NIPWG VTC 2023-12-06

## Input paper for consideration by NIPWG

## Meeting report of EGDH 9

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| Submitted by: | NIPWG, vice chair (IHO representative at IMO EGDH) |
| Executive Summary: |  |
| Related Documents: |  |
| Related Projects: | IHO S-100 and S-100 Product Specifications |

**Introduction**

The IMO Expert Group on Data Harmonization, EGDH 9, met in London 23-27.10.2023. IHO attended the hybrid meeting in person, together with around 15 participants in person and a similar amount online during the first day. EGDH is responsible for maintenance of the IMO Compendium.

Online participants included; Argentina, Australia, Canada, Egypt, EC, ITF, Marshall Islands, Myanmar, Nigeria, Panama, Turkey, UNECE. Participants in the room included; Singapore, Netherlands, IHO UNECE, Nigeria, ISO, BIMCO, Saudi Arabia, Denmark, IPCSA. In total around 30 participants attended the meeting either online or face-to-face.

EGDH reports to the FAL-committee, and terms of reference include to;

* Maintain the IMO compendium and define priorities
* Propose sub-models and datasets to be included to the compendium
* Collaborate with NCSR if needed

Updated terms include also;

* Provide additional implementation guidance
* Define data elements which are mandatory or voluntary
* Provide any additional information important for using the Compendium

**Analysis/Discussion**

Selected items of special interest are mentioned here. The full meeting notes provided by IMO Secretary are available through IMO DOCS.

IHO provided three papers to the meeting;

* EGDH 9/4 Outcome of the IHO S-100 and the IMO Data Reference Model mapping exercise (IHO)
* EGDH 9/4/1 - Mapping exercise outcome related to IMO JIT and IHO S-131 (IHO).pdf
* EGDH 9-10 - Actions and activities within IHO (IHO).pdf

**Outcome of the IHO S-100 and the IMO Data Reference Model mapping exercise**

IHO presented the document EGDH 9/4 on the outcome of the IHO S- 100 and IMO Reference Model mapping exercise. The same results were also presented at the previous NIPWG- meeting. The exercise indicated, that producing S-100 compliant product specification(s) based on the IMO Compendium would be technically feasible, but would also include a substantial amount of work. It was noted by IHO, that machine readable versions of the IMO Compendium and versioning would make it easier for developers to use the Compendium and also reflect changes in implementations

Discussion:

 It was discussed, that the mapping had identified differences between both IHO and IMO models and this would be very useful for the process of harmonization of the overlap identified between the two models.

IMO Compendium Datasets could be formally described by using S-100 style Feature Catalogues. It was mentioned, that IHO maintains the S-100 framework, but several domain owners are involved in creating S-100 based product specifications within their own domain. It would not be the role of IHO, to produce actual product specifications on behalf of IMO, and questions regarding IMO S-100 domain ownership and production resources would, in such case, have to be further considered.

It was discussed, that IALA as a domain owner and producer of S-100 compliant product specifications, was considering including ship reporting in the context of Maritime Service 8 in an IALA product specification.

The Group expressed great appreciation to IHO for the work done and agreed to inform NCSR of the mapping exercise and outcome and to request the modelling team to propose improvements to the Compendium to facilitate its use by developers.

**Mapping exercise outcome related to IMO JIT and IHO S-131**

A separate document describing the outcome of the mapping exercise related to IMO JIT and IHO S-131 was presented. Additional to the features and attributes available in S-131 1.0, also a recommendation to define geographical positions in a consistent manner was suggested.

Discussion:

It was agreed, that similar definitions should be used in both models, in order to harmonize the identifiers of port locations (terminal, berth, etc.) and their use. The Group agreed to amend business rule 8 to add a reference to EPSG:4326 (WGS84), in line with most IHO S-100 products, for the Coordinate Reference System (CRS).

Note:

The Group was informed about a UNECE project on geofencing covering facilities such as terminals, container depots, repair yards, freight stations, rail yards, etc. and that information was available online (Geofencing Facilities (unece.org)).

**Actions and activities within IHO**

IHO presented some product specifications, that might be of interest to members of IMO EGDH. Current development of S-131, including the Singapore lab database project was presented. Also current development of S-123 and S-127 was presented.

S-131 has a direct relation to data in the JIT- dataset. The NIPWG 10 decision to investigate a proposed expansion of S-123 to include the mapping of connectivity coverage of a broader variety of communication devices, such as 4G, 5G, LTE, VDES etc. might be interesting for ship reporting considerations.

S-127 was presented, as S-127 includes provision of ship reporting requirements, including applicability to

vessels and instructions for reporting and contacting authorities.

**Experience from using the IMO Compendium in the development of the Project SWiFT (EGDH 9/13/5/Rev.1)**

The SWIFT- project is a Singapore collaboration with IMO in order to develop a generic Maritime Single Window. IMO compendium was used in the project implementation, and experiences shared. IMO Compendium was considered a good reference tool for standard definitions of each data element. The reference model provides context on the usage and references to the correct code-lists. Challenges encountered included initial understanding of how to use the compendium, and learning points included the need for a "Business analyst" to communicate between business users and developers.

Discussion: The IMO Compendium was used as a reference, and a custom data model implementation was created. EGDH modeling group discussed whether focus was to be placed on the UML- model or the "flat data". Currently there is a lot of freedom left for implementation. Implementers can "pick-and choose", and also has to make choices regarding the implementation. A future need for interfacing might be affected by the fact, that implementations of the reference model might differ. Also, machine-readability and the difference of providing data in a GUI and actually sending data (data transfer) was discussed. Sending and receiving data seems like a use-case for a data "transfer-standard", ensuring correct encoding and decoding of data.

