



eManifest Pilot Project

Final report

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Document History

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List of Abbreviations

COM:	European Commission
EU:	European Union
EMSW:	European Maritime Single Window
FAL forms:	Standardised forms defined by the (IMO) Convention on Facilitation of International Maritime Traffic
MS:	Member State of the EU and, for the purposes of this document, of the EFTA
MSW	Maritime Single Window

NSW: National Single Window
SSN: SafeSeaNet
HLSG: High Level Steering Group for the Governance of the Digital Maritime System and Services
UCC: Union Customs Code – Reg. 953/2013/UE

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1. Background

The Reporting Formalities Directive 2010/65/EU (RFD) aims at simplifying the administrative procedures applied to maritime transport by making the electronic transmission of information standard and by rationalising reporting formalities. It requires Member States to establish National Single Window services (NSW) for receiving the ship port call notifications. The information provided should be submitted electronically and only once. The RFD covers reporting formalities which concern a number of different authorities and includes customs related information. One of the reporting formalities included in the RFD is FAL Form 2 (Cargo Declaration). Member States generally do not require the submission of FAL Form 2, but accept a “cargo manifest” instead, which includes the data elements from FAL 2 and other national cargo data requirements.

To-date however there is no harmonised cargo manifest that is used EU-wide and Member States determine the content of the cargo manifest, how and when it is submitted.

On 8 July 2013 the Commission issued the Communication on Blue Belt (Blue Belt, a Single Transport Area for Shipping, COM(2013) 510 final) in response to the requirements of the Single Market Act II - Together for new growth, published in October 2012. This Communication indicated that a harmonised and electronic cargo manifest with information on the customs status of goods was considered a practical solution amongst others to work towards the further establishment of a "true Single Market for maritime transport by no longer subjecting EU goods transported between EU seaports to administrative and customs formalities that apply to goods arriving from third country ports".

On 9 October 2013, the Union Customs Code (UCC) was adopted, including amongst others the 'customs goods manifest'. This is a new means at the disposal of carriers to prove the Union status of the goods carried on board. This measure applies as of the 1st of May 2016 for authorised issuers; non-authorised issuers will need to have their 'customs goods manifest' endorsed by customs through its submission to a new central 'Proof of Union Status System', expected to be fully functional as of Q1 2024. One of the limits of the 'customs goods manifest' is however that its content is limited only to data on goods with EU status and transported by sea between two European ports, whereas data on goods traded with third countries remain out of the scope.

In order to respond to the call from Member States and industry to make further progresses on the harmonisation of cargo manifests, DG MOVE and DG TAXUD agreed to launch, with the assistance of EMSA, a pilot project focused on the cargo reporting issues. It aimed at demonstrating that a comprehensive electronic cargo e-Manifest, encompassing all cargo information required for maritime and/or customs purposes can be reported together with the other reporting information required by the RFD, in a harmonised manner in a Maritime Single Window (MSW - either a National Single Window or a future European Maritime Single Window environment).

2. Objectives of the pilot project

The overall objective of this pilot project was to test procedures that would simplify the submission of information required by different authorities for cargo formalities with the aim to facilitate and reduce the administrative burden for ship data providers. Through this pilot project, a harmonised eManifest which encompasses data required in a number of cargo related formalities required by maritime and customs authorities was developed and tested. The project also aimed at assessing whether the exchange of the eManifest data via SafeSeaNet could minimise reporting obligations for ships trading between EU ports and how ship and cargo tracking could be carried out.

Considering the limited budget and time available, the project was not intended to elaborate a proper legal framework nor to present a specific solution to be implemented by all EU Member States. As a tool for the implementation of this pilot project, EMSA developed the European Maritime Single Window prototype to test how the eManifest data could be reported along with other reporting formalities covered by the RFD in a harmonised manner, submitted to the relevant authorities and exchanged among Member States.

