# European Maritime Single Window Prototype

## System Interface Guide

**Version 2.5.1**
**Date: 17/04/2018**
**Applicable to EMSW Prototype version 2.8**

# Document History

| Version | Date | Changes |
|---|---|---|
| 1.0 | 09/07/2014 | NSW Prototype version 1.0 |
| 1.2 | 04/12/2014 | NSW Prototype version 1.2 |
| 1.3 | 09/07/2015 | NSW Prototype version 1.3 |
| 1.3.1 | 18/09/2015 | Additional clarifications in chapter 4. Explanation of web services in chapter 5. |
| 2.1 | 18/10/2016 | EMSW Prototype version 2.1 |
| 2.2 | 31/01/2017 | EMSW Prototype version 2.2 – indication of URLs and editorial changes |
| 2.4 | 31/05/2017 | EMSW Prototype version 2.2 – minor changes in data elements definitions. Refer to Data Mapping spreadsheet file. |
| 2.5 | 28/03/2018 | EMSW Prototype version 2.8 – Revision for eManifest project phase 3. |
| 2.5.1 | 17/04/2018 | Additional clarifications |

# Table of Contents

# 1 Introduction

In 2015 the EU Commission launched the eManifest pilot project with the support of EMSA and in consultation with Member States and the shipping industry. The main objective is to demonstrate how cargo formalities required by both maritime and customs authorities can be submit together with other reporting formalities required by Directive 2010/65/EU in a harmonised manner and via a European Maritime Single Window (EMSW).

The EMSW prototype is the place where all information including the eManifest is reported and made available to various competent authorities in the different participating Member States. It covers the information flows between:

- The ship data providers (e.g. ship agent, master, shipping company),
- The relevant public authorities covering the port of call, and
- Other Member States via SafeSeaNet.

Ship Data Providers fulfil the reporting formalities through a harmonized user interface where information can be recorded manually of by uploading spreadsheet files. Data providers may also report the information from their own ICT systems using the EMSW prototype's system interface.

The information submitted is distributed to the relevant authorities depending on its contents and on the port of call. Decisions and feedback recorded by authorities are communicated back to the Ship Data Providers via both the user and the system interfaces.

In accordance with Directive 2010/65/EU, information submitted is made available to other Member States via SafeSeaNet.

The EMSW prototype offers a flexible approach whereby administrators from Member States can configure their own users (ship data providers and authorities) and the contents of reporting formalities.

The design of the prototype is based on business rules and system requirements developed by the Commission and EMSA in co-ordination with participating Member States and shipping industry representatives.

Further information and documentation, as well as this document, can be found on the project's webpage:

http://www.emsa.europa.eu/related-projects/emsw.html

# 2 Purpose of the document

This document describes the system-to-system interface of the European Maritime Single Window (EMSW) prototype with ship data providers' systems.

# 3 Use of ISO 28005 standards

The data structure and formats are based on the results of the work of the Single Window HLSG sub-group which was established by the European Commission to co-ordinate the implementation of Directive 2010/65/EU and of the eManifest pilot project group. Additional data elements have also been introduced to cater for formalities derived from national legislation.

The XML message structure is derived from the ISO 28005 standard for Electronic Port Clearance.

**IMPORTANT: In order to use the EMSW System Interface, developers need to have some knowledge of the ISO 28005 standards:**

- ISO 28005-1 - Electronic port clearance (EPC) -- Part 1: Message structures
- ISO 28005-2 - Electronic port clearance (EPC) -- Part 2: Core data elements

This document does not duplicate information available in the ISO standard, and has to be considered as complementary to the ISO standards.

For the purpose of the EMSW prototype, adaptations to ISO 28005 have been made. Some message elements defined in the standard are not included, additional message elements have been added, and some message elements have been amended.

# 4 General information sequence

The EMSW prototype is composed of two main modules:

- The Common Reporting Gateway (CRG) that provides a standardised reporting interface for ship data providers either through a graphical user interface, or a system-to-system interface,
- The Authority Information Exchange module (AIE) that distributes information reported by the ship data providers to the participating authorities. It also communicates the information to the Central SafeSeaNet system.

The EMSW prototype implements the general sequence of information between the ship data providers and the EMSW as defined in ISO 28005 – part 1 (request, update request, receipt, and acknowledgment messages) and depicted in the diagram below.

