Facilitation of ship to shore reporting pilot project

Final report

Version 1.0
Date: 01/06/2022

EMSA

Document History

Version	Date	Changes	Prepared	Review	Approved
0.1	11/04/2022	Draft	EMSA		
0.2	13/05/2022	Updates following 9th meeting on Facilitation of ship to shore reporting	EMSA		
1.0	01/06/2022	Final version	EMSA	MSs participating in the project	MSs participating in the project

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List of Abbreviations

ABM	Automated Behaviour Monitoring
AIS	Automated Identification System
ARM	AtoN Requirements and Management Committee of IALA
AtoN	Aids to Navigation
CISE	Common information sharing environment
CROSS	Centre Régional Opérationnel de Surveillance et de Sauvetage
DG MARE	The Commission's Directorate-General for Maritime Affairs and Fisheries
DG MOVE	The Commission's Directorate-General for Mobility and Transport
DIGIT	The Commission's Directorate-General for Informatics
EEA	The European Economic Area
EGDH	The IMO Expert Group on Data Harmonization
EMSA	European Maritime Safety Agency
EMSN	European Maritime Simulator Network
EMSWe	European Maritime Single Window environment
ESA	European Space Agency
EU	European Union
FAL	The IMO Facilitation Committee
GUI	Graphical User Interface
HLSG	High Level Steering Group for Governance of the Digital Maritime System and Services
HP-IMS LTS	High-Performance Integrated Maritime Services' Long Term Storage
IALA	International Association of Marine Aids to Navigation and Lighthouse Authorities
ICT	Information and Communications Technology
IMO	International Maritime Organization
IRD	Integrated Report Distribution
ISO	International Organization for Standardization
ISR	Integrated Ship Report
LRIT	Long-Range Identification and Tracking
MASS	Maritime Autonomous Surface Ships
MCP	Maritime Connectivity Platform
MRCC	Maritime Rescue Coordination Centre
MRS	Mandatory Ship Reporting System
MSC	The IMO Maritime Safety Committee
MSW	Maritime Single Window
NAVDAT	Navigational Data maritime mobile service

NCSR	The IMO Sub-Committee on Navigation, Communications and Search and Rescue
OVR	Operational Vessel Registry
PSC	Port State Control
SAR	Search and Rescue
SEG	SafeSeaNet Ecosystem Graphical User Interface
SRS	Ship Reporting System
SSN	SafeSeaNet system
STM	Sea Traffic Management
STMID	Shore-based Traffic Monitoring Infrastructure Database
TAXUD	The Commission's Directorate-General for Taxation and Customs Union
ToR	Terms of Reference
TSS	Traffic Separation Scheme
VASP	VDE-SAT Applications and Services Platform
VDE-C	VHF Data Exchange Capability system
VDES	VHF Data Exchange System
VHF	Very High Frequency
VIS	Voyage Information Service
VTMIS	Vessel Traffic Management Information System
VTS	Vessel Traffic Service

1.   Background

There are 16 mandatory Ship Reporting Systems (SRS) in European waters, adopted by IMO, which require ships to report data to shore-based authorities when entering specific areas. Similarly, to SRS, there are over 100 VTS centres in the European Union which also require certain data to be reported.

IMO Resolution A.851 (20) of 27 November 1997 defines the general principles for the SRS and the associated reporting procedures and content. The VTMIS Directive 2002/59/EC[1] defines the minimum content of the information that ships have to report to the coastal stations[2] and requires that information from such reports is exchanged between Member States via SafeSeaNet (SSN).

Ships which cross several SRS and VTS areas along their route are often required to report the same information in each area. The reporting process may be considerably facilitated if the information from previous SRS reports, which is available in SSN, could be reused.

The reasons why the reuse possibilities offered by SSN are not yet in place include:

a.   Lack of awareness: While all coastal stations have full access to SSN information, not all actually access and use the system.

b.   Technical complexity: The information is often reported by the ships to the coastal stations via voice communication and recorded by the coastal stations operators in their respective databases. The technical possibilities offered by SSN for reusing information have generally not yet been fully explored and exploited.

c.   Usability: The web interface of SSN is not user friendly and requires several steps to retrieve data.

d.   Legal constraints: Not all current legal acts establishing the SRS systems foresee the reuse of data from other sources and requires that the information comes directly from the vessel.

e.   Data quality and availability: In some cases, data is missing or incomplete in SSN system (e.g Hazmat information).

There is an untapped potential to simplify the work of both the ships and the coastal stations operators 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 notable developments in technology within navigation and communication systems and advanced technologies are developing rapidly. Automation of ship reporting has taken a big step forward with IMO decisions[3] aiming at simplifying the communication of navigational safety information between ship and shore and at harmonising display on ships' bridge equipment.

This trend is also reflected in the recently adopted Resolution A.1158(32) on guidelines for Vessel Traffic Services which aims at providing a framework for implementation of VTS globally in a harmonized manner and foreseeing accommodation of new trends, such as e-navigation and others aiming at more safe, secure and efficient maritime traffic and trade.

On 18 September 2018 EMSA signed a grant agreement with DG MARE to implement an ad-hoc action for the "promotion of interoperability between industry and competent authorities in the European Maritime Single Window environment under the CISE Process" (so called "Interoperability Project"). The objectives of this project include the enhancement of the connectivity between all relevant authorities and end-users in the Member States and the improvement of ship-to-shore information exchange using VHF Data Exchange-satellite (VDE-SAT)

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[1] 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.
[2] '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.
[3] The mandatory requirement for national governments to introduce electronic information exchange mechanisms between ships and ports came into effect from 8 April 2019, under the FAL Convention. According to the Standard 1.3bis, Public Authorities have to establish systems for the electronic exchange of information.

communications. It includes, among others, the implementation of a pilot project aiming at facilitating ship-to-shore reporting.

2. Objectives of the pilot project and expected benefits

The objective of the pilot project on the facilitation of ship-to-shore reporting is to explore technical and operational solutions to minimise the reporting burden for ship masters and coastal station operators in MRS and VTS areas by re-using information available in the SSN Ecosystem.

In addition, the deliverables of the project should be of benefit to other authorities executing functions in the maritime domains (e.g. MRCC, border control, PSC and port authorities) by facilitating their access to SSN data.

