

Paper for Consideration by S-101PT6

S-101 improvements during and after the Dual Fuel period

Submitted by:	France, Australia (AHO)
Executive Summary:	While the clarification of the principles of Dual Fuel (DF) ECDIS have started, all the current efforts made by HOs and OEMs should be capitalized to prepare a post DF version of S-101 that will be a new step to improve the use of ENC's by the mariner.
Related Documents:	HSSC12-05.1F – <i>Dual-Fuel ECDIS – Definition of Capabilities</i>
Related Projects:	S-101

Introduction / Background

1. The first operational edition (2.0.0) of S-101 will probably be released in 2024. Once IEC standards have been approved and ECDISs upgraded to read S-101 data, will then start a Dual Fuel (DF) transition period, until the time when all ECDISs are fully S-100 compliant and the worldwide S-101 ENC portfolio is complete. This DF period will probably last between 5 and 10 years.
2. In order not to confuse the mariner in a mixed environment of S-57 and S-101 ENC's, cartographic and functional features in the DF ECDIS should be "seamless and presented under the identical presentation regime". This means that, during the DF period, S-101 ENC portrayal will be very close to the current S-52 Presentation Library.
3. The risk exists that, after the long efforts that will lead to S-101 Ed 2.0.0, HO's and OEM's will not have the resources to start preparing a post DF version of S-101 ("pure S-100 ECDIS") that will be "free" of DF constraints.
4. This paper suggests taking actions to ensure that DF ECDIS constraints will not block future improvements and that any proposal to improve the use of S-101 product on the ECDIS will be evaluated as regard to DF principles and then implemented into S-101 Edition 2.0.0, when possible, or processed to be ready for S-100 fully compliant ECDIS (post DF).

Discussion

5. Many HO's surely still have many doubts on what the DF period will be in terms of data conversion and maintenance; possible re-scheming of their ENC portfolio, etc. This is a real challenge. Another question is: "What will S-101 ENC's look like?" S-101 being still under development, one major question is to define clearly what can be changed in S-101 portrayal as regard to S-52, and what must not change.
6. S-52 is about 40 years old now. Many shortcomings and possible improvements have been identified so far, in terms of symbology and alarms/indications (ECDIS functionalities).
7. HSSC (action HSSC 12/18) has tasked S-100WG/S-101PT "to prepare a governance document that formalizes the guiding principles of DF-Concept." This document will be essential to determine if a proposal can be implemented in a DF context or not.
8. The S-101 Portrayal Sub-Group has initiated an action to constitute a "S-101 ECDIS Performance requirements log" that will record new ECDIS performances proposals. But ECDIS performances are not the only aspect that can be improved. Portrayal is also concerned. Many required or possible improvements have been identified, among others, by the ENC Display Sub-Group. They should soon be passed on to the S-101 Portrayal Sub-Group for action, but many proposals will probably be put aside because of the constraints due to the "identical presentation regime". It is thus suggested to add these issues in the log file (that could be renamed "S-101 ECDIS Portrayal and Performance requirements Log").
9. Then, what will happen with this Log file? Every proposal should be assessed in regard of the guiding principles of DF-Concept when they are available (the criteria for acceptance/refusal of a proposal still have to be defined). Any proposal consistent with the DF principles should be processed to be implemented in the DF ECDIS.

10. It is proposed that Portrayal or Performance proposals that cannot be implemented in a DF ECDIS context should also be processed, rather than just stored in a Log file, so that they can be tested and machine readable files be ready for use in a pure S-100 ECDIS.
11. Note that the S-101 data model (Feature Catalogue, DCEG) may also need to be changed to support the implementation of a new Portrayal or ECDIS functionality. This should not be delayed, so that HOs can, as soon as possible, start preparing their S-101 data for post DF period (refer to CATZOC versus Quality of Bathymetric data attributes).
12. Due to the amount of resources the HOs and OEMs currently dedicate to the development and testing of S-10X Product Specifications, it is suggested that some work could be oriented towards the Innovation Laboratory to be created in Singapore.

Recommendations

13. In order to capitalize the efforts dedicated by HOs and OEMs, a plan of actions should be set up to prepare from now on, the “best” possible edition 2.0.0 of S-101, and the “best” possible pure S-100 ECDIS, with improved portrayal and ECDIS functionalities. This would include:
 - Encourage people to present papers to improve S-100 performance and S-101 portrayal even though the chances of being implemented in a DF world may look slim;
 - Storage of every proposal in a common place;
 - Elaborate assessment criteria in regard of DF ECDIS principles (guidelines needed for the decision making process);
 - Elaborate assessment criteria in regard of “pure S-100 ECDIS world”;
 - Storage of the above decisions;
 - Transfer of the proposals approved for post DF era to the TSMWG for development and testing (Singapore Laboratory?);

Action Requested of the S-101PT

14. The S-101PT is invited to:
 - 1) **Discuss** this paper its recommendations.
 - 2) **Agree** on a way forward.
 - 3) **Take** any actions in regard with the recommendations.