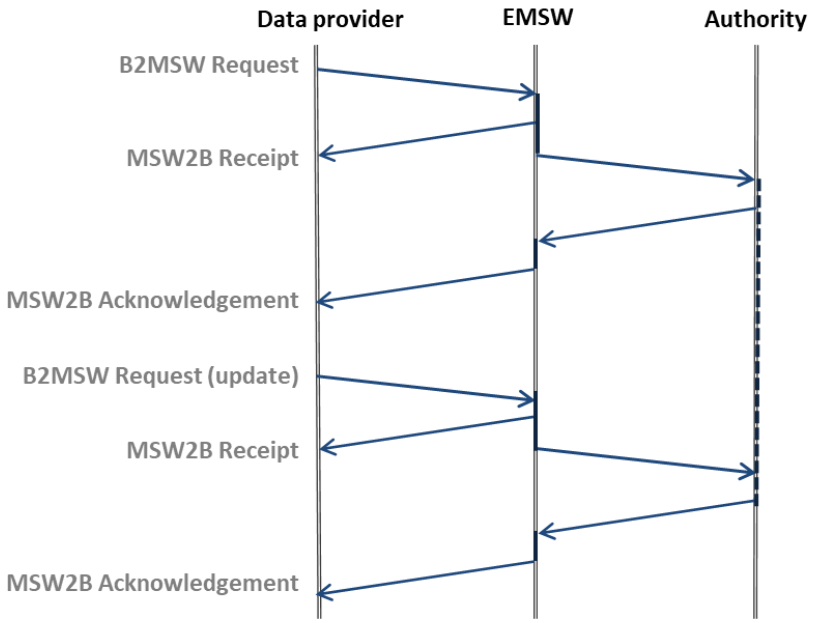


Fig.: Sequence of information with the Ship Data Providers and within the EMSW

# 5 General principles

## 5.1 Data submissions

1. Information is reported to the authorities in the form of (data) submissions. The term "submission" refers to a structured data set which corresponds to the information required by one, or several reporting formalities of the same nature.

   *Justification: As indicated in the Open Issues document to address the issues of timing and update of submissions.*

2. The following submission types may be reported to the EMSW:

   *Justification: The list of submission types corresponds to the scope of formalities for the eManifest project's phase 3. Some formalities are covered by the same submission type, such as "Dangerous and polluting goods" for the dangerous and polluting goods declaration and FAL Form 7, and "Persons list" for crew and passengers lists.*

| Submission type | Submission type code | Context | Category |
|---|---|---|---|
| Pre-arrival notification | NOA | Arrival | Ship |
| Actual arrival notification | ATA | Arrival | Ship |
| Pre-departure notification | NOD | Departure | Ship |
| Actual departure notification | ATD | Departure | Ship |
| Pre-arrival notification for ships subject to expanded inspection | EXP | Arrival | Ship |
| Security notification | SEC | Arrival | Ship |
| Waste notification | WAS | Arrival | Ship |
| Persons list | PAX | Arrival and Departure | Ship |
| Maritime declaration of health | MDH | Arrival | Ship |
| Crew's effects | EFF | arrival | Ship |
| Ship's stores | STO | Arrival and Departure | Ship |
| Waste delivery receipt | WAR | Departure | Ship |
| Bunkers on board | BKR | Arrival and Departure | Ship |
| Certificates | CRT | Arrival | Ship |
| Ship defects | DEF | Arrival and Departure | Ship |
| General cargo declaration | CGO | Arrival and Departure | Ship |
| Dangerous and polluting goods at arrival | HZA | Arrival | Ship |
| Dangerous and polluting goods at departure | HZD | Departure | Ship |
| Temporary Storage Declaration | TSD | Arrival | Customs |
| Presentation Notification | PRN | Arrival | Customs |
| Customs Goods Manifest at departure | CGM-D | Departure | Customs |
| Customs Goods Manifest at arrival | CGM-A | Arrival | Customs |
| Proof of the customs status of Union goods | PUS | Arrival | Customs |
| Electronic Transport Document used as transit declaration | TRD | Arrival and Departure | Customs |
| Entry Summary Declaration | ENS | Arrival | Customs |
| Exit Summary Declaration | EXS | Departure | Customs |
| Re-Export Notification | RE-EX | Departure | Customs |

3. Information is reported to the EMSW by a "reporting party". Each data submission includes:
   - the identification of the Reporting Party,
   - the identification of the Declarant,
   - the identification of the Representative if relevant, with the Representative status code.

