European Maritime Single Window environment (EMSWe) Architecture and Message Implementation Guide

Workshop on the Future of the Maritime Digital Landscape – 3 October 2022

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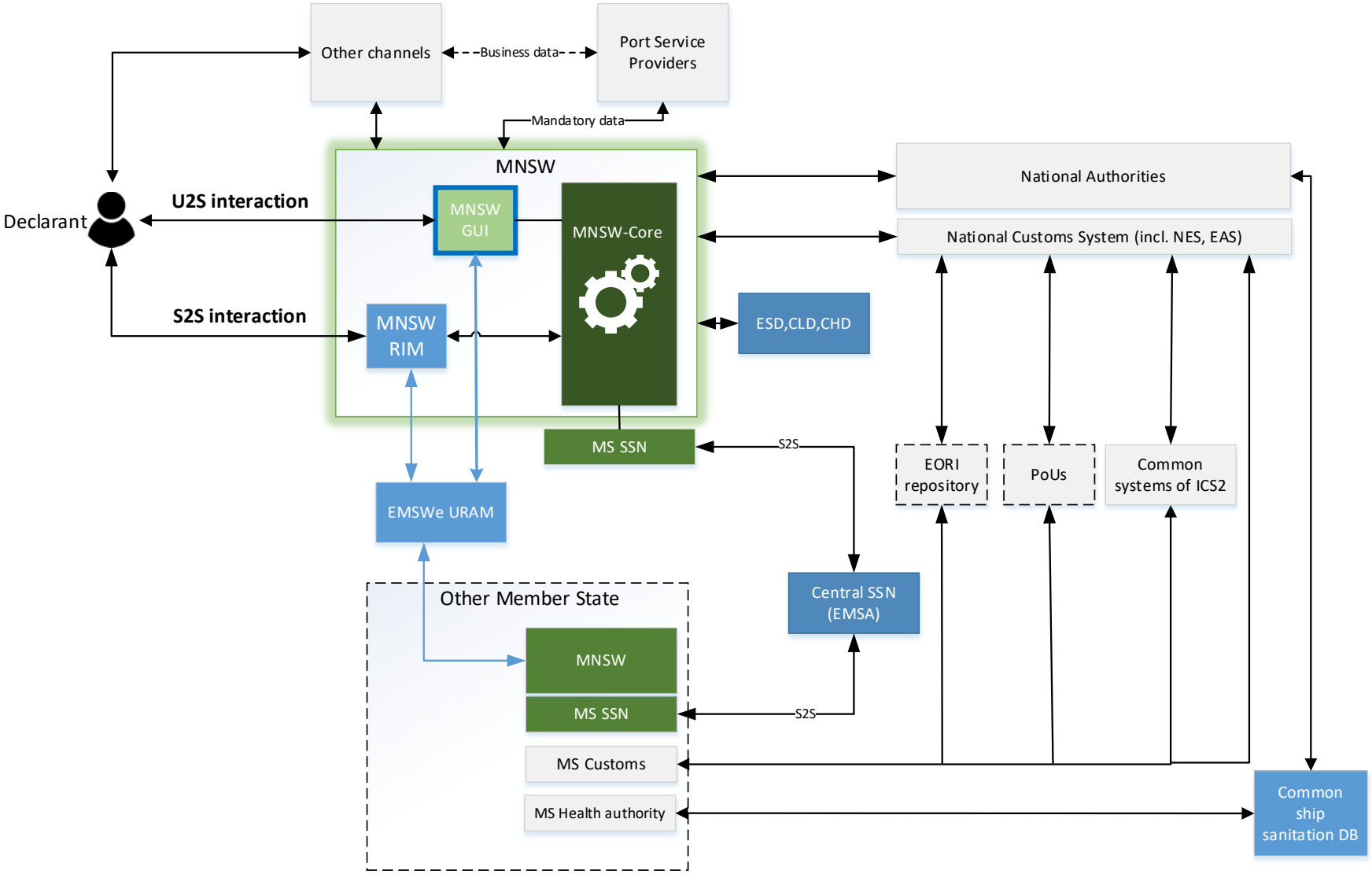
European Commission