The main activities of the pilot project were the following:

2.1 Develop a comprehensive eManifest data set

- a. Agree on a harmonised eManifest data set which submission fulfils a number of cargo related reporting obligations during port calls, with the final objective of creating a maximum data set to cover all the functionalities and information required by EU and national legislation.
- b. Minimise reporting by the shipping industry and the risk of errors by providing the possibility to apply the reporting once principle. The shipping industry was able to submit a comprehensive eManifest comprised of data required by the maritime and customs authorities for the formalities covered by the scope of the project.
- c. Develop the EMSW prototype to allow for the submission of the 'eManifest formalities' together with the other reporting formalities through a web user interface and a system-to-system interface and the distribution of the relevant data to the competent national authorities.

2.2 Test the exchange of eManifest via SafeSeaNet

- d. Enhance SafeSeaNet to allow that Member State authorities exchange cargo information from the eManifest.
- e. Assess whether the exchange of information via SafeSeaNet can minimise the reporting obligations for ships trading between EU ports.
- f. Evaluate the possibility of reducing the reporting obligations for ships which trade between EU and non-EU ports by exchanging information on cargo loaded in previous EU ports with a EU customs status.
- g. Assess how to combine reporting formalities data with ship tracking information from SafeSeaNet and to portray them on a graphical interface.

3. Activities performed

3.1 Stakeholders involved

The project was led by the Commission's DG MOVE (Unit D.1) and DG TAXUD (Unit B.1), with the support of EMSA (Unit C.2).

All Member States were invited to participate through an invitation sent on 16 December 2015 to the maritime and the customs administrations. Invitation letters were sent to the Industry associations as well on 17 December 2015. The following stakeholders volunteered to participate to the pilot project:

- Member States: Belgium, Bulgaria, Denmark, Estonia, Spain, Finland, Croatia, Italy, Latvia, Malta, Poland, Romania, Slovenia, United Kingdom, Portugal (joined in June 2018), and
- Industry associations: ECASBA, ECSA, ESPO, INTERMANAGER, IPCSA.

The following companies were invited by the Industry associations to participate to operational testing of the eManifest using the EMSW prototype: BSMD, Unifeeder, Grupo Suardiaz, Furetank, Neptune Lines, Melissa Cement Transport Shipping and Portel.

The World Customs Organisation (WCO), ISO, and UN/CEFACT were involved for issues related to the message standards. For details on the actions taken, see section 2.2 of the Open Issues document provided in Appendix C.

3.2 Project approach

The project was executed in phases with each phase addressing specific agreed issues. The purpose was to progressively elaborate the eManifest solution.

The data model of the eManifest and the specifications of the EMSW prototype were the first issues defined. On that basis, the prototype was developed and made available to testers from the MS authorities' and Industry's participants. The results of the tests, including recommendations for the next phase, were then presented to the project's stakeholders.

The following limitations were considered:

- The EMSW prototype was not linked to national systems. Authorities used the EMSW prototype's user interface to view the information reported by the data providers and record their decisions and feedback. In particular, the EMSW prototype was not linked to national customs systems.
- National specific formalities were not included. It was not expected that there would be national data requirements for customs purposes because customs formalities and the maximum data sets are defined in the UCC. It was considered that national-specific information required by authorities other than customs should be discussed within the Single Window sub-group of the High-Level Steering Group for the Governance of the Digital Maritime System and Services (HLSG).

3.3 Project phase 1

The first phase aimed at elaborating an eManifest covering information required by formalities required at arrival. During that first phase, the information flow related to the submission of information in the MSW and receipt of information from the authorities was defined. All the information was reported in a single message to the MSW by a unique data provider.

The table below provides a record of phase 1 milestones:

Milestone	Deliverable	Date
Definition of phase's scope and solutions to open issues	Open Issues v1.1	27 June 2016
Definition of data model	Data Mapping	9 September 2016
Definition of EMSW Prototype's requirements	System Requirements Specifications v1.1	27 June 2016
EMSW prototype available for Beta tests	EMSW Prototype v2.1, Test guide	16 November 2016
End of Beta Testing	Test results	16 December 2016
Evaluation – conclusions and recommendations	Test report	9 February 2017

3.4 Project phase 2

The second phase aimed at further developing the eManifest to include formalities required at departure and the Entry Summary Declaration (ENS). The ENS was kept at the "master" level only.

