Paper for Consideration by HSSC9

S-100 products validation

Submitted by:	France (Shom)
Executive Summary:	This paper explains the need for a "Data Validation" section in every S-100 product specification and recommends taking any necessary action for a quick handling of this work.
Related Documents:	S-100 Test bed and all S-10x Product Specifications.
Related Projects:	All S-100 projects.

Introduction / Background

ENCs are still now the only S-57 product used on the ECDIS. Before distribution they undergo a deep validation process. Although work has already started on S-101 ENC validation, it seems that a new work item should be identified for all other S-10x products.

Analysis/Discussion

Before being released by a Producing Authority and then uploaded on an ECDIS by the Mariner, any S-57 ENC must have gone through a series of validation checks which are listed in S-58 IHO standard. S-58 validation checks are very numerous (more than 500 checks) and very complete. They are divided into 5 categories according to what is checked:

- Checks relating to S-57 Data Structure;

- Checks relating to ENC Product Specification;

- Exchange set Level checks;

- Checks relating to Use of Object Catalogue for ENC;

- Checks relating to allowable attribute values for particular object classes.

Moreover, a hierarchy has been elaborated according to the « criticity » of the check:

C	Critical Error	An error which would make an ENC unusable in ECDIS through not loading or causing an ECDIS to crash or presenting data upon which is unsafe for navigation.
E	Error	An error which may degrade the quality of the ENC through appearance or usability but which will not pose a significant danger when used to support navigation.
W	Warning	An error which may be duplication or and inconsistency which will not noticeably degrade the usability of an ENC in ECDIS.

Current ENCs are the only official product that conforms to S-57 and which is used on the ECDIS.

S-101 ENCs will follow the same process of validation. A Sub-WG (under the S-101 Project Team) has just started the work on the conversion of S-58 checks into S-101 checks. It has been decided that the checks for S-101 ENCs will no more be a distinct standard, but will be a part of the Product Specification.

As the future ECDIS will be fed with various S-10x products, it seems necessary that all of them follow a similar validation process. Even if the validation probably does not need to be as complete and refined as current S-58, the minimum is at least to prevent ECDIS crash.

Although "Data Validation" is clearly identified in the S-100 System Overview, it seems that this "validation perspective" has not been sufficiently detailed and taken into account, whereas some S-10x Product Specifications have now reached a certain degree of maturity. This is why France suggests that HSSC9 takes any necessary actions in view of the systematic development of validation checks within every S-10x Product Specification. It is suggested that the Data Quality WG could be in charge of organizing and supervising this work.

Validation checks can be implemented in production softwares but also in specific validation tools such as some which are currently used by RENCs before the distribution of an ENC. In order not to be delayed because of the possible absence of such tools, it is recommended to handle this issue as soon as possible.

Non IHO products based on S-100 (S-20x, S-40X) should probably follow the same process and liaison with the authorities responsible for these standards should possibly be established.

Conclusions

In order to prevent any ECDIS crash or presentation of data which is unsafe for navigation, any S-10x Product Specification should contain a "Data Validation" section.

Recommendations

The HSSC is invited to:

- Validate the proposal of a "Data Validation" section in every S-10x product Specification;

- Discuss on the extent of such a section;

- Decide on the IHO WG in charge of this task;

- Take any necessary action for the implementation of this new work item.

Action Required of HSSC

The HSSC is invited to:

a. **Note** this paper;
b. **Consider** the relevance of the recommendations;
c. **Take any actions** considered appropriate.