

# **Facilitation of ship to shore reporting**

## **Concept paper**

Version 1.0  
Date: 19/06/2019

## Document History (if needed)

Version	Date	Changes	Prepared	Approved
1.0	19/06/2019	First version	EMSA	MSs participating in the project by correspondence

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## List of Abbreviations

ABM	Automated Behaviour Monitoring
AIS	Automated Identification System
BONIFREP	MRS in the Strait of Bonifacio
EMFF	European Maritime and Fisheries Fund
EMSA	European Maritime Safety Agency
EMSW	European Maritime Single Window
EU	European Union
FINREP	MRS off cape Finisterre
IMO	International Maritime Organization
ISR	Integrated Ship Report
MRCC	Maritime Rescue Coordination Centre
MRS	Mandatory Ship Reporting System
NCSR	The IMO Sub-Committee on Navigation, Communications and Search and Rescue
NSW	National Single Window
SAR	Search and Rescue
SSN	SafeSeaNet system
ToR	Terms of Reference
TRANSREP	MRS off the South and South-West coast of Iceland
VDES	VHF Data Exchange System
VHF	Very High Frequency
VTMIS	Vessel Traffic Management Information System
VTs	Vessel Traffic Service
WETREP	The West European Tanker Reporting System

# 1. Background

Currently, there are 16 IMO adopted mandatory ship reporting systems (MRSs) in the European waters where ships are required to report data to shore-based authorities. These authorities shall monitor compliance with that system and have the capability of interaction and the ability to assist ships with information when necessary. The IMO Resolution A.851 (20) (27 November 1997), defines the general principles for ship reporting systems and the procedures/content of the ship reporting requirements for ships crossing a MRS.

While IMO legal instruments focus on the procedure and content for ship-to-shore reporting for ships passing through a ship reporting system, the VTMIS Directive<sup>1</sup> regulates the minimum content of the message to be reported to the coastal stations<sup>2</sup> and the exchange of the MRS-related information with other MSs via SafeSeaNet (SSN).

According to the access rights defined in SSN, the coastal stations are entitled SSN users with full access rights to SSN information. Despite of the legal provisions, there are still coastal stations which have not been granted access to SSN losing the opportunity to benefit from the MRS information exchanged via SSN. As a result SSN information is not reused obliging thus the ships to report to coastal stations information which could be already available to them and the coastal stations operators to type again data which could be already pre-filled in their databases. Similarly to MRS there are over 100 VTS centres in European regions which also require certain data to be reported to the VTS operators (who are also entitled to access SSN data).

The reasons why the reuse possibilities are not yet in place include the following:

- a. Lack of awareness: there are still some MRS and VTS Authorities with no access to SSN data because the SSN NCA<sup>3</sup> did not inform them accordingly.
- b. Technical complexity: the information received by the coastal stations is reported via voice communication and recorded by the coastal stations operators in their respective databases. The technical possibilities and IT solutions allowing the feeding of the coastal stations databases with available SSN information have not yet been fully explored /exploited.
- c. The SSN web interface is not user friendly and requires many steps to retrieve data.
- d. Not all current legal acts establishing MRS systems foresee the reuse of data from other sources and requires that data comes directly from the vessel.

There is an untapped potential to simplify the work of both ships reporting to coastal stations and the coastal stations operators receiving the data reported to them by exploring the synergies between VTS/MRS and SSN data and, where necessary, make the arrangements (technical, administrative and legal).

The last years have seen huge developments in technology within navigation/communication systems and advanced technology is developing rapidly. Automation of ship reporting functions has taken a big step forward in IMO decisions aiming at simplifying the communication of navigational safety information between ship and shore and the harmonised display on ship bridge equipment.

This trend is also reflected in the proposal for the revision of Resolution A.857(20) on Guidelines for Vessel Traffic Services providing a framework for implementation of VTS globally in a harmonized

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<sup>1</sup> Article 5 of the VTMIS Directive (2002/59/EC) defines the measures that all ships shall take when enter the area of a mandatory ship reporting system adopted by IMO.

<sup>2</sup> 'Coastal station' means any of the following, designated by Member States pursuant to this Directive: a vessel traffic service; a shore-based installation responsible for a mandatory reporting system approved by the IMO; or a body responsible for coordinating search and rescue operations or operations to tackle pollution at sea.

<sup>3</sup> The SSN NCA is the competent authority or body designated by a Member State at national level as data provider and/or data user (as per the SSN legal framework).

manner and foreseeing accommodation of new trends, such as e-navigation and others aiming at more safe, secure and efficient maritime traffic and trade.