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

a. The different data sets which are available in the SSN Ecosystem (e.g. ship details, voyage data, hazmat, position data and information about accidents or incidents) or other systems can be integrated and made available to coastal stations in a single report;

b. The coastal stations operators can use that integrated data to e.g. minimise the reporting burden for ships, improve the efficiency of their services and develop a better awareness of their areas of control;

c. The ships can electronically submit MRS and VTS reports and re-use information available in SSN;

d. New technologies (e.g. VDE-SAT) can be used for communication between ship and shore.

The expected benefits of the pilot project are to:

- Provide a better awareness of their areas of control to coastal station operators;

- Reduce the reporting burden of coastal station operators in MRS and VTS areas by pre-filling information in their systems before the vessel reaches the reporting point;

- Only request ships to confirm information already available rather than having to report all information again;

- Allow ship's masters, agents or operators to submit MRS and VTS reports in an electronic format and to re-use information available in SSN;

- Harmonise the reporting obligations by implementing a common standard and developing a single graphical interface for electronic data submission.

3. Project execution

3.1 Stakeholders involved

The project was led by EMSA, which provided the secretariat, coordinated, collated, and amalgamated the input from the participants into working documents for ongoing dissemination and agreement.

The Steering Committee of the interoperability project, consisting of representatives from EMSA and from Commission's DG MOVE, DIGIT, MARE and TAXUD, agreed to launch the project and was kept updated on the progress and consulted for any relevant decisions to be taken.

On 21 November 2018, EMSA sent to the directors of maritime administrations of the EU Member States and of EEA Countries an invitation to participate in the pilot project.

The following Member States volunteered to participate to the pilot project: Belgium, Croatia, Denmark, Estonia, Finland, France, Germany, Italy, Latvia, the Netherlands, Norway, Poland, Romania and Sweden.

The shipping companies Finnlines and Bornholmslinjen were involved in operational testing of the pilot project's technical platform for MRS reporting. These companies were selected by the MS authorities participating in the tests.

3.2   Project approach

The project concept foresaw the establishment of a common Integrated Ship Report (ISR) built by integrating information currently available in the SSN Ecosystem. The ISR is automatically compiled and distributed to the relevant coastal stations via different channels (system-to-system, web interface, email).

The following tasks were executed:

i.   Define the content of the ISR - EMSA worked with volunteer MSs to define the ISR's content (data elements and their sources) to cover the needs of different coastal stations in a harmonized way.

ii.   Develop the technical solution to build the ISR – once the common data set for an ISR was defined, a service for continuous data collection and integration was developed. It runs along with other EMSA maritime applications and ensures that the ISR is in place and can be distributed whenever needed.

iii.   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 to facilitate the reporting burden or to increase the awareness in their area of responsibility. This part of the project was focused on developing a solution that will provide the collected data to MSs Authorities through the following interfaces: a web user interface, a system-to-system interface and an e-mail notification system.

iv.   Design and develop a graphical user interface for ships reporting – Member States identified a use case aiming at reporting of MRS/VTS data from ships to coastal stations by electronic means.

v.   Test the developed technical solutions with authorities and the shipping industry – As the objective of the project was 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 contained operational tests with coastal stations and ships.

3.3   Pilot project meetings

The MSs participating in the project were involved in the definition and design of the solutions, in operational tests, and in the evaluation of the outcome of the tests. Most of the work was carried out by correspondence but several meetings with EMSA, Commission and Member States' experts took place. The following meeting were held:

No	Date and place	Objective
1	03 April 2019, EMSA	- present the scope of the project and the expected deliverables; - present the working methodology and timeline of the project; - obtain feedback from the project participants on the proposed use cases and collect new ideas aiming at simplifying ship to shore reporting.
2	25 September 2019, EMSA	- present and approve the concept paper of the project; - present the Integrated Report Distribution (IRD) prototype and collect feedback from the project participants on the first version; - agree on the final content of the Integrated Ship Report (ISR) for the pilot project and the distribution methods for the ISR; - discuss the electronic exchange of data between ship and shore including interaction with the VDE Capability project.
3	23 June 2020, Video conference	- collect feedback from Member States participating in testing the Integrated Report Distribution (IRD) prototype; - present the changes foreseen in the IRD version 2; - present a progress report on the electronic exchange of data between ship and shore including interaction with the VDE Capability project; - present and agree on the updated project's roadmap

No	Date and place	Objective
4	10 December 2020, Video conference	- phase 2 of the Integrated Report Distribution (IRD); - mock-ups for Ship Data Provider GUI planned in the IRD phase 3; - progress report on the electronic exchange of data between ship and shore including interaction with the VDE Capability project; - updated project's roadmap.
5	08 April 2021, Video conference	- get Member States feedback on the functional tests of the phase 2 of the Integrated Report Distribution (IRD) system; - present and discuss the EMSA guidance document for the operational test of IRD phase 2; - present the progress report on the electronic exchange of data between ship and shore including interaction with the VDE Capability project; - present the outcome of the Port Call Detection pilot project; - discuss the future developments of IRD; - present the updated project's roadmap.
6	29 June 2021, Video conference	- get Member States' feedback on the operational tests of the Integrated Report Distribution (IRD) system's phase 2; - present the newly developed IRD phase 3 and the progress report on the VDE Capability project; - propose the future developments of IRD (phase 4); - present the updated project's roadmap.
7	14 October 2021, Video conference	- get Member States' feedback on the functional tests of the Integrated Report Distribution (IRD) system; - present for approval the updated version of guidance document for operational tests; - present progress report on the VDE Capability project and on the future developments of IRD (phase 4); - present the updated project's roadmap.
8	02 December 2021, Copenhagen and via Video conference (hybrid meeting)	- demonstrate the results of the pilot project operational tests; - receive feedback from the authorities and ships participating in the tests; - present a progress report of the VDE Capability project; - present the new version of the Integrated Report Distribution (IRD) system and plans for its future developments; - present the updated project roadmap and review the table of contents of the final report.
9	11 May 2022, Video conference	- demonstrate the results of the pilot project; - finalise the final report for the project; - kick-off work of the Working Group on "Facilitation of ship to shore reporting" that was recently established by the HLSG for Governance of the Digital Maritime System and Services to ensure continuation of activities started within the pilot project.

