

**Architectural Strategy to Efficiently Implement S-100 related products**

<b>Submitted by:</b>	NIPWG
<b>Related Documents:</b>	NIL
<b>Related Projects:</b>	All S-100 Product Specifications

**Introduction/Background**

S100 has been introduced as the Universal Hydrographic Data Model some years ago. Since then, HSSC WGs and other stakeholders started the development of S-100 compliant product specifications. They vary from replacement of S-57 ENC and provision of nautical information to enhanced provision of high dense bathymetric data or weather information as well as tidal and water current information.

Regulation 2 of SOLAS Chapter V allows the replacement of paper charts and publications by databases if the information can be reproduced. Although SOLAS Chapter V states that in the digital environment, ECDIS systems must be used to present ENCs and as such, are a full replacement of nautical paper charts. The provision of other information is not necessarily displayed on ECDIS.

The more product specifications emerge and the more products will be available in the future, the determination of the proper electronic presentation of publications and other information become relevant.

This paper addresses several issues of the implementation of S-100 related products in general and for three products in more detail. This paper doesn't discuss the product specifications, their data models or necessary data model harmonisation themselves.

It has been considered that such strategic discussion belongs not entirely to HSSC as this committee is focussed on the standards and services, but the paper helps to address the issues at the appropriate body.

**Analysis / Discussion**

Apart from the ENC which has to be presented front bridge in navigational equipment, all other products should be assessed whether they should be presented front bridge or back bridge.

It is assumed that S-102 (High dense bathymetric data) will supplement or even replace depth information in ENC. This assumption bases on the assumption that the carriage requirement questions have been discussed in IMO and that an S-102 product is authorised to replace S-101 depths information.

Having fulfilled all necessary preconditions, S-102 is a potential front bridge application.

S-98 (interoperability specification) applies in that case. If portrayal issues are involved, and if an online update mechanism is in place, instructions should be developed which take the relevant IMO guidelines for harmonised display into account.

The front bridge ECDIS will have a full back up system which is also a front bridge system, if the vessel relies totally on ENCs.

Assuming that all other products are back bridge applications, is should be asked whether S-98 (interoperability specification) applies, and if the same Data Quality Instructions as for front bridge applications should be used.

If these products are overlays, a definition of what will be displayed in which order should be made (i.e. equivalent to an interoperability specification if S-98 does not apply). Products will be delivered based on various product specifications.

In most cases, data will be supplied to the HO in more detail than the relevant product specification data model needs. Examples are

- the provision of environmental protection information of which only a part will be used for the S-122 (MPA) product.
- the provision of AtoN information (S-201) of which only few will be used for the S-125 (Navigational Services) product.
- the provision of tidal stream and current stream information of which only few parts are being used in relevant products.

However, comprehensive data can be used for GIS applications and other purposes.

The provision of S-201 data is another challenge. It has often been mentioned that data streaming would enhance the usage of the data by providing relevant corrections on the fly and that this will strengthen the position of the hydrographic offices and the IHO. If that is the case, the replacement of AtoN information in ENC has to be legalised in the same way as the replacement of the depth information by S-102.

A firm statement of what is possible in that regard, and equally, what is prohibited has never been recorded or it is not publicly available. It is most likely that the IMO should also have to make appropriate adjustments to regulations. Bearing in mind the IMO procedures, amendments of existing IMO regulations have to be initiated as soon as possible.

#### **Justification and Impacts**

Decisions have to be made to give clearer direction of the position to the various stakeholders including the IMO. In fact, the clearer the strategic statement is, the more reliable is the IHO position in the maritime world.

#### **Conclusions and Recommended Actions**

The status of the DQWG Checklist for Product Specifications should be determined. It should be determined to what extent S-98 is applicable for back bridge applications. It has also to be determined how data use is planned.

#### **Action Required of HSSC**

HSSC10 is invited to:

1. take note of the paper,
2. initiate a strategic discussion on efficient implementation of S-100 based products,
3. assign the further development of the architecture paper to NIPWG.