## 2. Objectives and benefits of the project

The objective of the pilot project is to explore possible synergies in the use and re-use of information available and shared by the Member States via the SSN Ecosystem to minimise the reporting burden for ship masters and coastal station operators in MRS and VTS areas. The pilot project will test technical solutions to simplify reporting for the benefit of ships and the MRS/VTS centres. In addition, the deliverables of the project should be of benefit to other types of coastal stations (e.g. MRCC) by providing them with integrated ship data increasing their awareness in their areas of responsibility and enhancing safety.

The project aims at developing a pilot that will demonstrate how:

- a. The different data sets which are exchanged through the SSN Ecosystem (e.g. ship details, voyage data, hazmat, position data and information about accidents or incidents) can be integrated and made available to coastal stations;
- b. The coastal stations authorities can use the integrated data to minimise the reporting burden for ships, to improve the efficiency and provided services and to develop a better awareness of their areas of control.

The expected benefits are:

- Coastal station operators should have a better awareness of their areas of control;
- MRS and VTS operators should not need retyping information which would be already available and pre-filled in their system before the vessel reaches the reporting point;
- Ships should only be requested to confirm information already available (rather than having to report all information again).

The pilot project will also investigate how MRS and VTS reporting may be harmonised at EU level. The project's results may contribute to the planned amendments of the existing IMO and EU legal requirements for MRS and VTS reporting.

The results of the project will also be used as an input to EMSA's Ship Reporting Gateway<sup>4</sup> pilot project which aims at developing specific on-board application to exchange data between ship and shore and to test the use of a new VDE-SAT satellite-based technology to relay digital data packages to Member States' coastal authorities.

## 3. The project concept

The project concept foresees the establishment of a common "Integrated Ship Report- ISR" built by integrating information currently available in the SSN Ecosystem which is gathered from e.g. MRS and VTS systems, National Single Windows, AIS, Port State Control and Ship Database. The ISR would be automatically compiled and distributed to the relevant coastal stations via different channels (system to system, web interface, email).

The ISR would be used by the MRS operators as reference information while receiving and recording MRS reports. The MRS operators may re-use the relevant information from ISR when preparing new MRS reports avoiding re-typing or even requesting<sup>5</sup> all the information again from the ship. The ISR

<sup>4</sup> More information on this project will be presented at a later stage.

<sup>5</sup> It is expected that at the beginning of the pilot project the MRS operators will request all the MRS data elements even if relevant information would be already available to them via the ISR. However, after a testing period and

would also provide coastal station operators (e.g. VTS, MRCC) a better awareness of the situation by providing in advance the available information regarding all ships navigating in their areas of control.

The project foresees the development of a technical solution that will use and expand the existing services of the SSN Ecosystem. The technical solution will allow participating Member States' authorities to test the concept in real situations.

Before implementing the technical solution, EMSA and the participating in the project Member States need to:

- define the content of the ISR,
- define the data distribution mechanisms,
- define the triggers for distributing the reports,
- find solutions for making the information available to the operators and agreeing on how operators will use the information.

## 4. High level tasks

The project will include the following activities:

### 4.1 Define the content of the ISR

EMSA will work with volunteer Member States to define the ISR's content (data elements and their sources) to cover the needs of different coastal stations in a harmonized way. Although the data elements are already defined in different legal acts there are some issues that need to be clarified such as:

#### a. Specific reporting obligations regulated by national legislation

Some systems may require reporting additional data as per the national legislation. Should this information be included in an integrated report?

#### b. Differences or inconsistencies in the legal requirements

Some of the attributes although mandatory in SSN (i.e. required by the Directive 2002/59/EC) are not required for certain MRS systems by the IMO resolutions. For instance, the Navigational Status (designator X) is required by the Directive but not by IMO in BONIFREP, FINREP and TRANSREP systems.

#### c. Lack of harmonized standards

In the absence of harmonized standards for ship reporting systems, national ship reporting systems may use different procedures and reporting formats. Such differences create an additional burden for ships navigating in several areas with different ship reporting systems.

#### d. Data reliability

Since MRS information provided by ships is essential for safety and prevention of marine pollution it is crucial to ensure its reliability. It is important to consider different levels of confidence for the received data. Therefore, during the project it shall be assessed whether the data reported by ships (e.g. ship agents) to NSW or port information systems shall be given the same level of confidence as the data reported directly from the ship to shore via radio report.

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if the ISR data prove of high quality, the confidence of the MRS operators may increase resulting to the reduce of the requested data elements.

#### e. Data validity

Some of the reported data is dynamic and changes during the vessel's voyage. The validity duration of data is another important factor which has to be taken into consideration.