Table 1: Pilot project meetings

3.4   Cooperation with other projects

3.4.1   Sea Traffic Management (STM) Validation project

To assist the authorities to get access to the information they need for their missions at sea, EMSA assesses different projects exploring possible synergies. One of these was the Sea Traffic Management (STM) Validation project[4]. The STM Validation Project is a continuation of the EU funded MONALISA and MONALISA 2 and aim at demonstrating the STM concept in large-scale test beds in both the Nordic and Mediterranean Seas. The project

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[4] More information about SESAME II project can be found at: https://www.seatrafficmanagement.info/projects/stm-validation/

encompasses around 300 ships, 13 ports, 5 shore-based service centres and 12 connected simulator centres in the European Maritime Simulator Network – EMSN.

One of the services developed within the STM project was the Voyage Information Service (VIS), which aimed at facilitating the sharing of vessels' voyage plans with shore-based service providers such as coastal stations. Using the voyage plan information, the shore centres could e.g. detect if a ship deviates from its route, foresee possible dangerous situations along a ship's route, and suggest route modifications due to traffic or other impending conditions.

Several meetings between EMSA and the STM project representatives demonstrated that concrete results can be produced by reusing the results of the STM project and in particular by integrating voyage plans provided by vessels to enhance the maritime picture EMSA offers to the Member States authorities.

The STM project representatives offered to establish and test the connection with STM Voyage Information Service (VIS). The STM voyage plan information was made available to the participants of the "facilitation of ship to shore reporting" pilot project in the Integrated Ship Report (ISR). In addition, the SafeSeaNet Ecosystem Graphical User interface (SEG) was upgraded to display this information.

3.4.2 SESAME II / BALTSAFE project

At the 4th meeting of the facilitation of ship to shore reporting pilot project Norway informed that the SESAME Solution II[5] project released the first iteration of a new automated ship reporting service, developed in cooperation with the STM BALTSAFE project and hosted on a test environment within SafeSeaNet Norway, the Norwegian Coastal Administration's maritime single window (MSW).

The SESAME Solution II project offers the following services for the MRS:

- Request and Respond Service (RRS) – for the ship to retrieve information on what are the reporting obligations;

- Transmit & Receive Service (TRS) – for the ship to submit a report to a coastal station.

The project was implemented in the BAREP system and there is an on-going work with the United Kingdom for the CALDOVREP and with Estonia and Finland for the GOFREP system. The services were implemented in the Navelink platform, which is an operationalisation of the Maritime Connectivity Platform (MCP). There was no common web interface for the ships to report the MRS reports. All communications were done through a system-to-system connection.

The project participants agreed for EMSA to liaise with Norway to identify possible synergies between the facilitation of ship to shore reporting pilot project and the SESAME II project.

Two meetings took place between EMSA and Norway, which identified the following:

i.   Norway developed a flexible reporting mechanism whereby the reporting party (e.g. the ship master reporting to an MRS or VTS) can report the data set required by the specific MRS/VTS instead of the maximum data set. EMSA commented that this functionality could also be used for SSN and the EMSW and offered to jointly investigate the issue with Norway;

ii.   The contents of the MRS report in the two projects were aligned to the ISO28005-2 standard;

iii. The Ship Data Provider GUI developed by EMSA (in the IRD system) could be used by the ships for reporting MRS reports to Norway. For that purpose, a connection would need to be setup between the IRD and the MRS Reporting instance of SESAME II and BALTSAFE project.

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[5] More information about the SESAME II project can be found at: sesamesolution2.org

3.4.3　VDE-SAT Applications and Services Platform (VASP)

EMSA agreed with the European Space Agency (ESA) and Space Norway to participate in a VDE-SAT Application and Services Platform (VASP)[6] demonstration project aiming at testing of VDE-SAT connection using a Norwegian satellite as a testbed.

During the facilitation of ship to shore reporting meetings, Member States proposed a use case about reporting MRS/VTS data to coastal stations by electronic means. Some synergies were found between the two projects and EMSA presented the concept of a ship-to-shore MRS/VTS reporting by electronic means which, in addition to using existing communication links (3G, 4G, and satellite communication), will test the VDE-SAT connection to address cases of ships sailing on the high seas.

The system-to-system interface was developed to address the exchange of data between EMSA and the VDE-SAT ground station (operated by Space Norway) to communicate ship reports and authority responses. A specific "on-board application" for creating MRS/VTS reports and displaying returned responses from authorities was developed, installed on-board test ships and linked with VDES equipment.

3.5　Contribution to IMO and IALA work on ship to shore reporting

3.5.1　IMO Expert Group on Data Harmonization (EGDH)

The IMO Compendium on Facilitation and Electronic Business is a tool for software developers that design the systems needed to support transmission, receipt, and response via electronic data exchange of information required for the arrival, stay, and departure of the ship, persons, and cargo to a port. By harmonizing the data elements required during a port call and by standardizing electronic messages, the IMO Compendium facilitates the exchange of information ship to shore and the interoperability of single windows, reducing the administrative burden for ships linked to formalities in ports.

The IMO Compendium consists of an IMO Data Set and IMO Reference Data Model agreed by the main organizations involved in the development of standards for the electronic exchange of information related to the FAL Convention: the World Customs Organization (WCO), the United Nations Economic Commission for Europe (UNECE) and International Organization for Standardization (ISO).

Since July 2019, the IMO Expert Group on Data Harmonization (EGDH) is responsible for the technical maintenance of the IMO Compendium and for further expanding its data set and data model to areas beyond the FAL Convention, including exchange of logistics and operational port and shipping data.

In September 2020, Norway submitted a proposal to IMO EGDH (EGDH 2/5) to work on the data set related to ship reporting system (Resolution A.851(20)). The modelling team met in July, August, September, November 2021 and in January 2022 to carry out the modelling of the data set. EMSA actively participated to the work of this team by sharing experience gained during execution of the pilot project.

The new IMO data set on "Ship reporting systems (Resolution A.851(20)) was submitted to 46th session of the IMO FAL Committee (9-13 May 2022) for the inclusion in the IMO Compendium on Facilitation and E-Business.

3.5.2　IALA AtoN Requirements and Management Committee (ARM)

During the 5th meeting of facilitation of ship to shore reporting, Germany advised that the outcome of the project could be of interest of the IALA ARM Committee considering that this Committee currently works on the guideline for ship reporting from the shore perspective. The IALA's ARM Committee Work Group 2 established a Ship Reporting Task Group during IALA's ARM8 Committee meeting to prepare this guideline.