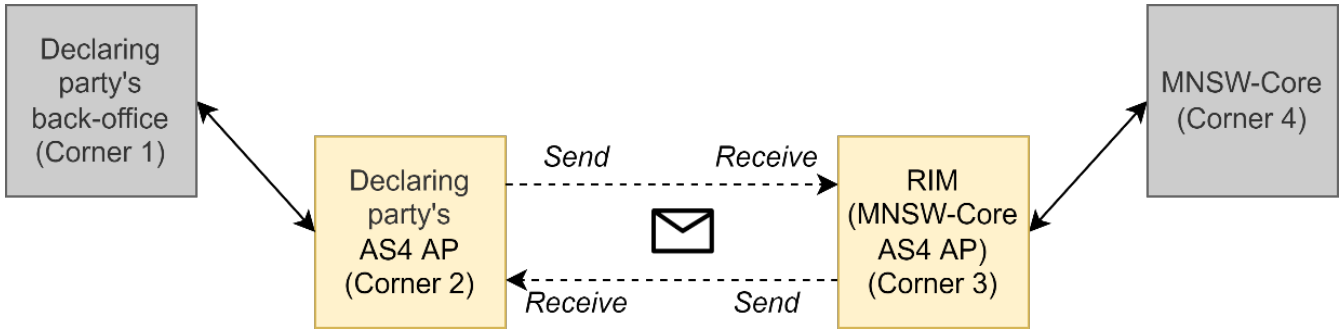
EMSA

European Maritime Safety Agency

Overall EMSWe architecture around MNSW



Reporting Interface Module (RIM)



RIM implements AS4 protocol with 4-corner model approach

RIM leverages on eDelivery building block:

Built for the secure and payload-agnostic exchange of data

Standardized AS4 widely used by Commission and Member States' projects (eDelivery reuse)

eDelivery can act as reusable interface to ensure cross-domain and cross-project interoperability

Integration with EMSWe User Registry and Access Management system

Proposal to align with the eIDAS under discussion with Member States

Purpose of MIG

The EMSWe MIG aims at

providing a functional specification of messages exchanged

Between declarants / data service providers and the EMSWe Reporting Interface Module (RIM)

Between the RIM and the core module of the Maritime National Single Window (MNSW-core)

The MIG relates to

Communication of information necessary for the fulfilment of the reporting obligations defined in the EMSWe Regulation

Communication of responses from the MNSW and authorities

MIG Contents

Contents of the EMSWe MIG:

1. General principles
2. Versioning policy
3. Semantic content of formalities
4. Semantic content of responses (on-going)
5. Data structures of formalities (on-going)
6. Data structures of responses (on-going)