Phase 2 addressed the submission of cargo data by different data providers. In order to address the confidentiality and liability issues, the project considered that the initial ship data provider organisation would identify cargo data provider organisations which would be allowed to complement the notification with information on additional cargo consignments.

Updating maritime formalities was made possible. In addition, data providers of the same organisation were given the possibility of re-using data from maritime formalities between ports. But updating and re-using customs formalities were not supported. The data provider could not submit a customs formality before all the corresponding data elements would be completed correctly.

The table below provides a record of phase 2 milestones:

Milestone	Deliverable	Date
Definition of phase's scope and solutions to open issues	Open Issues v2.1	13 February 2017
Definition of data model	Data Mapping	12 January 2017
Definition of EMSW Prototype's requirements	System Requirements Specifications v2.1	24 March 2017
EMSW prototype available for operational tests	EMSW Prototype v2.4, Test guides	9 June 2017
End of operational tests	Test results	28 July 2017
Evaluation – conclusions and recommendations	Test report	13 September 2017

3.5 Project phase 3

The third phase aimed at addressing the update of formalities, including customs formalities.

Phase 2 tests had demonstrated that data providers did not have all data at once, which implied that cargo formalities were generally sent to the authorities in a sequence of messages. This also applies to maritime formalities where for instance the pre-arrival notification for ships eligible to expanded inspections would be sent 3 days before the arrival, or where booking of port terminals would be done even earlier. In order to address the issue, a new approach was considered where formalities forming part of the eManifest as well as maritime formalities were reported in the form of "data submissions" which may be sent distinctly or combined.

The principle of reporting of information by data submissions allowed applying processes as inscribed in the UCC. This addressed the issue of amendments and invalidations of customs formalities. The approach also addressed the submission of customs and maritime formalities by different data providers. In order to address the confidentiality and liability issues, the initial ship data provider organisation could identify additional data provider organisations which were allowed to submit distinct data submissions to the MSW.

The customs feedback was further developed to include a status ("accepted" or "not accepted"), which indicates whether the customs formality is accepted by the customs authority, an MRN number defined by the customs authority where relevant, and a textual comment from the customs authority. Customs feedback and clearance decisions could be recorded for each individual data submission. On the decision of the project's stakeholders, formalities related to dangerous and polluting goods and cargo formalities were treated through distinct data submissions.

The following table provides a record of phase 3 milestones:

Milestone	Deliverable	Date
Definition of phase's scope and solutions to open issues	Open Issues v3.0	30 August 2017
Definition of data model	Data Mapping	5 September 2017
Definition of EMSW Prototype's requirements specifications	System Requirements Specifications v3.0	30 June 2018
EMSW prototype available for operational tests	EMSW Prototype v2.8 Test guides	15 May 2018
End of operational tests	Test results	29 June 2018
Evaluation – conclusions and recommendations	Test report	3 July 2018

3.6 Meetings

A dedicated experts sub-group of the HLSG (the “eManifest” HLSG sub-group) was set up in order to contribute to the definition of the eManifest, including the definition of a harmonised data set for data reported and for authorities' decisions and feedbacks, message standards for data transmission and data flows between actors. The sub-group also coordinated the test of the eManifest with the EMSW prototype and reviewed the results.

The following meetings were held with the project's stakeholders:

Meeting with Industry stakeholders	29 January 2016
Meeting with MS	11 March 2016
Meeting with WCO, UN/CEFACT and ISO	19 May 2016
Meeting with MS and Industry stakeholders	7 June 2016
eManifest HLSG sub-group meeting 1	25 October 2016
eManifest HLSG sub-group meeting 2	9 February 2017
eManifest HLSG sub-group meeting 3	24 April 2017
eManifest HLSG sub-group meeting 4	13 September 2017
eManifest HLSG sub-group meeting 5	18 January 2018
eManifest HLSG sub-group meeting 6	3 July 2018

4. Results

The project resulted in:

- The description of the eManifest, consisting of a harmonised data set and message structures covering information required by customs and maritime authorities at the arrival and departure of the ship and information communicated back to the data providers by the authorities, and
- The definition of the corresponding rules and principles to be applied when implementing the eManifest in a MSW.

