

eLearning module

ICS2 End-To-End Testing for EOs

Course takeaways

Welcome to the “**ICS2 End-To-End Testing for EOs**” eLearning module.

This eLearning module will guide you through the EU's new advance cargo information system “**Import Control System 2 (ICS2)**”, that supports the implementation of the EU new customs **safety** and **security** regulatory regime aiming to better protect single market and EU citizens. It provides an overall overview of **End-To-End Testing for economic operators**.

This is a quick and handy summary of the most relevant course information:

1 Did You Know

The EU's new advance cargo information system "**Import Control System 2 (ICS2)**" ensures the security of European citizens and of the single market by supporting **adequate risk-based customs controls**. It also facilitates the free flow of legitimate trade across the EU Member States. The advance cargo information and the risk analysis provided by the ICS2 process on the goods enable early identification of threats and help customs to intervene at the most appropriate place in the supply chain.

The End-to-End (E2E) testing campaign is designed to execute the ICS2 business workflow in a way that is as close as possible to **real business operations**. The purpose is to ensure that the IT system of the economic operators are functioning properly, and, in particular, to **identify system dependencies** and to ensure that the right information is passed between the various system components.

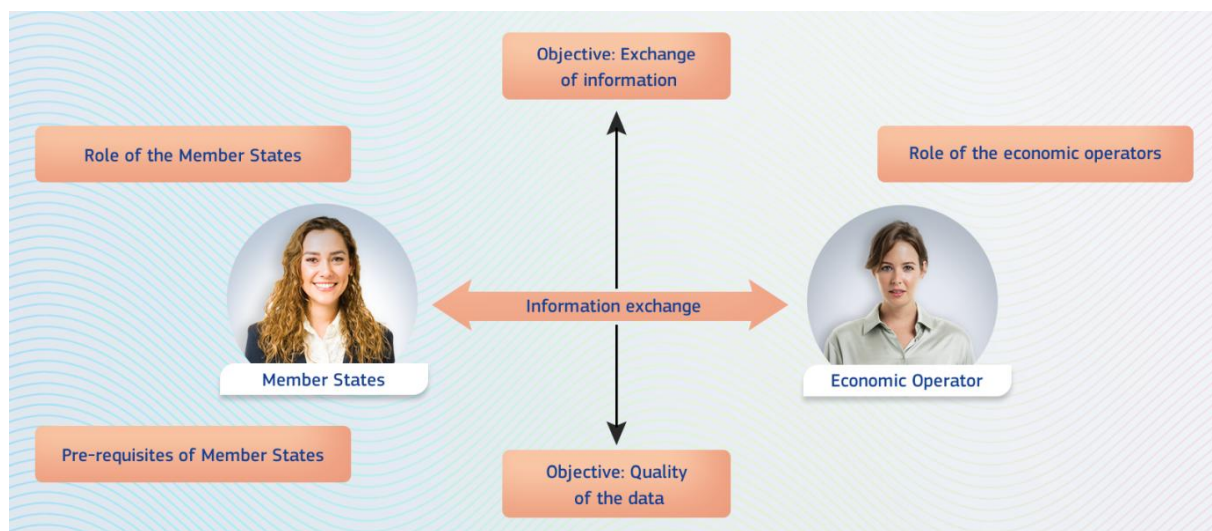
Each Member State can choose whether to execute the E2E testing campaign or not. However, doing so is **strongly recommended**, as this will add confidence and assurance to the Member States and economic operators before going live on 1st March 2023.

2 Organisation of the E2E Testing Campaign

2.1 Objectives and Pre-Requisites of the E2E Testing Campaign

The E2E testing campaign aims to **verify the connectivity and functionality of the integration of multiple IT systems**: the system of the economic operator, the National Entry System of the Member State, and the ICS2 central components. This, in turn, is to ensure that a minimum of business processes is executed as per agreement.