The Guideline is intended to be used by Shore-based Authorities to assist them to comply with IMO FAL Conventions and IMO MSC and Assembly Resolutions on Mandatory Ship Reporting and to automate processes and procedures associated with ship reporting both ashore and on board. The goal of this Guideline is to assist public authorities and other shore-based stakeholders with the implementation of automated processes and procedures associated to ship reporting obligations, while complying with both national and regional/local reporting

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[6] More information about the VASP project can be found at: https://business.esa.int/projects/vasp

requirements as well as with the international requirements of the FAL Convention and relevant MSC and Assembly Resolutions on ship reporting.

EMSA actively participated to the work of the Ship Reporting Task Group of IRM by sharing experience gained during execution of the pilot project and experience from developing systems like SafeSeaNet or Maritime Single Window.

3.6 Presentations of the project on different forums

The progress reports were prepared and presented on a regular basis to:

- Steering Committee of the interoperability project;
- HLSG for Governance of the Digital Maritime System and Services;
- SSN/LRIT group.

In addition, ad-hoc presentations were done at the:

- 5th Automated Behaviour Monitoring and Advanced Analytics (ABM) workshop that took place on 04 December 2019. This presentation was focused on the use of ABM for automatic generation of ISR;
- IALA VTS 50 Committee on 18 March 2020 to present how ship reporting is handled from a shore side perspective in the project. The presentation is available at: https://www.youtube.com/watch?v=UJKc7lKI5go
- EU Macro-Regional Strategies Week on 7 to 11 March 2022 as a part of the presentation: What comes next in digitalisation and what are the benefits;
- EMSA submitted an abstract proposing the presentation of the project at the 20th IALA Conference that will take place in Rio de Janeiro, Brazil from 27 May to 03 June 2023. The submission was made under Topic n° 3: Exchange of information, challenges and implementation.

4. Project results

4.1 Integrated Ship Report (ISR)

The project included the establishment of a common Integrated Ship Report (ISR) built by integrating information currently available in the SSN Ecosystem. The ISR content was approved by the pilot project participants (Integrated Ship Report (ISR) – content document).

The following principles were followed when creating the ISR:

a. <u>Re-use of data already available</u>

The ISR is made of data already available in the SSN Ecosystem and does not require Member States to report additional information.

b. <u>Serve different needs of coastal stations</u>

The report is made of data elements which can be configured by the end user allowing the creation of tailor-made report for different costal station's needs (i.e. the user decides which data elements from the master data set should be included in his/her report).

c. <u>Possibility to include additional sets of data</u>

EMSA continuously assesses different projects exploring possible synergies and integrating new sets of data. The ISR report was designed in a way that a new block of data can be added at any time. The new data sets (e.g. Detected Port Calls) were already added to the initial report.

It should be noted that all access rights defined for EMSA's maritime applications are respected and end-users only have access to information they are entitled to.

4.2   Technical developments

4.2.1   Integrated Report Distribution (IRD) service

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

For this purpose, a new "Integrated Reports Distribution" (IRD) service was developed by EMSA. The IRD service used existing back-end services from the SSN Ecosystem to retrieve data and prepares and distributes to Member States' coastal stations reports on ships sailing in their areas of interest.

The IRD system monitors ships sailing in areas of interest defined by the authority using Automated Behaviour Monitoring (ABM) algorithms and automatically sends an ISR when a specific event occurs (e.g. entry of a ship in the area, exit of a ship from the area, line crossing, etc.). In addition, it is also possible to create a list of ships of interest that will be monitored by the IRD and for which IRD will be generate an ISR report when specific event occurs (e.g. entry to a port, Incident Report received, at specific time interval (e.g. once a day) and MRS/VTS report received). In addition, it is possible to manually request the generation of an ISR for a specific ship. This can be done by the user in the web user interface or via a system-to-system interface by providing one of the ship identifiers.

The ISR can be delivered to end users through a web user interface (via EMSA's portal), system-to-system interface (SOAP and REST protocols) and via e-mail.

During the project an additional concept of ship-to-shore MRS/VTS reporting by electronic means was approved and the following features were added to the IRD:

   i.   Graphical User Interface (GUI) for ship data providers allowing them to submit and consult VTS/MRS reports and to consult authorities' responses. The ship data providers participating in the operational tests had access to information available about their ship in the SSN Ecosystem and could to re-use it when creating new report;

   ii.   Updates to the existing GUI for authorities to show VTS/MRS reports received from ships and to add the possibility to provide authority responses to these reports.

There were various releases of IRD service delivered during the project duration. Table A.1 in Appendix A provides a summary of each release.

4.2.2   System-to-system interface for exchange of data between ship and shore

During the project execution dedicated web services for exchange of data between ship and shore were developed. It was developed as part of the system-to-system interface of IRD and offers the following services:

   ■   ISR Request / Response: This service is used by a ship to request data available in EMSA's maritime application in order to pre-fill the MRS/VTS report (re-use of information already available);

   ■   Receive MRS/VTS: This service is used to receive an MRS/VTS report from a specific ship;

   ■   Update MRS/VTS: This service is used to receive update of MRS/VTS report from a specific ship;

   ■   Push Authority Response: This is service is used to push an Authority Response to the ship.

The data elements implemented in the message from ship follows ISO28005-2 standard and are in line with data set on "Ship reporting systems" (Resolution A.851(20)) proposed for the inclusion in the IMO Compendium on Facilitation and e-Business.

These web services are used in the VASP demonstration project for exchanging data using VDE-SAT technology, but can be easily adapted to be used in other communication platforms.

4.2.3 Global Port Call Detection Service

The 2nd meeting of the pilot project agreed EMSA to investigate the possibility of detecting global port calls automatically. EMSA launched in July 2020 a project to develop a Port Call Detection Service under the Historical-ABM (H-ABMs) contract. The development of the Port Call Detection service took place between September 2020 and February 2021.

The Port Call Detection service automatically detects port calls worldwide by using ship position data available in the High-Performance Integrated Maritime Services' Long-Term Storage (HP-IMS LTS). The detection of port calls heavily depends on the definition of port calls areas. The port areas provided by Member States for EU ports under the STMID[7] project were used. For ports without areas defined, the contractor created the area as 5 km (configurable parameter) circle around the coordinates of the ports.