The project also resulted in a EMSW Prototype which was used to demonstrate how such dataset, messages, rules and principles could be implemented.

The following deliverables were produced:

4.1 Business rules

This document defined the business rules for the submission of the eManifest information and provision of the customs feedback through the MSW.

The Business Rules document is provided in Appendix A.

4.2 Principles

This document laid down the principles applied when implementing the eManifest in a MSW for receiving the information from data providers, distributing it to the relevant authorities, gathering decisions and feedbacks from the authorities and communicating such decisions and feedback back to the data providers.

One of the key principles is that all messages related to the same ship arrival or departure are associated to a unique identifier, the “Call ID”. The Call ID is unique for each ship arrival or departure and is provided by the MSW when receiving the first message from the data provider.

The Principles document is provided in Appendix B.

4.3 Definition of the dataset

The project resulted in the definition of a harmonised maximum dataset encompassing the following maritime and customs formalities:

Formality	Code in UCC DA Annex B	Context
Notification for ships arriving in and departing from ports of the Member States (Article 4 of Directive 2002/59/EC establishing a Community vessel traffic monitoring and information system)		Arrival
Border checks on persons (Article 7 of Regulation (EC) No 562/2006 - Schengen Borders Code)		Arrival and Departure
Notification of dangerous or polluting goods carried on board (Article 13 of Directive 2002/59/EC establishing a Community vessel traffic monitoring and information system)		Arrival and Departure
Notification of waste and residues (Article 6 of Directive 2000/59/EC on port reception facilities for ship-generated waste and cargo residues)		Arrival

Notification of security information (Article 6 of Regulation (EC) No 725/2004 on enhancing ship and port facility security)		Arrival
FAL form 1: General Declaration		Arrival and Departure
FAL form 2: Cargo Declaration		Arrival and Departure
FAL form 3: Ship's Stores Declaration		Arrival and Departure
FAL form 4: Crew's Effects Declaration		Arrival
FAL form 5: Crew List		Arrival and Departure
FAL form 6: Passenger List		Arrival and Departure
FAL form 7: Dangerous Goods		Arrival and Departure
Maritime Declaration of Health		Arrival
Actual arrival notification (article 24 of directive 2009/16/EC)		Arrival
Actual departure notification (article 24 of directive 2009/16/EC)		Departure
72h pre-arrival notification for ships eligible to expanded inspections (article 9 of directive 2009/16/EC on Port State Control)		Arrival
Temporary Storage Declaration (Articles 5(17) and 145 of the UCC)	G4	Arrival
Presentation Notification (Articles 5(23) and 139 of the UCC)	G3	Arrival
Customs Goods Manifest (Articles 5(23), 153(2) and 155 of the UCC): Arrival: data set for authorized users. Departure: for non-authorized users, to be submitted to PoUS.	E2	Arrival and Departure
Proof of the customs status of Union goods (T2L/T2LF): MRN obtained from the Proof of Union System (for authorised and non-authorized users) (Articles 5(23) and 153(2) and 155 of the Code)		Arrival
Electronic Transport Document used as transit declaration (Articles 5(12), 162, 210 and 233(4)(e) of the UCC)	D3	Arrival and Departure
Notification of Arrival (for Customs) (Article 133 of the UCC)	G2	Arrival
Entry Summary Declaration (Article 5(9) and 127 of the UCC) — Sea and inland waterways — Complete dataset	F1a	Arrival
Exit Summary Declaration. (Articles 5(10) and 271 of the UCC)	A1	Departure
Re-Export Notification (Articles 5(14) and 274 of the UCC)	A3	Departure

The description of the data set is provided in the Data Mapping document in Appendix C. It provides the business definitions, technical specifications and business rules for all data elements forming part of the dataset, as well as their mapping with the maritime and customs formalities and with existing message standards.

4.4 System Interface Guide

Message structures were developed from the EMSW dataset to allow the submission of the eManifest data set using a unique and harmonised data model. Message structures were also developed for the communication of authorities' clearance decisions.

