

Paper for Consideration by HSSC

S-401 and interoperability with S-101

Submitted by:	Inland ENC Harmonization Group (IEHG)
Executive Summary:	IEHG is developing S-401, the Product Specification for Inland ENC's that is based on S-101 but is containing additional inland specific features. As maritime vessels are navigating on inland waterways (e.g., Rhine, Danube) it is important to ensure interoperability. HSSC is invited to consider the options to ensure interoperability.
Related Documents:	S-401 1.0.0, S-98
Related Projects:	Development of future versions of S-98

Introduction / Background

The Inland ENC Harmonization Group (IEHG), which has been recognized as an NGO by IHO, has published a Product Specification for Inland ENC's that is based on S-57. IHO has confirmed that it is possible to have a certified maritime ECDIS that is also capable of displaying Inland ENC's, although currently most maritime ECDIS are not able to display Inland ENC's correctly. Due to carriage requirements on some sections of inland waterways maritime vessels that are using those waterways need to invest in a second application (e.g., ECS or "Inland ECDIS").

The IEHG has closely followed the development of S-100 from the beginning, as the S-100 data model appeared to be the solution to the display problems mentioned previously. To ensure compliance with the standard, the IEHG has provided input to various IHO working groups and committees and has been constantly aligning the drafts of S-401 with the latest editions of S-101. The European Union has supported this process with considerable funds in various R&D projects. The idea was that a S-100 based application will be able to display any S-100 based product correctly if the Feature Catalogue and the Portrayal Catalogue are delivered together with the product itself, but if several products should be displayed at the same time, an interoperability standard is also needed.

The first edition of the interoperability standard S-98 only covers those products that are explicitly required by IMO. Informal contacts have indicated that there are different opinions as to whether it will be possible to integrate S-401 in a future version of S-98.

Analysis/Discussion

Do maritime vessels need a possibility to display Inland ENC's?

Maritime vessels are not only accessing ports that are situated on inland waterways but are often using the lower sections of the big inland waterways (e.g., the river Rhine up to Duisburg, 220 km, the river Danube up to Belgrade, 1100 km).

The use of Inland ENC's is mandatory on some inland waterways. The official Inland ENC's for those waterways are published by the competent authorities and contain a lot of detailed information through the use of inland specific features.

Under the current S-98 proposal, maritime vessels would therefore not be allowed to use some inland waterways without the capability to display Inland ENC's and could therefore miss out on the ability to utilize that detailed information.

IEHG sees the need to ensure the ability to display Inland ENC's on the equipment of maritime vessels.

The IEHG formally requests that the integration of S-401 be included in a future version of S-98 as a base cell option, with the following considerations:

Precondition: final version of S-401 and availability of S-401 test charts.

Pros:

- The integration of S-401 in S-98 would ensure that every S-100 based maritime ECDIS can display and utilize all features and attributes within S-401 Inland ENC's. No maritime vessel would need two applications.
- There would not be legally questionable situations when a vessel is moving from the maritime to the inland waterway area.
- S-401 Inland ENC's include larger scale, more detailed information in areas where maritime and inland chart coverage overlap and would serve as a complimentary layer to S-101.

Cons:

- The integration of S401 in S-98 will potentially increase the workload of the IHO working groups that are dealing with the topic of S-98. Although the IEHG will submit a comprehensive proposal for the inclusion of S-401 as a complimentary base cell to the relevant working group.

Discussion:

- The ECDIS Performance Standard states:
 - 1.3 – ECDIS should be capable of displaying all nautical information necessary for safe and efficient navigation, originated, and distributed by or on the authority of a government, authorized hydrographic office or other relevant government institution, as required by SOLAS regulations V/19 and V27.
 - 1.6 The ECDIS display may also be used for the display of radar, radar tracked target information, AIS and other appropriate data layers to assist in route monitoring.
 - 2.2 These performance standards apply to ECDIS mode of operation, ECDIS in RCDS mode of operation as specified in appendix 7 and ECDIS backup arrangements as specified in appendix 6.
- One could argue that S-401 is an "other appropriate data layer" distributed by a government institution and should be authorized for use in ECDIS mode of operation.
- The integration of S-401 in S-98 would help to ensure safe and efficient navigation, as all pertinent chart-related data would be available for use.

Conclusions

From the point of view of IEHG, the integration of S-401 in a future version of S-98 is a logical solution to help ensure safe and efficient navigation on all waterways, regardless of type. The guaranteed capability of maritime ECDIS to be used on inland waterways would justify the additional efforts of the IHO working groups, and IEHG commits itself to provide the necessary input for this development.

If IHO decides that S-98 will stay restricted to the products that are required by IMO for the maritime area, IEHG would need such a decision as a starting point to develop an interoperability standard for inland waterways.

Action Required of HSSC

The HSSC is invited to:

- a. note this paper
- b. task the relevant working group to analyze the possibility of integrating S-401 as a complimentary base layer in a future edition of S-98 as a basis for a final decision at the next HSSC.
- c. if S-401 is approved for integration in S-98, accept the offer of the IEHG to prepare the documentation for the inclusion of S-401 within S-98.
- d. reserve the number range from S-401 to S-410 for future inland specific products to be developed by IEHG.