The processing of the relevant data is executed through dedicated pipelines using Databricks[8] and Azure cloud services. A port call is detected when vessel positions are detected inside the port area and the speed of the vessel associated to these positions is reduced to less than 2 knots over a period of 15 minutes. This time is considered as the detected time of arrival and the Port Call is classified as 'Category A'. Furthermore, if the navigational status in AIS is set to "moored" over a period of 60 minutes while inside a port area, the Port Call category is updated to 'Category B' (moored) or if the navigational status is set to "at anchor" over a period of 60 minutes while inside a port area, the Port Call category is updated to 'Category C' (at anchor).

A Port Call with 'Category A' can remain with this category or can be updated to 'Category B' or 'Category C'. Once a Port Call is updated to either 'Category B' or 'Category C', its category will not be updated. For each vessel, the first timestamp that meets the requirements for 'Category A' is recorded as the "arrival date-time" for the Port Call. The "departure date-time" is the first timestamp when the vessel is either outside the port area or has the speed above 2 knots over a period of 15 minutes inside the port area. Once a Port Call is closed, there are no more updates to it.

The service is near real time and can detect port calls retroactively in the period covered by vessel positions stored in LTS (i.e. data since July 2017 is available). The business validation tests proved that the service was delivering the expected results. It was noted that the quality of the information depends on the port areas definition and that it needs to improve. This will be addressed separately since port areas definition was not part of the project and consequently, once the improved reference areas are available, the data for the detection of Port Calls will be reprocessed.

A new block of data with the Detected Port Calls was added to the ISR and made available to the Member States authorities via IRD.

4.2.4 VDES on-board application (OBA)

In order to test the VDE-SAT connection for reporting MRS/VTS data to coastal stations, a specific "on-board application" was developed for creating MRS/VTS reports and displaying returned responses from authorities. The VDE-SAT OBA offered two main functionalities:

i.   Graphical user interface (GUI) for ship data providers, to consult, create, update and submit VTS/MRS reports to the maritime authorities and consult authorities' responses;

ii. Backend services to orchestrate message exchanges with the VDE-SAT equipment installed on-board the ship.

The contract for the development of the OBA was signed in May 2021, the development took place during the summer and was completed in September 2021.

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[7] The Shore-based Traffic Monitoring Infrastructure Database (STMID) has been established to simplify and facilitate sharing of information regarding the competent authorities, port authorities and coastal stations which have been designated by Member States in accordance with Article 22 of Directive 2002/59/EC.

[8] System that reads the data streams from the HP-IM LTS, executes the detection algorithms against port areas and performs stream writing into database.

Operational testing is foreseen to be carried out in Norwegian waters in 2022 with 3 vessels flying the Norwegian flag. The vessels will also be involved in other testing activities under the VASP project (e.g. SAR coordination and ice chart distribution services).

5.   Operational tests

5.1   Purpose

The project concept foresaw testing of technical solutions with Member States' authorities and industry, such as the Integrated Report Distribution (IRD) service. The coastal stations authorities could use the Integrated Ship Reports (ISR) provided by the IRD service to minimise the reporting burden for ships, to improve the efficiency of provided services and to develop a better awareness of their areas of control.

The purpose of the tests related to MRS/VTS reporting by electronic means is to verify the exchange of data between ship and shore and the functionalities aiming at facilitating the reporting (i.e. re-use of information available in SSN, re-use of previously submitted reports and spreadsheets).

These operational tests will be used to verify quality, availability, reliability, and usefulness of the technical solution developed within the project and to improve or adjust the solution.

The guidance for the operational tests of the Integrated Report Distribution (IRD) was prepared by EMSA and MSs with the objective to provide guidance to MS authorities willing to participate in the operational tests of the facilitation of ship to shore reporting pilot project. In addition, it specifies possibilities for ships' involvement in these tests with the use of a single Ship Data Provider Graphical User Interface (Ship DP GUI) developed within the project for exchange of MRS/VTS reports between ship and shore by electronic means.

5.2   Identified use cases

The use cases presented in this section have been identified by EMSA and Member States during the execution of the pilot project.

5.2.1   Use of IRD in MRS and VTS areas

There are 16 IMO adopted mandatory ship reporting systems (MRSs) and around 100 Vessel Traffic Services (VTSs) in the European waters where ships are required to report data to shore-based authorities. The coastal stations responsible for MRS/VTS may use the relevant information from the ISR to cross-check it with the MRS/VTS report provided by a ship. There are two possible ways of testing the IRD in MRS/VTS areas. The IRD system can be either configured to generate a report automatically upon the ship's entry to an area, or an operator may manually request the report at any time.

5.2.2   Use of IRD to increase awareness in Traffic Separation Schemes without SRS

There are many Traffic Separation Schemes (TSS) in EU waters. In most cases the coastal stations covering these TSS do not have access to SSN data, or it is too complex to collect the necessary data in short period of time. The IRD service can be used to provide integrated reports about ships passing through the TSS areas by:

- Configuring the IRD system to generate a report automatically upon a ship's entry in the TSS area;
- The operator manually requesting the report at any time.

5.2.3   Use of IRD in MRCC or border control centres

Authorities such as MRCC or border control centres may use the IRD service to have better awareness about ships in their respective areas of responsibility. Those authorities may decide to get an ISR for all ships entering into an area or get ISR for specific ships of interest based on the following criteria's: ship flag, ship type, ship IMO, ship MMSI. For the ships in the area of responsibility, it is possible to get an ISR upon following triggers: Incident report received, MRS report received, Hazmat received, Security Level higher than 1, Arrival at port. In addition to receiving ISR reports in an automatic way, these authorities may also use a manual request whenever needed.

5.2.4 Use of IRD to monitor specific ships regardless of their area of operations

The IRD service may be also used to generate ISRs for ships regardless of their area of operation. As an example, an authority may be interested in receiving an update at specified time intervals (e.g. daily) for a group of ships of their interest. This feature can be used for example by Flag States to get updates on their fleet. In addition to updates at specific time intervals, it is also possible to get a report when certain event occurs (e.g. if an Incident Report is received for a ship being monitored).

5.2.5 Use of IRD for MRS/VTS reporting by electronic means

Member States identified a use case for reporting MRS/VTS data to coastal stations by electronic means. A dedicated Ship Data Provider GUI was developed to allow ships to provide MRS/VTS reports to any Ship Reporting System in the EU. This interface allows ships to re-use information available in the SSN Ecosystem or to re-use previously submitted reports. The report submitted by a ship can be consulted by the receiving authority in the IRD application, be received by e-mail or be transmitted to the authority's ICT system via a dedicated system-to-system interface.