   *Justification: Identification of the Declarant and of the Representative is included in the EU CDM. The approach is enlarged to maritime formalities.*

4. It is possible to report several submission types together in a unique combined submission if they are all reported by the same reporting party for:
   - The same ship, and
   - The same arrival or departure.

   For instance a unique combined submission may be used to report the pre-arrival, security, waste and persons list notification.

   *Justification: Combined submissions are meant to avoid that the same data has to be reported several times.*

5. For each submission, the reporting party may allocate a Local Reference Number (LRN). The LRN is necessary for customs-related submissions.

   *Justification: The LRN will be used to identify each submission for the purpose of linking to authorities' responses and of updating submissions.*

6. Each submission with cargo data may include one or several cargo consignments. Several cargo submissions may be reported for the same group of consignments. There can therefore be in one submission:
   - A unique cargo submission for a unique consignment
     *(e.g. an ENS lodged for a given consignment),*
   - Combined submissions for a unique consignment
     *(e.g. ENS and TSD lodged for a given consignment)*,
   - A unique cargo submission for several consignments
     *(e.g. PN lodged for all consignments unloaded in a given port of call), or*
   - Combined submissions for several consignments
     *(e.g. TSD and PN lodged for all consignments unloaded in a given port of call)*.

   *Justification: Having several consignments in one submission comes from the EU CDM datasets structures. Combination of submissions is introduced in principle 4 above.*

7. Each consignment in a submission is identified with a sequence number.

   *Justification: For the purpose of identifying individual consignments in case an authority would need to report a response for a specific consignment.*

## 5.2 B2MSW Request messages

8. Information is reported to the EMSW in B2MSW Request messages.

   *Justification: This is the same principle as in phase 2. Prefix "B2MSW" is used to clarify that the message is sent by "Business" to the "MSW".*

5. All submissions referring to the same ship arrival in a port or ship departure from a port form a Request to the EMSW. Each Request is given a RequestID by the EMSW. The RequestID is unique for each ship arrival or departure and is guaranteed by the EMSW.

   *Justification: as recommended by the NSW Guidelines.*

6. The RequestID is communicated in the receipt message sent by the EMSW at reception of the first B2MSW request message. Additional B2MSW request messages for that port arrival or departure must quote the same RequestID.

   *Justification: As required by ISO 28005. The RequestID is referred to as the "Journal Number" in ISO 28005.*

7. Each B2MSW Request message will include:
   - A main part with:
     - The identification of the reporting party,
     - The RequestID (only for update messages),
     - An Arrival/Departure marker,
     - The identification of the port of call (LOCODE),
     - The identification of the ship (IMO number),
   - The submission with:
     - the identification of the declarant,
     - the identification of the representative if relevant, with the representative status code,
     - The submission type or types (if combined),
     - The LRN,
     - The submission(s)'s data.

8. The content of a B2MSW request message which is not required by the country of the port of call will be ignored by the EMSW. The identification of the data elements required by a country is defined by each country individually.

## 5.3 Communication with Authorities

9. The authorities will receive the information reported in the form of a list of individual submissions. Authorities will report their responses per individual submission, even in the case of combined submissions.

   *Justification: As foreseen in the eManifest concept. The term response covers the ship clearance decisions as well as customs feedback.*

9. The EMSW will communicate the authorities' responses individually to the reporting parties and will not amalgamate them.

   *Justification: The EMSW should not interfere in business decisions on behalf of authorities.*

10. The authorities' responses will be communicated in the form of MSW2B acknowledgment messages. The MSW2B acknowledgment message will indicate the RequestID, the submission types, the LRN, and the consignment sequence number if relevant.

    *Justification: As in phase 2 and as foreseen in principle 11 above. Prefix "MSW2B" is added to clarify that the message is sent by the "MSW" to the "Business".*

11. MSW2B Acknowledgment messages use the following values of status codes: "Accepted", "Not accepted". Other values are not supported by the EMSW (e.g. "Discarded", "Accepted with conditions", "Missing tag").