**Maintenance of the IMO Compendium on Facilitation and Electronic Business (EGDH 9/13/3)**

In order to improve the consistency of the IMO Compendium, a template of common types of data elements is provided. Types include specified data formats, name and definition templates; Indicator, Name, Text, Numeric, Quantity, Measure, Code, Identifier, DateTime, Date, Binary Object. The distinction between specific and generic data elements is mentioned, with a recommendation to use specific data elements, in order to be able to distinguish between different elements. The Reference model is described as classes with attributes.

Discussions: The Binary object would need additional data regarding the type of the binary object. Data format for dates is defined as according to UN/EDIFACT 2379, which is aligned to ISO 8601. Format limits discussed, and behavior if limits are exceeded. Code is referencing an entry in a specified list. Discussion regarding LOCODE and child-codes and whether these are codes or identifiers. Scope of identifiers must be considered. Each identifier has a given scope where it is unique.

Note: At a later stage in the meeting, when Maritime resource Names (MRN) was briefly discussed, it was brought up that the MRN is a way of extending the scope of identifiers, in order to make them globally unique.

**Ballast water arrival reporting (EGDH 9/13)**

Amendment proposed to distinguish between ports within a single country that have the same name. Also, addition of identifier additional to ship name, imo-number and mmsi was discussed.

Discussion:

It was unclear what the identifier additional to ship name, imo-number, or mmsi would be, and the benefit for it. It was discussed, that a data element for "other identification" can be hard to interpret, could be better to use a name like "Additional description for identification", where the identification is described in narrative.

**Proposed definitions of API and related concepts (EGDH 9/13/6)**

FAL 47 (13 to 17 March 2023) instructed EGDH to provide additional guidance on the use and implementation of the IMO Compendium, as referred to in the revised terms of reference of EGDH approved by the Committee (FAL 47/22/Add.1, annex 4). The terminology and definitions in this document are based on IMO FAL.5/Circ.46, Guidelines on Authentication, Integrity and Confidentiality in Information Exchanges via Maritime Single Windows and Related Services.

ISO presented a paper, with proposed definitions of Application Programming Interfaces and related concepts.

Differences between EDI (Electronic Data Interchange) and API (Application Programming Interface) was discussed. It was concluded, that API is needed for M2M and will most likely become more important in the future.

Note:

Despite the use of general term "API", the discussion seemed to address (REST- based) Web Service APIs.

Discussion:

Intersessional discussion to be continued by correspondence (ISO and others).

**Extension of IMO number**

S&P global proposes an extension of IMO numbering scheme. An IMO number consist of alphanumeric characters, usually the prefix IMO followed by 7 digits. A check digit is used for verification of numbers. As fishing vessels were brought into the scheme in 2017, and old numbers cannot be reused, an exhaust of available numbers is anticipated within two decades (by 2042). An extension would mostly impact internal systems, data ingestion routines and validation processes among other. Adaptation is estimated to need 3-7 years. Time to adapt and cost to implement are identified as possible challenges.

Discussion:

UNECE is working on adding fishing ports to LOCODE, which will need an similar extension of the LOCODE scheme.

**Just In Time sub-model review**

The JIT - data model includes data, that is also present in S-131. The JIT model is placed in a separate sub-model, in order to reduce model complexity. It is anticipated that several sub-models will be used in the future.

Discussion:

It was discussed and decided, that the model only consider Arrival. It was proposed that the dataset should be renamed to *JIT Arrival* instead of *JIT Concept*.

IHO brought up the fact, that the current model contains identifiers for locations, but does not contain the definitions of the actual location features in the JIT- dataset (such as Terminal, Berth etc.)

The following definitions, defining both the identifier and the feature, are provided as suggestions to the modelling group by IHO, in order to align with S-131.

**Pilot boarding place**

A name, number or description used to identify a Pilot boarding place. A Pilot boarding place is the location offshore where a pilot may board a vessel in preparation to piloting it through local waters. (IHO Concept register)

**Anchorage, name**

The name used to identify an anchorage. An anchorage is defined as an area in which vessels anchor or may anchor. (IHO Concept register)

**Anchorage, coded**

The code used to identify an anchorage. An anchorage is defined as an area in which vessels anchor or may anchor. (IHO Concept register)

**Terminal, name**

The name used to identify a terminal. A terminal covers that area on shore which provides buildings and constructions for the transfer of cargo or passengers from and to ships. (IHO Concept register)

**Terminal, coded**

The code used to identify a terminal. A terminal covers that area on shore which provides buildings and constructions for the transfer of cargo or passengers from and to ships. (IHO Concept register)

**Berth, name**

The name used to identify a berth. Berth is defined as a place, generally named or numbered, where a vessel may moor or anchor. (IHO Concept register)

**Berth, coded**

The (UNDEFINED) code used to identify a berth. Berth is defined as a place, generally named or numbered, where a vessel may moor or anchor. (IHO Concept register)

**Berth position**

A name, number or description used to identify a berth position. A berth position is a specific position within a berth where a vessel may be moored or anchored. (IHO Concept register)

**IMO data set related to “noon data reporting”**

BIMCO proposed adding a Dataset on "noon data reporting", including a standard set of data elements to be used in different setups of ship-shore reporting. Although these types of reports are usually sent by vessels to their respective shore-side organizations (ship-owners), there are benefits in standardization.

Discussion:

The dataset contains some elements, where definitions might be aligned with IHO registry concepts. These include Weather and environmental data such as swell, current, sea-state, wind, draft, speed and positions. The possibility to refer a S-421 route for position was discussed.

As a special case, indication of timezone in times was considered. The timezone itself is important information, but can be derived form a position or a local time indicated with offset.

**Action Required of NIPWG**

The NIPWG is invited to:

a. note this paper