The authorities receiving the report can interact with the reporting ships by submitting Authority Response messages which can be either used to accept a report or to request additional information. It should be noted that the objective is to test new approaches for ship-to-shore reporting by electronic means, however this reporting does not replace the existing reporting obligations and operational measures implemented by the authorities (e.g. through voice communication or existing platforms).

5.3 Testing activities and feedback received from MSs authorities

The project included the testing of technical solutions with Member States' authorities and industry. These tests were executed during the whole project duration and were performed on different releases of the IRD service. Table B.1 in Appendix B presents the feedback provided by the project participants and lists testing activities performed at national level and the feedback received.

It is important to highlight the evolution of the feedback between different versions of the IRD. Initially testing authorities were rather sceptical, while in the latest versions many of them started to use it to support daily operations and requested to EMSA to make it fully operational after conclusion of the pilot project.

5.4 Ships participating in the operational tests and their feedback

Two ships were actively participating in the operational tests of the IRD, aiming at the reporting of ship data to Ship Reporting Systems by electronic means.

The first was the Ro-Ro/Passenger ferry HAMMERSHUS operating on the Rønne-Køge route and sailing through the SOUNDREP system twice a day. During operational tests all reports were submitted by this ship to SOUNDREP using the IRD system. The ship representative informed that the interface is fast and intuitive, which is very important for them. Safety of navigation is a priority on board ships and the time spent on reporting should be reduced to the minimum. The reports were generally prepared in advance by another person than the one sending it. The possibility to save a draft of the report was proposed.

There were some issues and ideas for improvements detected when filling in the report (e.g. Excel spreadsheet includes all designators, total number of PoB to be automatically calculated, etc.). The ship representative reported that no extra cost has been detected for the ship after using the IRD, since there is a fixed price for the Internet connection on board this ship. It was also reported that an automatic acknowledgment (i.e. silent approval) would be enough and there is no need for receiving a specific authority response.

The second ship participating in the operational tests was the Ro-Ro ship FINNKRAFT, operating on the Helsinki – Aarhus – Rostock route. On this route, this ship must report to GOFREP (Tallin Traffic and Helsinki Traffic) and to SOUNDREP (Sound VTS) ship reporting systems. All reports were submitted by this ship using the IRD system. It was reported that the reports were successfully received by three VTS centres, which proves that this communication works. The ship can benefit from the information previously sent and re-use it when reporting to the

next SRS. The system seems to be intuitive and easy to use. There was one message from the ship, reporting some difficulties in accessing the application which may have been caused by weak Internet connection.

6. Conclusions and next steps

The project proved that there is an untapped potential to simplify the work of both ships and coastal stations through the re-use of data and the "reporting once" principle. The project as well demonstrated that MRS and VTS reporting could be achieved through electronic means, therefore reducing voice communications. It has shown how to build on SafeSeaNet and materialize the e-navigation concept.

Through the project, a new platform, the IRD service, has been developed to automatically distribute to coastal stations integrated reports on ships of interest using information available in SafeSeaNet. A single interface for the ships to fulfil their reporting obligations to MRS and VTS was as well developed, and ship masters, agents or operators could, for the first-time, re-use information available in SafeSeaNet, reducing thus the reporting burden for both the shipping industry and the maritime administrations.

Although the project was initially established for VTS and MRS coastal stations' operators, it was found that the project could also benefit other authorities executing function in the maritime domains, e.g. SAR, MRCC, customs, border control, port authorities and PSC.

The concept was tested by EMSA with participating Member States and some of them expressed their willingness to work further on the project and to see this service as fully operational in the future:

- The Belgian authorities dealing with security are currently building a Coastal Security system and are planning to set up a system-to-system connection with the IRD service, developed under the pilot project, to use the Integrated Ship Reports (ISR) for risk analysis of the ships coming to Belgian ports.

- The Croatian Ministry of the Sea, Transport and Infrastructure, which is leading the EUREKA project funded by the EU INTERREG, is planning under this project to modernize the ADRIREP MRS in the Adriatic. One of the presented ideas is to re-use the IRD service in the future ADIREP system.

- France is willing to use the system-to-system interface in order to feed an early warning system (EWS) which will be part of the CROSS operations management ecosystem (SEAMIS). It will be used as a decision support tool by the MRCC, VTS and centres in charge of marine pollution monitoring. The maturity of this project invites in the future other CROSS centres to request access to the service.

To ensure continuation of the work started in the project, EMSA proposed at the 9th meeting of the High-Level Steering Group for Governance of the Digital Maritime System and Services to establish a working group on facilitation of ship to shore reporting. The proposal was approved, and the working group composed of MS experts will be a future forum to discuss on a harmonised approach to ship reporting in the EU and further use of novel technologies for better re-use of data and reduction of administrative burden.

This task has been also included in EMSA's Single Programming Document 2022-2024 which states that *EMSA will continue to work with the Member States to further develop facilitation services for coastal stations for ship-to-shore reporting*.

The concept was implemented to test technical solutions to simplify reporting for the benefit of ships and the MRS/VTS centres. The project did not aim at changing existing ship reporting obligations or services delivered by VTS or MRS, but at verifying whether the developed solutions could facilitate MRS and VTS reporting in the EU. The pilot project has shown that those technical solutions can be implemented and could further assist on the reporting processes. To move this concept into operation the following actions were identified:

    i.   Harmonization of MRS reporting in the EU

        IMO legal instruments focus on the procedure and content for ship-to-shore reporting for ships passing through Ship Reporting Systems. The objective is to review the reporting procedures currently in place in the EU with the objective of reducing the administrative burden, better re-use of data and harmonisation of reporting procedures between reporting systems. EMSA and the Commission could

become facilitators in this process and coordinate a proposal from EU Member States to amend existing IMO Resolutions establishing the SRS systems.

