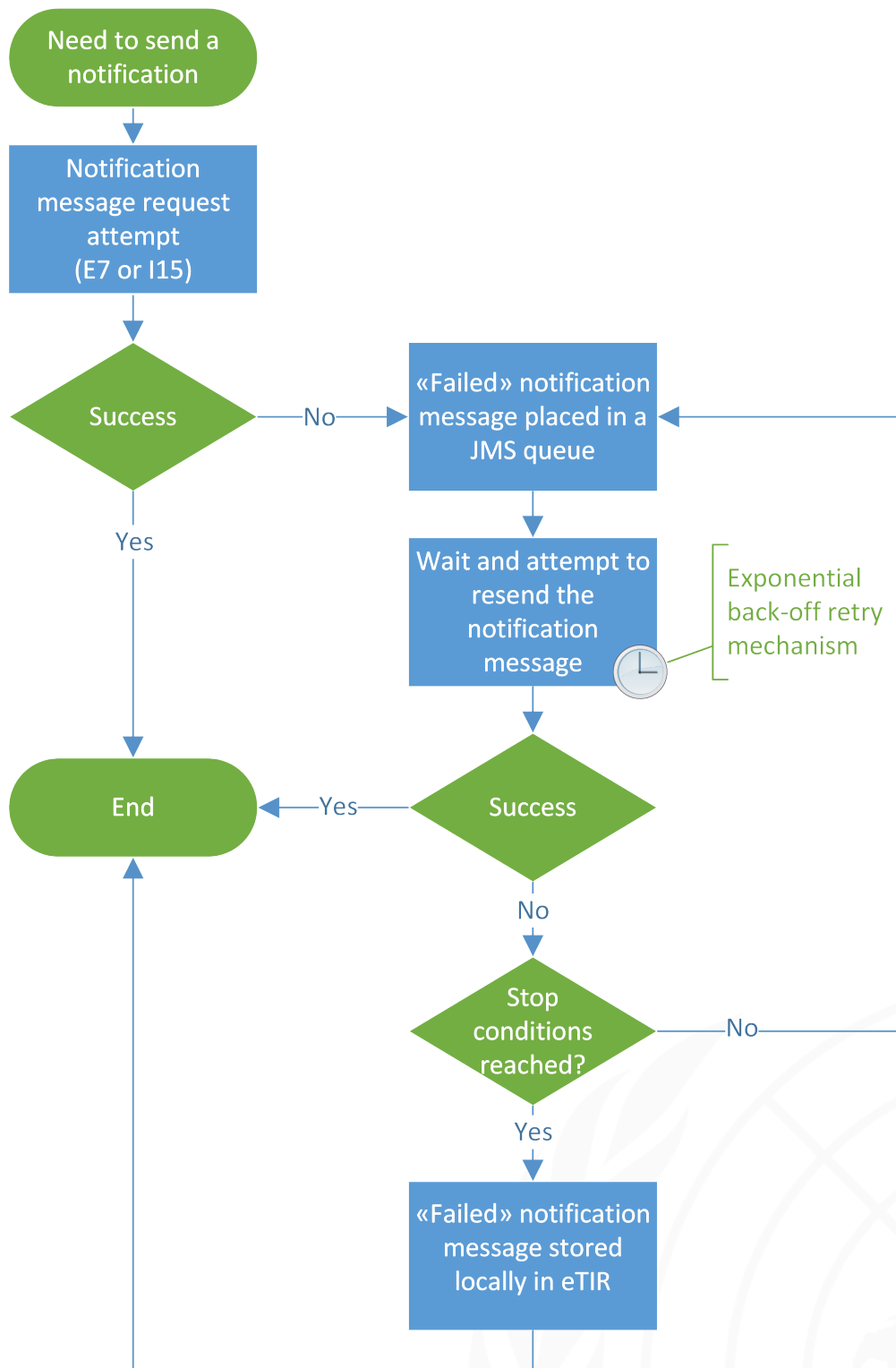

This mechanism relies on the **exponential back-off retry algorithm** allowing for progressively longer delays when retrying attempts in order to increase chances of success.