General principles

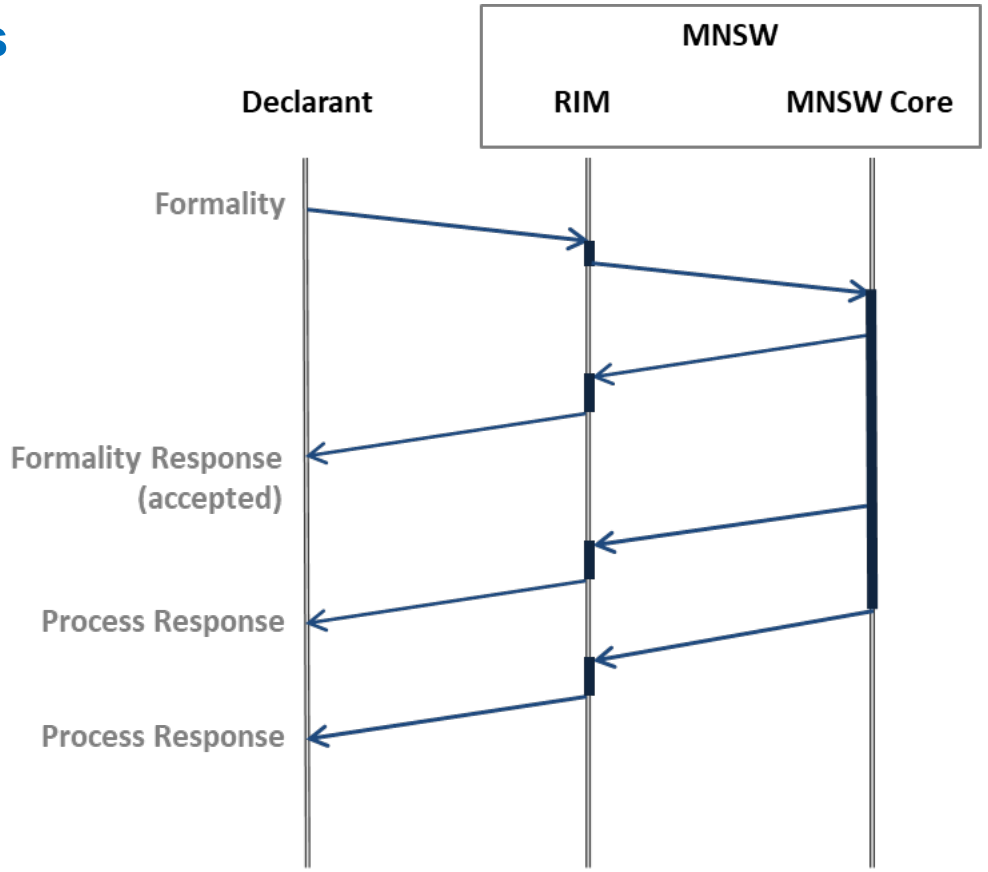
Principles leading the design of the information exchange by messages between declarants / data service providers and the RIM and between the RIM and MNSW-core

- List of formalities and responses
- Mechanisms for submission, updates and cancellation
- Mechanism for messages receipt, validation and authorities responses

General principles

The MIG defines a generic process applicable to all formalities

- **Formality response**: returned after semantic checks (i.e. acknowledgment of receipt) – should be automatised
- **Process response**: returned as a result of processes of an authority (e.g. clearance decision, release notification for goods/containers)



Semantic content of formalities

Based on the EMSWe dataset

Reference definition of 1220 individual data elements

Covers all information elements that might be requested by national authorities or port operators for administrative or operational purposes when a ship makes a port call (EU legal acts, FAL forms, national legislation and requirements)

Mapped with IMO Compendium and EU Customs Data Model

Mapping of 49 formalities with the EMSWe dataset

NOA	Notice of pre arrival	CGD	Cargo declaration at departure	BKA	Bunkers at arrival
PXA	Passenger list at arrival	MDH	Maritime Declaration of Health	BKD	Bunkers at departure
PXD	Passenger list at departure	NAC	Notification of arrival to the customs office of first entry	ACT	Expected activities notification
CWA	Crew list at arrival	PRN	Presentation Notification	DUE	Fairway dues declaration
CWD	Crew list at departure	TSD	Temporary storage declaration	SRV	Request for service
HZA	Notification of hazardous materials at arrival	CGM	Customs goods manifest	MIL	Military report
HZD	Notification of hazardous materials at departure	PPA	Presentation of the proof (at arrival)	CRT	Ship certificates
WAS	Advance notification for waste delivery	TRD	Electronic transport documents for transit at departure	SHP	Ship information
WAR	Waste delivery receipt	TRA	Electronic transport documents for transit at arrival	VIS	Ship visitors declaration
SEC	Notification of security information	EXT	Exit notification	SSA	Ship to ship activity declaration
NOD	Notice of pre departure	EXS	Exit Summary Declaration	STW	Stowaways notification
BLU	Safe loading and unloading of bulk carriers	REX	Re-export notification	ABS	Absentee declaration
EXP	Notification of expanded inspection	ATA	Notification of actual arrival	HOS	Hospitalised crew member declaration
STA	Declaration of stores on board at arrival	ATD	Notification of actual departure	VID	Request for Visit ID
STD	Declaration of stores on board at departure	NOS	Notification of shift in port	SID	Ship identifiers notification
EFF	Crew's effects declaration	HZS	Notification of hazardous materials during a shift	COA	Cancellation of port call
CGA	Cargo declaration at arrival	BWA	Ballast water		

