1. **Overall Goal**

“Streamline the data exchange between ship and shore-based stakeholders”

1. **Ship Reporting Task (Updated Version)**

The Ship Reporting Task Group (SRTG) requests that the description of its task in the 2018-2022 Work Plan (Task 5.2.2) be changed to:

Develop Guideline on Ship Reporting from the shore-side perspective.

Expected outputs:

1. Ship Reporting web services, portal specifications and governance;
2. Guideline on ship reporting web services;
3. Minimum cyber security requirements for transmission of and access to ship report information;

Guidance on migration from current ship reporting system to a harmonised and secure electronic Ship Reporting system;

Consider IEC63173 Route Exchange work.

1. **IALA’s Role in the development of an automated ship reporting system**

Recalling IALA ARM’s work on definition for MS8, this paper expresses a harmonized approach for digital exchange of ship reporting information for shore-based authorities.

Noting that the draft IALA Guideline on Maritime Services V7 from ENAV (ENAV19.14.2.9), reflects the use of and adherence to S-200 based Common Maritime Data Structure, this paper assumes that ship reports are using the S-100 data model, but will accommodate other data models (i.e. those used by IMO FAL, WCO, ISO, UNCFACT).

* Develop an IALA Ship Reporting Services Guideline intended for
  + IALA National Members
  + Industry Members

The purpose of the Guideline is to notify Members of the planned digitalization and automation of Ship Reporting Systems and regimes. Ship Reporting Systems encompass both the Ship Reporting System (SRS) and the Vessel Shore Reporting (VSR). The Ship Reporting System is to be transformed to a digital data exchange system. The Guideline should provide details on the methodology that will likely be utilized to achieve this goal.

* Collaboration with IMO

When the SRTG determines that IMO could benefit from its work, then SRTG will draft an “Inf Paper” that IALA could consider submitting to IMO referring to IMO’

e-Navigation Strategy Implementation Plan Solution 2 (Means for) Standardized and Automatic Ship reporting, and Solution 5 (Maritime Services Portfolio - Maritime Service 8 (MS8) Vessel Shore Reporting)

1. **Data Element Harmonization**

SRTG does not intend to involve itself in data element harmonization.

SRTG recognize the work on the IMO Compendium on Facilitation and Electronic Business on the dataset harmonization submitted to FAL 43. The datasets and standards are related to;

* 1. FAL 1-7 Reports (pre-arrival oriented)
  2. WCO data model (customs oriented)
  3. ISO 28005 definitions (port clearance oriented)
  4. UNCFACT (Business and Logistics oriented)

SRTG also noted that the IMO FAL Expert Group on Data Harmonisation (EGDH) is in the process of further harmonization of data elements as per the Terms of Reference of the EGDH (Annex 3 of Circular Letter 3996).

1. **SR Technical Service definition**

The Ship Reporting System will use ENAV Committee “Guideline on IP (Web Service) based S-100 data Exchange (Document ENAV24 12.3.3.1) as a guide for the definition of this technical service.

A close up of a map

Description automatically generated

Figure Voyage from Murmansk to Helsinki showing mandatory reporting areas

Figure 2 visualizes a preliminary and simplified sequence diagram of a future automatic ship reporting regime:

A screenshot of a social media post

Description automatically generated

Figure Ship Reporting Process Sequence Diagram

* 1. Ship Reporting Process description for both VSR and SRS
     1. Plan Voyage (in Voyage Planning System)
     2. Find Webservice URL’s for Destination Port and for Mandatory Reporting Areas in a Catalog that is hosted by one of the following entities:
        1. IALA
        2. IMO Global Integrated Shipping Information System (GISIS)
        3. ITU
           1. T-sector (Standardization)

Y-series

* + - 1. MCP/STM (Service Directory)
      2. Another entity
    1. Use webservice to initiate data exchange
       1. Initiate the webservice through its URL
       2. Send Ship Particulars and Voyage related Information in IEC61174 RTZ format, PortCDM S-211 or other protocol (TBD)
    2. Shore uses ship particulars and voyage related information to determine Reporting Requirements.
    3. Shore sends Ship Reporting Requirements to ship in machine readable format (e.g. XML, JSON, etc.). It will include both S-100 and non-S-100 data elements
       1. FAL 1-7 Forms
       2. PortCDM S-211
       3. Route Exchange IEC61174 RTZ
       4. Other Data Elements and Reports as required by local authorities
          1. Arrival/General Declaration
          2. Ballast Water Log
          3. Cargo Declaration
          4. Disembarkation Certificate
          5. Ship Certificate
          6. Crew Effect Declaration
          7. Crew Vaccination Record
          8. Crew List
          9. Foreign Currency List
          10. General/NIL List
          11. Health
          12. Passenger List
          13. Port of Call List (Voyage Memo)
          14. Security Report
          15. Ship’s Particulars
          16. Ships Repairs
          17. Ship Stores Declaration
          18. Tank Condition
          19. Waste Notification
          20. Others
    4. Ship sends reports to shore in accordance with reporting requirements

Some reports are to be transmitted M2M directly from ship-board systems to shore to avoid data massaging by the crew, e.g.

* + - * 1. Dirty Ballast Discharge
        2. Bilge Discharge
        3. Stack Emissions
        4. Switching fuel from crude oil to diesel oil (and back)
    1. Acknowledgement of receipt of SR
  1. Technical Service Components
     1. Catalog (aka Service Directory/Portal)
        1. Who hosts the catalog?
           1. IALA
           2. IMO Global Integrated Shipping Information System (GISIS)
           3. ITU
           4. MCP/STM (Service Directory)
           5. Other?
        2. Shore based entities will be responsible to keep their webservice URL in the Catalog up to date.
     2. Webservice
        1. Minimum webservices functionality
           1. Receives Ship Particulars and Voyage related information
           2. Determines Reporting Requirements
           3. Sends Reporting Requirements to ship
           4. Receives Ship Reports
           5. Acknowledges Receipt of Ship Reports
        2. Webservice Technology
           1. Technology Neutral (able to communicate with any ship-board system)
           2. Cybersecurity Measures

Authenticates the webservice owner

Authenticates Sender (i.e. Ship) of Basic Voyage Data

Data Integrity

* + - * 1. RESTful or SOAP (see Use ENAV Committee “Guideline on IP (Web Service) based S-100 data Exchange (Document ENAV24 12.3.3.1)
        2. Message Protocol: S-100 data and other data model elements captured in machine readable JSON/XML files

**Annex 1**

**Migration from paper - based systems to digital system**

Emerging countries may not have the capacity and/or capability to transfer their ship reporting system from a paper-based system to a fully digital system in the near term. It may take as long a decade for some countries to implement a digital ship reporting system.

To assist such countries with this migration it may be useful to devise an intermediate ship reporting system that allows them to move into the digital age without having to implement a fully digital system. Such an interim system would closely mirror their existing paper-based system using PDF forms.

The Intermediate system (intended for emerging countries)

1. May Require Ship to send e-mail to request reporting requirements (directly of via Port Agent)
2. May require shore to send ship required PDF form Templates
   1. Via e-mail
   2. Via webservice
3. May require reports to be sent to individual shore-based agencies (i.e. no MSW)
4. May Require Manual Scheduling of report submission

A major advantage of allowing emerging countries to initially implement an intermediate system is that doing so will allow IMO to streamline the data exchange between ship and shore-based stakeholders even before a fully digitized system has been implemented by all competent authorities.