Paper for Consideration by S-100WG

Proposal for defining S-100 Compliancy Levels

Submitted by:	Canadian Coast Guard
Executive Summary:	This paper proposes the development of S-100 Compliancy Levels to give the S-100 implementers and product specification developers guidance to the degree of adherence a product specification comply with S-100.
Related Documents:	S-100
Related Projects:	Any S-100 related project

Introduction / Background

At S-100WG3 there was a discussion about what constitutes S-100 compliance in light of some of the amendments and extensions introduced to S-100 metadata for Edition 4.0.0. A core issue was the realization that S-100 compliance may not be the same as ECDIS compliance. This gave rise to a fair amount of uncertainty among implementers of S-100 since the discussion highlighted that S-100 compliance could mean different things to different groups. An action (S-100WG3 Action 23) was taken by Furuno, SevenCs, SPAWAR and Canadian Coast Guard to review the issue and propose a solution for S-100 Edition 5. This is a report on the progress made so far.

Analysis/Discussion

The proposed solution centers on the definition of compliancy levels that can be used by product specification developers and by S-100 implementers to work as a baseline to measure the developments against. It has been concluded that S-100 compliance does not mean the same as ECDIS compliance.

Initially it was envisioned that a three tier classification would be sufficient to classify the envisioned nuances of S-100 compliance. These three levels started with a lowest level of compliance which required adherence to the S-100 GFM and spatial models which should in theory facilitate data transfer between a Level 1 compliance product specification and higher level specifications. Level 2 was for any specification that complies with the minimum requirements of the Product Specification template in S-100 Part 11. And finally a Level 3 that included requirements for using only the S-100 defined encodings and having a portrayal catalogue to ensure compliance with requirements for ECDIS and IMO harmonized display.

During the discussion of defining these levels, a concern was raised that Level 2 was too broad and that it would not be sufficiently discouraging to a product specification developer to go for Level 2 compliance and use a non-standard encoding. Therefore level 2 was divided into two, where the new Level 3 included a requirement to only use the S-100 encodings. An additional requirement to use only CRS from the EPSG Geodetic Parameter Registry was added to Level 4.

The current working draft of the definitions for S-100 Compliance Levels is as follows;

Level 1 - IHO S-100 object model compliant

Product Specification contains object model which is available as feature catalogue from IHO S-100 GI registry and is compliant with the S-100 spatial model (Parts 7 & 8).

Level 2 - IHO S-100 compliant with non-standard encoding

Product specification adheres to the minimum requirements of S-100 Part 11. The product specification specifies which of the encoding methods defined in S-100 Part 10 is used, or it specify another encoding including how it

maps to the S-100 GFM. Metadata is according to S-100 Part 4, a profile of part 4 or an extension according to Part 4 rules.

Level 3 - IHO S-100 compliant with standard encoding

As Level 2 with the following restrictions;

- The product specification uses only an encoding method defined in S-100 Part 10.

Level 4 - IHO S-100 and IMO harmonized display compliant

As Level 3 with the following restrictions;

- Metadata is according to S-100 Part 4 or a profile of Part 4 metadata;

- The product specification includes portrayal catalogue available from IHO S-100 GI registry;

- The product specification includes defined methods for the S-100 defined cyber security (at a minimum including digital signature and, if applicable, the method of encryption);

- Test material is embedded into the product specification or test material is available in a separate package. The test cases and related material is at a minimum comparable to IHO S-64 for S-52/S-57/S-62/S-63);

- Product specification uses a CRS from the EPSG Geodetic Parameter Registry.

Conclusions

Adding compliancy levels to S-100 and mandating them for S-100 based product specifications can assist implementers with their development and give indications to how likely a new product specification will function as expected in their systems.

Recommendations

It is recommended that this paper be developed into an S-100 change proposal.

It is recommended that when the alerts and indications concept and the Interoperability Catalogue mature further, that these be added as requirements for Level 4 included the appropriate access point for this information, e.g. GI Registry.

Justification and Impacts

Implementing the S-100 Compliance level will likely require changes to S-100 metadata part and the product specification template part. Inclusion of compliance level will give any reader of a product specification a quick means of discovering how the specification adheres to S-100. The concept will also require that product specification developers state the intended user group of their product and weighing the consequences of decisions made during product specification development on the intended user group.

Action Required of S-100WG

S-100WG is invited to:
      a.   Discuss this paper
      b.   Act as appropriate