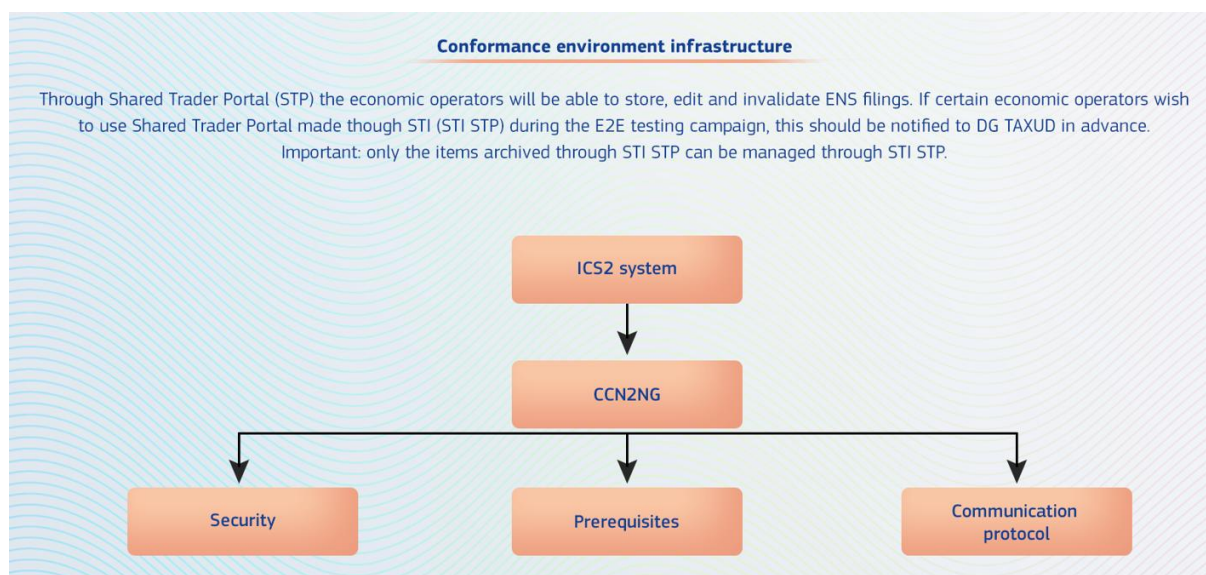
The main players in the information exchange are the **Member States** and the **economic operators**. Their objectives are to establish the connection and to ensure the quality of the data exchange. Each Member State should also meet some pre-requisites to participate in the E2E testing campaign.



2.2 Infrastructures and Dependent Systems

By “conformance environment” infrastructure, we mean the set of interconnected IT systems that must correctly communicate with the users and with each other in order for the E2E testing campaign to be successful.

The stakeholders who are involved in the E2E testing campaign should take into consideration the elements of this infrastructure.



2.3 Planning and Milestones

The conformance environment allows the **conformance testing (CT)** and the **E2E testing campaign** to be executed simultaneously and with multiple parties at the same time.

TAXUD Unit A3 will follow the Member States’ and economic operators’ planning for conformance testing and will allow the execution of the **E2E testing campaign starting from the moment the conformance testing is successfully completed**, before the launch of ICS2 Release 2 into production.

Since the E2E testing campaign is optional, when a **Member State** is interested in performing it, first of all it **must coordinate** with one or more economic operators in the country and with potential other Member States in the role of Involved Member State or Other Member State.

To plan the conformance testing, the DG TAXUD ICS2 E2E Manager organizes several **conference calls** with the involved parties, specifically: E2E kick-off meeting, the E2E closure meeting, and conferences requested by TAXUD Unit A3, Member States, and economic operators. The **trigger event** for the E2E testing campaign is an e-mail that is sent by the Member States’ National Project Team (NPT) to the DG TAXUD.

Meetings minutes are produced, and they are sent for review by e-mail to economic operators, Member States, and TAXUD Unit A3 within three working days after each meeting.

The participants should provide their comments in one working day. If the DG TAXUD ICS2 E2E Manager doesn't receive any comments, the original version of the report becomes accepted.

During the E2E testing campaign, **good communication** and **synchronization** between parties are essential.

The economic operator Single Point of Contact (SPOC) is responsible for sending the requests for the E2E testing campaign to the National ICS2 Project Team, that in turn informs TAXUD Unit A3 about the E2E testing campaign requests.

The communication between **Member State** and **ITSM3** TES will take place through the standard communication channels.

3 Creating the ENS Filings

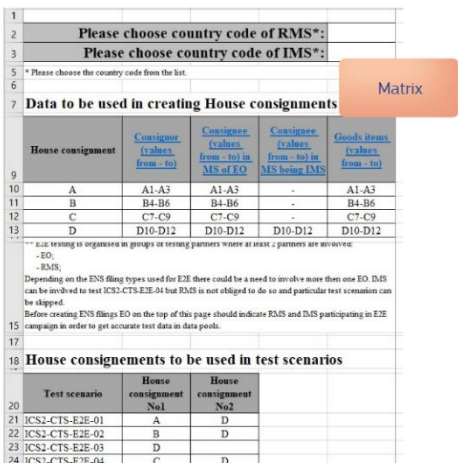
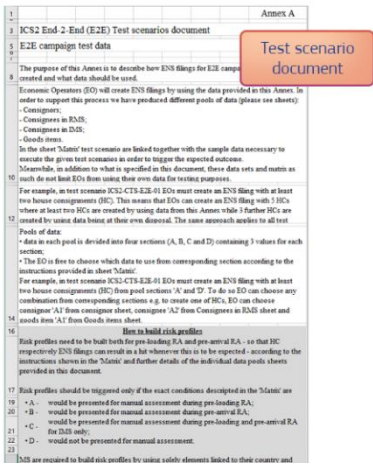
3.1 E2E Test Data

To support the E2E testing campaign, the Directorate General to Taxation and Customs Union (DG TAXUD) created data sets with the details of the House Consignments that should be used in the creation of ENS filings. The data sets give Risk Analysts clear instructions about risk profiles.