This kind of cooperation is already foreseen in Article 23.c of the Directive 2002/59/EC, which states that Member States and the Commission shall cooperate in "extending the cover of and/or updating the Community vessel traffic monitoring and information system with a view to enhanced identification and monitoring of ships. To this end, the Member States and the Commission shall work together to put in place, where necessary, mandatory reporting systems, mandatory vessel traffic services and appropriate ships' routing systems, with a view to submitting them to the IMO for approval".

ii.   Moving the IRD service from pilot project to operation

The IRD service was developed as a proof-of-concept. To move this service to a fully operational implementation some changes are required in its architecture, monitoring, scalability, security and performance.

iii. Explore opportunities to continue the development of the on-board application and test its suitability for additional ship-shore reporting processes

Two ships were actively participating in the operational tests of the IRD, aiming at the reporting of ship data to Ship Reporting Systems by electronic means. The involvement of the shipping industry in future developments is of the highest importance. The possibility of connecting the on-board systems with the IRD service should be explored. Moreover, the technical solutions may be extended to cover additional reporting obligations.

iv.   Explore financing possibilities for MS's authorities

Member States reported that the IRD service is becoming handy and easy to use, but to fully benefit from the electronic exchange of data in the future, the service should be integrated with the national or local systems. It is always a challenge for maritime authorities as it requires financial resources.

Member States' funding opportunities from the CEF 2 programme for the years 2021-2027 were presented during one of the pilot project meetings. It was noted that the following actions can be supported by the funding programme within the VTMIS domain:

-   VHF Data Exchange System (VDES);

-   Vessel Traffic Services (VTS) - Future monitoring and communication needs for the enhanced surveillance autonomous ships and shipping (MASS);

-   Mandatory Reporting Systems (MRS) - additional features related to the "ship to shore" reporting e.g. reusing data, reporting once not only between the authorities but also the shipping industry.

v.   Further testing of new technologies for communication (e.g. VDES, 5G, NAVDAT) for exchange of data between ship and shore

One of the main difficulties encountered by the shipping industry is the difficulty for ships to send large electronic files from ship to shore, in particular, when such files are sent through existing providers of global satellite communication services and where the communication expenses are based on the amount of data delivered. EMSA participates along with Norway and the European Space Agency (ESA) in a VDES demonstration project, aiming at testing the new VDES satellite-based technology to relay digital information between ships and Member States' coastal authorities using Norway's NorSat-2 satellite and specific on-board VDES equipment. Future development of VDES should be accompanied and other communication links tested for ensuring efficient data communications between ship and shore.

Appendix A   Integrated Report Distribution (IRD) service releases developed in the project

Release	Deployment date	Scope
Prototype	September 2019 in EMSA testing environment	▪ A prototype aimed at testing connections between the IRD and various back-end services (SSN EIS, ABM and Tracking system). ▪ Two triggers for generating the report have been implemented (entry into area and ad-hoc request). ▪ The ISR is generated and available to end user in the web interface developed for this purpose.
1.0	26 March 2020	▪ IRD prototype deployed in EMSA Production Environment as a first release of IRD and integrated with EMSA's IdM.
1.1	09 December 2020	▪ The Integrated Ship Reports (ISR) available through system-to-system interface (SOAP and REST protocols) and e-mail, in addition to the web user interface. ▪ New sources of information are available. Apart from STAR-TRACKING (T-AIS and S-AIS data) and SSN-EIS (voyage, MRS and Incident Reports data) which were already connected in prototype, the IRD started using data from the Operational Vessel Registry (OVR) to get vessel particulars and from the STM project's Voyage Information Service (VIS) to retrieve information about Voyage Plans (for ships participating in the STM project). In addition, information about the exemptions, Incident Reports provided for a ship in last 12 months and the list of last 5 MRS reports were also added as new blocks of data in the ISR. ▪ The content of the ISR has been upgraded as agreed with the project participants. ▪ New triggers for automatic generation of ISR report: at specific time intervals (e.g. every 30 minutes) or when specified information is updated (e.g. new S-AIS position, IR provided, Hazmat received, increase of Security level, etc.). ▪ Possibility to request the details of Hazmat, Waste, Security, Bunkers, MRS or Incident Reports notifications via the IRD web user interface. ▪ Improvements to the end-user interface following the feedback received from the participating Member States (e.g. possibility to download ISR in form of PDF or XLS, decoded information presented to the user, data presented in more structured way).
1.2	29 July 2021	▪ Graphical User Interface (GUI) for ship data providers allowing them to submit and consult VTS/MRS reports and to consult authorities' responses via Internet; ▪ Extension of the existing ISR message with data from VTS/MRS reports; ▪ Updates to the existing GUI for authorities to show VTS/MRS reports received from ships and to add the possibility to provide responses to these reports. ▪ Development of a system-to-system interface with the VDE-SAT ground station operated by Space Norway allowing: - Sending ISR messages to the ground station upon request received from the ground station; - Receiving VTS/MRS messages from ground station and making them available to MS authorities; - Pushing response messages received from MS authorities to vessels;

Release	Deployment date	Scope
		- Requesting for VDE-SAT connection specific details from the ground station.
1.3	15 November 2021	▪ Connection to new sources of information. The Integrated Ship Report (ISR) includes data from the Port Call Detection service; ▪ Display of details coming from SSN (e.g. Hazmat) in a user-friendly way; ▪ Use of new ABM algorithms. It is possible to configure ISR based on two new types of ABM: Entering Area and Line Crossing; ▪ Update of ISR messages to include indication about the trigger (e.g. ABM, Hazmat received, etc.) and name of the distribution service; ▪ Feature that repeated ABM alerts will not generate duplicated reports; ▪ Improved system performance; ▪ Other improvements requested by the users (e.g. keep last filter, name of the distribution service always visible, additional attributes for e-mail subject configuration)
1.4	March 2022	▪ Information that this application was financed by EU project added in the footer. ▪ Improvements to the Ship DP GUI: - Possibility to customise content of each designator; - Mandatory elements are marked; - Possibility to choose format of geographical position; - Possibility to have list of predefined routes per MRS area/system; - Improved Search for ShipType attribute under designator U; - Possibility to configure comment for Bunker information under designator X; - Cargo Overview changed to the list of values. ▪ Improvements to the Authority GUI: - Only active information is displayed; - Improved performance.