### 4.2 Develop the technical solution to build the ISR

Once the common set of data for an ISR is defined, a tool for continuous data collection and integration should be developed. This tool will run along with the EMSA maritime applications and will ensure that the ISR is in place and can be distributed whenever needed in both “request/response” and “automatic push” modes.

This part of the project will focus on:

- Evaluating the user requirements on ISR generating solutions;
- Assessing the already existing central systems and functionalities which could be used to support data collection and exchange (e.g. “ABM algorithms”, “SSN enrichment” etc.);
- Developing the ISR generating mechanism.

### 4.3 Develop the technical solution to distribute the ISR to MSs Authorities

The timely provision of the ISR to coastal station operators is a crucial task to ensure that they re-use its contents in order to facilitate the reporting burden or to increase the awareness in their area of responsibility.

This part of the project will focus on developing a solution that will provide the collected data to MSs Authorities through interfaces established with the participants. This will include working on:

- A web user interface: to display the ISR to relevant users on a central application managed by EMSA;
- A system to system interface: to communicate the ISR either directly to local coastal station systems or via the national SSN or NSW system;
- An e-mail notification system: to distribute the ISR to relevant Authorities via e-mail.

EMSA will work with the Member States to define the requirements for the above interfaces. MSs Authorities willing to use the system-to-system interface would have to update their systems. However, it is unlikely that MSs will invest in test modules for a short period of time. The project will therefore assess other solutions, such as:

- Software modules which could be installed on the MS hosting environments and linked to their systems, or
- Data provision through FTP connections.

Depending on the outcome of the above, EMSA will work with the Member States to assess if the ISR can be reused to facilitate the reporting to the NSW.

### 4.4 Test the concept with Authorities and Industry

As the objective of the project is to prove that the technical and administrative solutions to simplify reporting can be implemented and be of benefit to ships and coastal station operators, the project should also contain operational tests with coastal stations and the shipping industry (shipping companies, ship operators).

EMSA will work with the Member States and Industry participants to prepare different operational scenarios for testing the provision of the ISR to coastal stations using the solutions mentioned in section 4.3 above. The data provided by the ISR will then be compared with the data reported by the vessel via radio or using other communication means.

These operational tests will be used to verify quality, availability and reliability of the technical solution. The feedback from the end users will be used to improve or adjust the solution. The outcome of these tests may also provide a response whether all data elements can be re-used or only some of them and therefore will be used to improve the content of ISR.

Although there is clear direction in maritime domain that automation and digitalisation should be the leading principles for exchange of data, the IMO NCSR still considers that an element of verbal communications needs to be retained for both safety and security purposes. The project outcome may be also used to identify which data elements would still need to be communicated via radio report and those that could be re-used from the ISR.

## 4.5 Prepare the final report

A final report will be prepared at the end of the project which will give an overview of the tasks achieved and will provide the conclusions of the tests as well as recommendations for follow-up actions (e.g. full-scale implementation of the concept, harmonisation of MRS at EU level, recommended changes to legal acts).

Other relevant ideas which may emerge during the execution of the pilot project will be assessed and the list of deliverables may be revised.

## 5. Proposed set up

The concept will be implemented with voluntary Member States; other experts and relevant industry stakeholders/organizations may be invited on an ad-hoc basis. The work will be carried out through meetings with the participating Member States' experts and inter-sessional work by correspondence. EMSA will provide the secretariat, and will coordinate, collate and amalgamate the information provided by the participants into working documents for on-going dissemination and agreement.

The pilot project will be executed under the EMSA "Interoperability Project" which will be set up to execute action 1.2.1.4 of the EMFF work programme 2018 for "Promotion of interoperability between industry and competent authorities in the European Maritime Single Window (EMSW) environment under the CISE Process".

The project will not change existing ship reporting obligations or services delivered by VTS or MRS but is going to verify whether the developed solutions could facilitate MRS and VTS reporting in EU waters and be of benefit to other types of coastal stations (e.g. MRCC, SAR, etc.).

## 6. Expected schedule

The project has started in January 2019 and the expected schedule is the following:

January 2019 to June 2019	Define the content of the Integrated Ship Report and the distribution method.
June 2019 to September 2019	Draft the system requirements.
December 2019 to May 2020	Develop the technical solution.
May 2020 to June 2020	Prepare operational tests with Authorities and Industry and deploy solution to coastal stations.
June 2020 – July 2020	Test the concept with Authorities and Industry.
July 2020 – December 2020	Assess the test results and produce the project report.



There are four meetings planned:

- 3 April 2019 – Kick-off meeting
- September 2019 – Meeting to agree on the ISR and technical requirements
- May 2020 – Meeting to prepare the operational tests
- December 2020 – Meeting to review results of operational tests and final report