The Member State and economic operator are in charge of building and complementing the risk profiles.

3.2 How to Build Risk Profiles

We will now see how risks profiles are crated. The relevant instructions are provided by the ICS2 End-2-End Test scenarios document.



Test scenario document

Risk profiles need to be built both for pre-loading risk analysis and pre-arrival risk analysis. The instructions for building risk profiles are shared with economic operators through an Excel file (**ICS2 End-2-End (E2E) Test scenarios document – Annex A**) that contains the **data** that should be used as well as **guidelines** on the way they should be combined (“Matrix”). The ENS filings thus created can result in a hit whenever this is to be expected.

In the previous slide, we talked about the individual data pool sheets that provide the data that should be fed to the system. Let’s now examine the “Matrix” sheet.

Matrix

Risk profiles should be triggered only if the exact conditions described in the “**Matrix**” sheet are met. The Matrix contains **four sections**. The risk profiles should be built using house consignments based on the appropriate data pool section:

- Section A would be presented for manual assessment during pre-loading RA;
- Section B would be presented for manual assessment during pre-arrival RA;
- Section C would be presented for manual assessment during pre-loading and pre-arrival RA only for IMS;
- Section D would not be presented for manual assessment.

Member States are required to build risk profiles by using solely elements linked to their country and never to their testing partner (i.e., consignees of the testing partner should not be taken into consideration). This is to avoid the duplication of hits when an IMS is involved, and to reduce the error margin.

3.3 How to Create the ENS Filings

The purpose of the ICS2 End-2-End (E2E) Test scenarios document – Annex A is to describe how the ENS filings should be created. The economic operator can use this data sets to build different scenarios.

The economic operators

The economic operators will create the **ENS filings** using **data from Annex A**. Annex A itself explains which data elements should be used with different **house consignment types**.

Test scenario	House consignment No1	House consignment No2
ICS2-CTS-E2E-01	A	D
ICS2-CTS-E2E-02	B	D
ICS2-CTS-E2E-03	D	
ICS2-CTS-E2E-04	C	D

House consignment
9
10 A
11 B
12 C
13 D

The “Matrix” sheet, in particular, the table at the bottom (“House consignments to be used in test scenarios”) shows which house consignment or house consignments should be used in each scenario; the table at the top (“Data to be used in creating house consignments”) shows which values from the “Consignors”, “Consignees in RMS”, “Consignees in IMS”, “Goods items” sheets should be used in each house consignment.

Data pools

The data pools are organized into **different sections** containing three values for each section. The sections are listed in the “Matrix” sheet of the Excel file; the **three values** that are available in each section are listed in the “Consignors”, “Consignees in RMS”, “Consignees in IMS”, “Goods items” sheets. The economic operator is free to choose which data to use from the corresponding section.

Depending on the ENS filing types used for the E2E testing campaign, it may be necessary to involve more than one economic operator.

Data to be used in creating House consignments				
House consignment	Consignor (values from - to)	Consignee (values from - to) in MS of EO	Consignee (values from - to) in MS being IMS	Goods items (values from - to)
A	A1-A3	A1-A3	-	A1-A3
B	B4-B6	B4-B6	-	B4-B6
C	C7-C9	C7-C9	-	C7-C9
D	D10-D12	D10-D12	D10-D12	D10-D12

*** E2E testing is organised in groups of testing partners where at least 2 partners are involved:
 - EO;
 - RMS;
 Depending on the ENS filing types used for E2E there could be a need to involve more than one EO. RMS can be involved to test ICS2-CTS-E2E-04 but RMS is not obliged to do so and particular test scenarios can be skipped.
 Before creating ENS filings EO on the top of this page should indicate RMS and IMS participating in E2E

4 Execution of Test Scenarios

4.1 E2E Lifecycle

The E2E testing campaign is composed of multiple parts: before executing the test, it should be planned and designed. After the execution of the test, a report is created that provides the consolidation and the analysis of the results.