In the eTIR international system fallback mechanism case, the following parameters are used for the exponential back-off retry mechanism:

- **Delay interval:** 5
- **Maximum retry attempts:** 50
- **back-off rate:** 1.246

Based on these parameters, the chart below illustrates the extending rate of the retries:
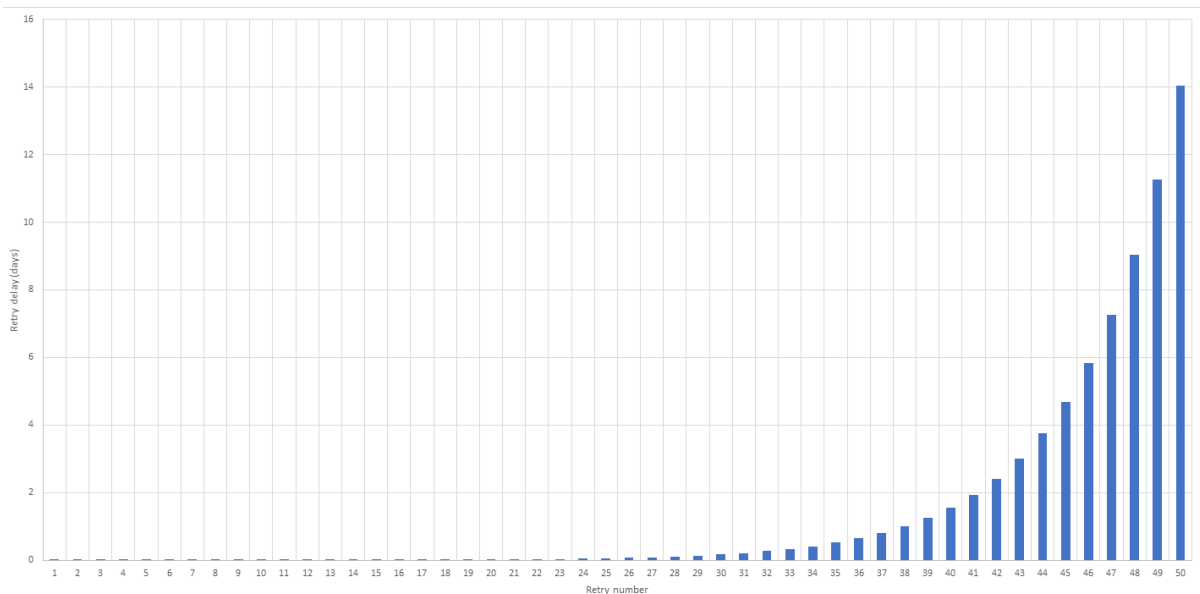
As described in the functional fallback procedures, the eTIR international system will retry sending the notification message **E7 - Notify guarantee chain** until it succeeds in communicating it to the guarantee chain system or if one of the stop conditions is met. One of these conditions is when 50 retries are reached, which corresponds to 15 days after having tried sending the notification the first time.

Also note that the functional fallback procedures can be found in the Approved amendments to the eTIR conceptual, functional and technical documentation.

8. Support and contact

Kindly note that in the context of the interconnections projects by guarantee chains, the eTIR service desk stands ready to assist their IT teams while interconnecting their information 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).

Organization   United Nations Economic Commission For Europe
TIR secretariat
Palais des Nations,
1211 Geneva 10, Switzerland

Contact   Email: etir@un.org
Phone: +41 (0)22 917 55 06

9. Version history

Date	Author	Version	Notes	eTIR specification version reference
24/06/2021	TIR secretariat	1.0	Initial draft	4.3a
06/09/2021	TIR secretariat	1.1	Added message metadata documentation and updated URLs to point to new eTIR documentation portal	4.3.0
17/11/2021	TIR secretariat	1.2	Updated references to the newly published online code lists document	4.3.0