 Input paper: [[1]](#footnote-1) ENAV17-9.9

Input paper for the following Committee(s): check as appropriate Purpose of paper:

**□** ARM **□** ENG **□** PAP **□** Input

**X** ENAV **□** VTS **□** Information

Agenda item [[2]](#footnote-2) 9

Technical Domain / Task Number 2 …………………………………

Author(s) / Submitter(s) Eivind Mong …………………

On extending the S-100 framework for streaming data services

# Background

S-100 has been developed by IHO to be a framework from which product specifications for geographical information is developed. The S-100 development has been needs driven, and changes have been largely in response to new needs identified within the S-100 stakeholder community. In its current construction, S-100 is dataset centric. This means that any collection of data structured in S-100 fashion, must fit within the scope of a dataset. An example is, S-100 0-4.16 (Part 11 – Product Specifications) where it is stated “A product specification is a description of all the features, attributes and relationships of a given application and their mapping to a dataset”. Datasets are usually identifiable collections of data about a domain within an area of coverage, at a particular point in time . This notion is not compatible with streaming data services, such as inter VTS exchange of data (IVEF) and likely some AIS ASM, where data is delivered over time, for example, as soon as it is created by sensor, manual input or other means.

# Discussion

At an intersessional in February 2014, the Data Modelling Working Group of IALA-eNAV Committee found that in particular the metadata part of S-100 is ill suited to describe a streaming data service, given its dataset centric construction. Other parts of S-100, like the General Feature Model and Coordinate Reference System are well suited to describe the data elements of a streaming data service and can likely be used with little to no modifications.

At IHO-TSMAD29 a first draft of S-112 (water level over AIS-ASM) was presented. Given the nature of AIS being streaming data, one can expect that many of the complications faced by IVEF will be encountered by the team behind S-112.

An earlier study (e-NAV10-INF7; HSSC3-INF9) of the feasibility of using S-100 in ship reporting (notices of arrival/departure) concluded that the content modelling framework of S-100 could be used in non-geographic application areas as readily as for geospatial data, but other parts of S-100, specifically data format, delivery, data quality, and metadata would need to be adapted or simplified for message-oriented or temporally-focused data. It encouraged re-use of data model elements (objects and attributes) across both spatially-focused and non-spatially-focused domains.

IALA has tried to organize an intersessional meeting among experts to produce a proposal for how S-100 can be amended to overcome the challenge. However, experts in streaming data have not been available, and therefore little progress has been made to date.

# Conclusion

S-100, in its current form, does not provide support for streaming data services that are envisioned to be formed in various e-Navigation Maritime Service Portfolios. Preliminary exploration suggests that adding the appropriate support to S-100 is likely to consist more of extending the current framework rather than making fundamental changes to it.

Assistance is needed from streaming data experts to progress a proposal for extensions to S-100 to enable streaming data services under the S-100 framework.

# References

1. Please add details

# Action requested of the Committee

The Committee is requested to:

1. Assist WG1 to identify and arrange for the participation of experts in streaming data, modeling, S-100, as well as a few domain experts from e-Navigation, to develop proposals to extend S-100.
2. Update IHO about IALA’s intentions with regards to streaming data service.

1. Input document number, to be assigned by the Committee Secretary [↑](#footnote-ref-1)
2. Leave open if uncertain [↑](#footnote-ref-2)