The message structures were developed using the ISO 28005 standards for Electronic Port Clearance. Adaptations to the ISO standard were made to accommodate the parts of the eManifest dataset which were not covered considering that the scope of the eManifest dataset is wider than the scope of the ISO standard, which is mainly based on FAL forms.

The messages' structures are described in the System Interface Guide and XSD files provided in Appendix E.

4.5 EMSW Prototype's System Requirements Specifications

This System Requirements Specifications document presents the requirements to be fulfilled by the EMSW Prototype. The document was used as a reference for the design and development of the Prototype.

The System Requirements Specifications document is provided in Appendix F.

4.6 The EMSW Prototype

The EMSW Prototype was used to test the eManifest and included all main features of an actual EMSW environment, such as:

- A reporting interface gateway used by ship data providers to fulfil their reporting obligation, share if needed notifications with other ship data providers, and view the corresponding decisions and feedbacks from the relevant authorities. The reporting interface could be used for calls at any European port.
- A reporting system-to-system interface, used by the ship data provider's ICT systems to submit the information from the reporting formalities and receive the decisions and feedbacks from the authorities.
- An authority gateway used by the authorities to receive the information submitted by the ship data providers and record their decisions and feedback. The area of responsibility of each individual authority could be configured in terms of the formalities relevant to the authorities and the port that it covers.
- A graphical user interface, where authorities' users could trace ships movements on a nautical chart. For that purpose, the EMSW prototype used ship position data from the SafeSeaNet Ecosystem.
- A common user registry, where all ship data providers' and authorities' users could be registered, and their access rights defined.
- A configuration console, where Member States could configure the authorities and economical operators (with the definition of ports and formalities covered by each) and configure the contents of reporting formalities (subset of the harmonised EMSW dataset).
- An interface with EMSA's central locations and ships databases, to get the latest ship particulars and UN/LOCODES lists from EMSA,
- An interface with SafeSeaNet to make available to other Member States the hazmat, security and waste details reported by the ship data providers as required by Directive 2010/65/EU.

The EMSW prototype was developed with state of the art technologies and could be hosted either on proprietary software (e.g. Oracle WebLogic and Oracle database) or on open-source software (e.g. Apache Tomcat and PostgreSQL).

Apart from supporting the definition of the eManifest concept, the EMSW prototype brought the following addition benefits:

- It provided an example of a user interface that could be applied to NSWs or to a future EMSW.
- It resulted in a preliminary version of a potential EMSW reporting interface module.

5. Remaining issues

Several issues were discussed during the project with the stakeholders' experts and addressed through phase 1 to phase 3. At the end of the project execution, the following issues remained open:

1. Re-use of data and exchange of data via SafeSeaNet

One of the objectives of the pilot project was to enhance SafeSeaNet to allow that Member State authorities exchange cargo information from the eManifest and assess whether the exchange of information via SafeSeaNet could minimise the reporting obligations for ships trading between EU ports. This objective could not be fulfilled because of lack of time and budget.

2. Message Standards and inclusion of EDIFACT:

The ISO 28005 standard was developed and tested, as explained in section 4.4. The definition of XML and EDIFACT message structures using the World Customs Organisation's Data Model was done during project phase 2, but such messages could not be developed and tested with the EMSW prototype. In addition, the message definitions would need to be updated to correspond to the final dataset developed under project phase 3. No mapping with EDIFACT messages defined by the UN/CEFACT was achieved. The results of the eManifest pilot project served as input to the revision of the FAL Compendium through the "IMO FAL Compendium Technical Maintenance" Focus Group composed of experts from UNECE, WCO, ISO, some IMO Member States and EMSA. The eManifest dataset, data model and mapping with message standards should be aligned with the revised Compendium once it is approved by the FAL Committee (expected in April 2019).

3. Notifications of arrival

As explained in the Business Rules document, the notification of arrival ("NA" - article 133 of the UCC) is merged in the eManifest data set with the actual arrival notification ("ATA" - article 24 of directive 2009/16/EC). Given that the ATA is provided in every port, it needs to be ensured that the submission is also flagged where it should serve as NA, in order to allow for the identification of the customs office of first entry. A separate assessment is to be made for the case where ATA is reported by an authority (e.g. harbour master). In this case, the ATA is considered as made available outside the reporting via the MSW, as not originated by the reporting party. The flagging would still need to be reported by the carrier or in an alternative way to be defined when technical specification will be set up.