Data structures of formalities

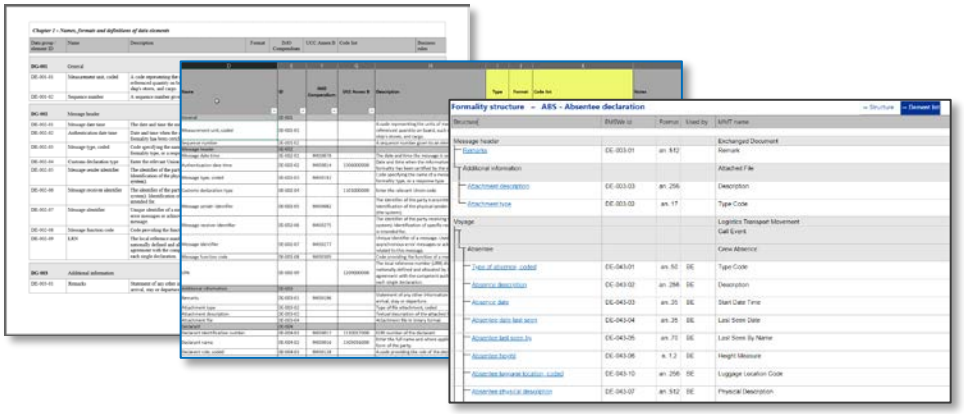
On-going work

1. Mapping of EMSWe dataset with existing standards
   - UNECE Multi-Modal Transport Reference Data Model - MMT (version D21B)
   - WCO Data Model (version 3.11 + current DMRs)
   - ISO 28005 – Electronic Port Clearance

2. Definition of formalities data structures using UNECE MMT reference data model
   - Includes all 49 formality types identified in MIG principles
   - Based on semantic content of formalities
   - Applies MMT data model for data structuring

UNECE
Multi-Modal Transport Reference Data Model

3. GEFEG.FX exports
   - DA text
   - Excel files
   - MIG word documents
   - HTML



Data structures of formalities

Status: Optional, Dependent, Required

Indication of MS in case of part C element

EMSWe dataset

MMT

Structure	EMSWe id	Format	St.	Occ.	Used by	MMT name
Message header						Exchanged Document
Message identifier	DE-002-07	an..70	O	0..1		ID
Message type, coded	DE-002-03	an..3	O	0..1		Type Code
Message date time	DE-002-01	an..35	O	0..1		Issue Date Time
Message function code	DE-002-08	an..3	O	0..1		Purpose Code
						First Signatory Authentication
Authentication date time	DE-002-02	an..35	O	0..1		Actual Date Time
						Sender
Message sender identifier	DE-002-05	an..17	O	0..n		ID
						Recipient
Message receiver identifier	DE-002-06	an..17	O	0..n		ID
						Exchanged Declaration
LRN	DE-002-09	an..22	O	0..n		ID
Customs declaration type	DE-002-04	an..5	O	0..n		Procedure Code
						Declarant
Declarant identification number	DE-004-01	an..17	O	0..n		ID
Declarant role, coded	DE-004-03	an3	O	0..n		Role Code
Voyage						Logistics Transport Movement
Visit ID	DE-014-01	an..35	O	0..1		Stay ID

MMT Class

MMT attribute

Data structure is defined by the MMT Reference Data Model

Next steps for MIG - 2023

1. Finalise formalities data structures
   - Data models
   - Attributes and classes' optionality (R, D, O)
   - Attributes and classes' rules and conditions
2. Dataset and data structures for responses
3. Assessment of other formalities data structures
   - Existing message structures for customs formalities provided by TAXUD
   - WCO Data Model
   - ISO 28005
4. To be investigated: technical message specifications
   - Which technology/language? e.g. XML, EDIFACT, JSON
   - Which message standard? Harmonized schemas for messages

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