12. Multiple copy-to parties are not supported. But in the case where several different users have contributed to the same request (initial message and updates), all will receive the MSW2B Acknowledgment messages. The MSW2B receipt message is only sent to the system/user which submitted the request message.

13. At this stage, only decisions related to ship submission are transmitted through the system interface. Decisions related to customs submissions are only available in the EMSW prototype's user interface.

## 5.4 Update of submissions

14. Submissions may be updated. This is done by reporting the same submission type again to the EMSW.
    - The standard approach is that a submission reported for the same RequestID and same type will replace the previous one.
    - In the case of customs formalities, a submission reported for the same RequestID, same type, and same LRN will replace the previous one.

    *Justification: To address the issue of update of formalities.*

15. Submissions may only be updated by the reporting party who reported the original submission.

    *Justification: Current eManifest phase 2 principle.*

16. When a submission is updated, all authorities' responses related to the submission are automatically cancelled by the EMSW. The corresponding statuses of all related responses are transmitted to the reporting party in the receipt message.

    *Justification: Current eManifest phase 2 principle. Indication of responses status in receipt is required by ISO 28005.*

17. Cancellation of a request is possible as long as submission ATA or ATD is not reported.

# 6 System interfaces and URLs

Two interfaces are available:

1. RESTful (XML over HTTP)
   https://emsw-pilot.emsa.europa.eu:444/crg-msgapp/message

2. Web Services (SOAP over HTTP)
   https://emsw-pilot.emsa.europa.eu:444/crg-msgapp/service

   The WSDL file is available at
   https://emsw-pilot.emsa.europa.eu:444/crg-msgapp/service/epc.wsdl

Electronic certificates are necessary to access the interfaces. Please contact the EMSW prototype support.

MSW2B Acknowledgment messages provided by the EMSW will use the same type of interface as the one used to send the B2MSW Request message, e.g. if a Request message is sent through the RESTful interface, the Acknowledgment message will be sent by the EMSW using the RESTful interface.

MSW2B Acknowledgment messages will be sent by the EMSW to the URL provided in the element "ReplyURI" as indicated in the latest B2MSW Request message sent by the Ship Data Provider for the port call.

The Web Service interface offered and requested by the EMSW system are the following:

1) **SOAP Service: ShipCallRequestService**

This service is provided by the EMSW System and is used by Ship Data Providers for sending B2MSW Request messages and receiving MSW2B Acknowledgment messages.

| SOAP Operation | IN | OUT | Description |
|---|---|---|---|
| **requestClearance** | B2MSW Request message | MSW2B Receipt message | Used by Ship Data Provider system to submit B2MSW Request message. The Ship Data Provider system will receive in return a MSW2B Receipt message. |

2) **SOAP Service: AcknowledgeCallbackService**

This is a Call-back operation provided by the Ship Data Provider system. It receives the MSW2B Acknowledgment message from the EMSW.

| SOAP Operation | IN | OUT | Description |
|---|---|---|---|
| **acknowledge** | MSW2B Acknowledgment messages | - | Used by the EMSW to send MSW2B Acknowledgment messages to the Ship Data Provider system |

3) **SOAP Service: AuthorityService**

This is Service is internal to the EMSW system. It is provided by the EMSW Common Reporting Gateway module (CRG) to receive MSW2B acknowledgment messages from the EMSW Authority Information Exchange module (AIE).

| SOAP Operation | IN | OUT | Description |
|---|---|---|---|
| **receiveAuthorityResponse** | MSW2B Acknowledgment message | - | Used by the CRG to receive a MSW2B Acknowledgment message from the AIE. |

# 7 Message structure

Messages are structured as defined in ISO 28005, and according to the XSD files of the EMSW as available on the project's website: epc.xsd and iso28005-2.xsd.

Refer to the "Data Mapping" spreadsheet file available on the project's webpage to map:

- The elements of the B2MSW Request message (refer to blue column BT) with
- The data elements of the EMSW (refer to column E), and with
- The content of the submission types (green columns AJ to BJ).

The file also provides:

- The business rules that are applied by the EMSW when receiving a B2MSW Request message (refer to column BP),
- The type, length and codes to be used for coded elements (yellow columns BM to BO).

# 8 Support

Technical support is provided by email at the following address: emsw@emsa.europa.eu

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