Table A.1: Integrated Report Distribution (IRD) service releases developed in the project

Appendix B   Testing performed by authorities on different IRD versions and feedback received

Member State	Authority(ies)	Scope	Feedback
IRD version 1.0			
Belgium	Functional testing done by the contractor without involving authorities	Manual requests for ISR were sent and an ABM service off Zeebrugge was established to detect Passenger ships.	Belgium reported that the IRD system was easy to use, did not require upgrading the national system and looks forward to next version to open the system to Belgian authorities. Belgium indicated that ship data was sometimes missing in ISR and that its readability could be improved.
Finland	Functional testing without involving VTS authorities	Only elementary tests had been performed without involving VTS authorities.\n\nManual requests for ISR were sent for some ships in the area.	It was confirmed that the IRD was capable of well compiling information in one package.\n\nFinland asked to include information reported to previous MRS systems in the ISR as a new block of data.\n\nIn addition, Finland commented that obsolete port call information should not be displayed.
France	CROSS Jobourg and CROSS Gris-Nez	In both centres the ISR reports were created following detection of ship entry into an area by Automated Behaviour Monitoring (ABM) system. CROSS Jobourg monitored 3 specific ships and CROSS Gris-Nez focused on Tugs and Passenger ships.\n\nBoth authorities used manual ISR requests for other ships entering the MRS.	France reported that the IRD system was easy to use, did not require upgrading the national system, and that there were many elements in the ISR report which matched the CALDOVREP/MANCHREP requirements.\n\nDetailed statistics were provided showing that in 17.8% of tested cases information reported in the ISR was incorrect. This raised some concerns for the operational fitness of IRD.\n\nThere were also some comments related to the presentation of the ISR report and its readability. France advised improving the IRD to consolidate information from the different sources to simplify the report and indicated that the ISR lacked details on Hazmat.
Poland	TSS Lawica Slupska	The system was used in the TSS Lawica Slupska to monitor ships going through this area.\n\nThe Coastal VTS was mainly interested in information about ships in transit, as the details for	Poland shared the same feedback as France and Belgium regarding the content of the report (structure, order of information) and mentioned the importance to export data and share it via e-mail or by other means as well as to print it.

Member State	Authority(ies)	Scope	Feedback
		ships going between Polish ports is available in the National Single Window.	
IRD version 1.1			
Belgium	MRCC Maritime Security authorities (Defence, Customs, Shipping police) and authorities dealing with Marine Environment.	The ISR reports were either created following detection of specific ship's entry into an area or using manual requests.	All Member States having tested the IRD 1.1 confirmed that the system is intuitive and easy to use.

It was highlighted that the presentation of ISR had improved significantly in comparison with the prototype version (e.g. no abbreviations, no coded data, etc.).

Some of the authorities said that they would like to see this service as fully operational in the future.

Issues with data quality were reported on e.g. ship information and voyage data.

A number of issues and ideas for future improvements were provided. |
| France | MRCC Jobourg and MRCC Corsen | ISR reports were created following detection of specific ship's entry into an area or using manual requests | |
| Norway | Functional testing without involving VTS authorities | The objective of these tests was to assess how the information coming from the IRD could enhance the data set already available in VTS.

The information received from the IRD was compared with the Norwegian SSN using dedicated script. | |
| Poland | TSS Lawica Slupska | The IRD was tested in the TSS Slupska Bank where there is no ship reporting system in place. The information coming from the IRD was used to provide better awareness about the situation in the TSS and to complement information already available in the national system. | |
| **IRD version 1.2** | | | |
| Belgium | MRCC Maritime Security authorities (Defence, Customs, Shipping police) and authorities dealing with Marine Environment | ISR reports were created following detection of specific ship's entry into an area or using manual requests. | Belgian users are satisfied with the improvements since the IRD system is more user friendly, and its performance improved.

The Belgian authorities dealing with security are currently building a Coastal Security system and would like to set up a system-to-system connection with IRD to use the Integrated Ship Reports (ISR) for risk analysis of the ships coming to Belgian ports. |

Member State	Authority(ies)	Scope	Feedback
Croatia	VTS	Use of IRD in ADRIREP system to simplify reporting and reduce administrative burden.	Croatia informed that, although did not actively participate in testing of the IRD system yet, there is some work on-going to use it operationally in the ADRIREP system.
Denmark	Danish customs	IRD system is being used by Danish customs on a daily basis for risk assessment and planning of daily operations.	The feedback is very positive, and this Authority would like to continue using IRD service in the future. There are also other authorities in Denmark using the ABM service that could be interested in using the IRD and the system will be shown to them in the coming weeks.
	SOUNDREP VTS	Reporting to MRS from ships by electronic means (2 ships on a scheduled route).	The initial feedback from SOUNDREP VTS centre was positive and operators liked the possibility to customise format and content of the e-mail with the report. During the operational tests there were two ships reporting data to SOUNDREP via the IRD system and it was confirmed by the VTS operators that it works. The reports are delivered to VTS by e-mail and there is a possibility to provide the authority response. The Head of VTS said that data received via e-mail had to be manually inserted in the VTS database and therefore in the future a system-to-system connection should be established to insert it directly in the database. The VTS operators suggested that the IRD web user interface should be upgraded to have the possibility to display a list of last received reports, regardless of the date and that it would be nice to have a possibility to indicate that the vessel is in the area
Estonia	Tallinn VTS	MRS reporting by electronic means with one ship on scheduled route.	The Head of Tallinn VTS shared similar feedback as Denmark and Finland, confirming that reporting from ships via the IRD works. However, to fully benefit from this solution a system-to-system interface shall be established and received reports integrated in the VTS database.
Finland	Helsinki VTS	MRS reporting by electronic means with one ship on scheduled route.	Finland reported that the IRD system is becoming handy and easy to use.

Member State	Authority(ies)	Scope	Feedback
			The number of reports received was limited but good enough to take some conclusions. The reports were successfully delivered and easy to read. To fully benefit from the electronic exchange of data in the future, these reports should be integrated in the Finish system by using the system-to-system interface. Finland stated that since data is already available in the SSN/IRD system, they should aim at reducing the number of reports from ships in EU waters.
France	MRCCs	ISR reports were created following detection of specific ship's entry into an area or using manual requests	France informed that they are willing to use the system-to-system interface to connect in 2022 with the new SEAMIS ICT system for early warnings. There was positive feedback on the new version of IRD following the webinar.
IRD version 1.3			
Denmark	VTS	Reporting to MRS from ships by electronic means – testing from the office	Denmark informed that the changes to the ship interface are clear and significant. The system is much easier to use, and it takes less than 2 minutes to fill in the report which is a noteworthy improvement.
France	MRCCs	ISR reports were created following detection of specific ship's entry into an area or using manual requests	France provided positive feedback on the new version, especially regarding possibility for retrieving Hazmat details. There are new MRCCs in France asking for access to IRD.

Table B.1: List of testing activities performed by MSs authorities on different IRD versions and feedback received