4. Exit notification

As explained in the Business Rules document, given that the eManifest provides cargo information to customs with the reference to the particular departure (Call ID), the exit of the cargo can be confirmed by referring to the actual departure notification ("ATD" - article 24 of directive 2009/16/EC). The Exit Notification does not therefore need to be implemented as such in the eManifest according the framework of this work. In the context of future EMSWe this issue might be deeply analysed, and IT solutions will be explored consequently.

5. Interface with national systems

Building interfaces between the EMSW Prototype and national systems such as NSWs and customs systems was not in the scope of the project (as explained in section 3.2). Authorities could review the information reported and record their decisions and feedback via the user interface of the EMSW Prototype. It was found by the participating MS that interfacing the Prototype with national systems would have facilitated the operational tests and would have allowed investigating the issue, resulting in guidelines for interfacing NSW systems with custom systems (e.g. use of standard messages).

6. Follow-up process after data acknowledgment

The scope of the eManifest is limited to the reporting of data and reception of an acknowledgment from the relevant authorities. For a number of customs formalities, a follow-up process is part of the overall scope of the formalities and requires additional interaction with the data provider (e.g. control requests, communication of validation, control results). Accordingly, the necessary message structure for two-way communication would also need to be developed and an analysis of the business processes of each formality should be carried out.

7. Requested improvements or features of the EMSW Prototype

Additional features or improvements request for the EMSW Prototype have been received from the testers (authorities and ship operators) during the operational tests of phases 1 to 3. The requests are listed in the annex of the EMSW Prototype's System Requirements Specifications provided in Appendix F

Open issues 1 and 2 above and their possible solutions are explained in more details in the Open Issues document provided in Appendix C. The document also includes the descriptions of issues that were solved during the project.

6. Conclusions and follow-up

The eManifest pilot project brought together the maritime and customs experts who joined their expertise to define what an harmonised electronic cargo manifest should include in terms of data, what formalities could be fulfilled by the submission of the eManifest and how it can be submitted together with the other reporting information required by the RFD in a harmonised manner through a Maritime Single Window to maritime and customs authorities. The project could be considered as a success because it delivered some concrete and tangible results. Moreover, the project demonstrated that further work on the eManifest is needed to address the open issues listed in section 5.

The proposal for an EU Regulation establishing a EMSW environment foresees that customs and maritime formalities could be reported using a harmonised reporting interface as single entry point. Apart from the Entry Summary Declaration, the formalities listed in the annex of the Regulation proposal include the formalities covered by the eManifest pilot project. The results of the eManifest pilot project would therefore be a relevant basis for the implementation of the Regulation. Additional developments of the eManifest concept would be needed to address other provisions from the Regulation proposal, such as the retrieval of data elements from the Entry Summary Declarations previously lodged to the customs systems for re-use, and the exchange of data via SSN.

At the eManifest meeting of 3 July 2018, DG TAXUD and DG MOVE presented a common vision for an integrated approach on EU Single Window cross-border services. The purpose of the joint initiative is to bring simplicity and efficiency to cross-border operations, develop common international standards for data and technical exchange, reuse the existing building blocks (e.g. registration, authentication, etc.) across policy domains, and guarantee a coherent approach and interoperability between the domains of customs and transport. The principles for the EU SW integrated environment (EU Customs SW and Transport SW) include the following: (a) common data definitions and standards, (b) information is collected from businesses via harmonised access points, (c) information received by the SW is transferred to and processed by specialised systems, (d) the required content of the information is established by specialised expert groups, and (e) limit excessive and burdensome requirements through the use of maximum data sets.

The EU SW integrated environment concept shares the same principles with the eManifest pilot project. It is therefore natural that the results of the eManifest pilot project should be used as starting point for the elaboration of the future EMSWe data set and related business rules.