The E2E testing campaign cannot start before the end of ICS2 conformance testing. The testing will be coordinated by Taxation and Customs Union (TAXUD) Unit A3 and the Directorate General to Taxation and Customs Union (DG TAXUD) ICS2 E2E Manager. Outside the E2E testing campaign in a conformance environment no further testing campaigns are offered to Member States and economic operators.

4.2 Incident Management

The test is considered as **“failed”** when the output of the executed scenario differs from the expected one.

The economic operator should **investigate the reason** for the failure and, if the issue is on their side (e.g., incorrect configuration), actions should be taken to resolve the issue.

If the issue cannot be solved on the **economic operator’s** side, the **National Service Desk** should be involved.

If the issue still cannot be solved, the National Service Desk should inform the **ITSM contractor** for troubleshooting by providing the relevant material that will be needed.

An expert analysis must be performed by ITSM on the failure to establish a diagnosis.

In the scenario of the **Member State** being involved, the Member States’ tester establishes a problem statement and submits it to the National Project Manager. The proper procedure shall then be initiated at the national level and/or at the central level, depending on the diagnosis.

In case an unexpected central application error is encountered, this will also be assigned a severity rating upon its registration by the Member State in Synergia Employee Self Service.

4.3 Acceptance Criteria

To consider the E2E testing campaign completed, the Member States' and economic operators' systems should consider some criteria and scenarios successfully done and errors fixed or scheduled.

The criteria for the Member States' and economic operators' systems to successfully pass the E2E testing campaign are:

E2E test scenarios completed

All mandatory defined and agreed **E2E test scenarios have been completed** within the group of testing parties:

- **Notifications towards the economic operators** were successfully received by the economic operators;
- **Notifications towards the Member States** were successfully received by the National Entry System;
- **National ICS2 system components** (e.g., risk engine, presentation system) were involved in the E2E testing campaign;
- **Message exchange** between economic operators, Shared Trader Interface, Common Repository, and National Entry System occurred without errors;
- Any **errors** were handled properly.

Errors fixed

The blocking/critical and major errors found in the E2E testing campaign have been **fixed** and the relevant functionalities have been retested to a successful outcome. Retesting can be done in the conformance testing environment after the National Project Manager issues a service request. The Member States should log the errors that are categorized as minor and correct them before the launch/production date. After this, the DG TAXUD can accept the outcome. The E2E testing campaign can be considered successful under these conditions.

Errors not fixed

Either a **workaround** has been accepted or DG TAXUD has agreed to continue while the errors remain unresolved, but subject to a **schedule for resolution**. Errors categorized as minor should be recorded and assuming a workaround can be placed, a different schedule for resolution would be planned and agreed upon with less priority if deemed necessary. The minor errors will be part of the final E2E test report. A plan has been proposed for fixing potential remaining open issues concerning major or blocking/critical errors. This plan should be communicated to and acknowledged by the TAXUD Unit A3.

4.4 Risks and Mitigation Planning

While the execution of the campaigns themselves are on a voluntary basis, there are risks associated to them, both time- and implementation-wise.

During the execution of the E2E testing campaign, potential **risks** related to the planning, the testing environment or the specifications **can be identified**, in order for it to become possible to resolve them in due time. **Mitigation actions** can also be taken to reduce risks during the E2E testing campaign.

5 Test Scenarios

5.1 Overview

In order for you have the guidance you need, the E2E testing campaign relies on the so-called **test scenarios**.

5.2 The Four Scenarios

The “ICS2-CTS-E2E-01 **Risk identified by RMS in pre-loading RA, RfS**” scenario aims to verify that Member State and economic operator can execute the basic ICS2 business flow where, in the context of a pre-loading risk analysis, a hit is raised and, therefore, the Responsible Member State has issued referral request and a Do Not Load.

The “ICS2-CTS-E2E-02 **Risk identified by RMS in pre-arrival RA, Tfl**” aims to verify that Member State and economic operator can execute the basic ICS2 business flow where, in the context of a pre-arrival risk analysis, the Responsible Member State has issued a referral request and control recommendations.

The “ICS2-CTS-E2E-03 **Amendment and invalidation of ENS filing**” aims to verify that economic operator can amend and invalidate ENS filing.

The “ICS2-CTS-E2E-04 **Risk identified by IMS during RA, RfS, and Rfl**” verifies that Responsible Member State, Involved Member State, and economic operator can execute basic ICS2 business flow where in the contexts of a pre-loading and pre-arrival risk analysis the Involved Member State has issued a referral request and control recommendations.

Remember, this is a quick and handy summary of the most relevant course information. Only the European Union legislation published in the Official Journal of the European Union is deemed authentic. The Commission accepts no responsibility or liability whatsoever with regard to the training.

