Paper for Consideration by S-100 TSM5

S-100 Interoperability Specification

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Executive Summary:	Draft S-100 interoperability specification has been prepared for review.
Related Documents:	--
Related Projects:	S-100

Introduction / Background

Following on the interoperability analysis and design documents presented at earlier S-100 WG and TSM meetings, NOAA commissioned development of a draft ECDIS interoperability specification for S-100 data products. This paper presents the recently developed draft for consideration and review.

References

S-100WG1-10.2A Interoperability of S-100 Product Specifications.
S-100 WG TSM4 3.4 S-100 Product Interoperability Analysis
S-100 WG TSM4 3.7 S-100 Draft Interoperability Catalogue (zip file)
S-100WG2-10.3A S-100 Interoperability Design specification
S-100WG2-10.3B S-100WG02-10.3B Interoperability Catalogue (zip file)

Analysis/Discussion

Under contract with NOAA, the first version of the S-100 interoperability specification has been developed. The specification is included as an attachment to this paper. The specification is based on the interoperability analysis document presented at S-100WG TSM4 (S-100WG TSM4 3.4 & 3.7), the design document and model presented at S100WG2 (S-100WG2-10.3A & 10-3B), and feedback from members of the S-100 working group on those materials.

In addition to the product specification itself, the specification package also includes an XML schema for the interoperability catalogue, an XML sample interoperability catalogue.

The following matters are specifically brought to the attention of the meeting.

Drawing instruction elements in the interoperability catalogue: Following feedback at an earlier meeting requesting of drawing instructions to the interoperability model, the class S100_IC_DrawingInstruction was added in the material presented at S-100 WG2. However, the working group did not specify how it should be differentiated from S100_IC_Feature. The catalogue model as it originally was (with only S100_IC_Feature) would be equally capable for both pre- and post-processing options (i.e., whether the catalogue is used for processing a feature input stream or a drawing instruction input stream). We have therefore provisionally added an extra optional attribute to S100_IC_DrawingInstruction to allow interoperability catalogues to modify the symbol, line-style, or other component of a drawing instruction. This extra attribute is "free-form" in that it can contain either XML or code snippets in whatever domain-specific language is used for portrayal.

IHO as producing agency: If an IHO-issued interoperability catalogue is to be prepared, it will be necessary for IHO to have its own agency code in S-62 and the GI registry's Agency Codes register. It should be noted that IHO has a code in S-62, but it is for digital bathymetry data. IHO should therefore either amend the current code, or add a new value.

Modifications needed to S-100 metadata: Certain metadata elements in S-100 should be modified or extended. These changes are summarized in the supporting actions listed below and will be described in detail in accompanying S-100 maintenance proposals.

The following supporting actions are requested:

- Request IHO to either register a new producer code in S-62 that can be used for the producing agency field in IHO-issued interoperability catalogues or amend the current code.
- Discuss product-specific extensions to S-100 metadata. The accompanying metadata XML schema for interoperability catalogues demonstrates one way. This specification extends S-100 discovery metadata by adding *interoperabilityCatalogueProducts* (List of supported product

specifications) to class S100_DatasetDiscoveryMetadata. Alternatively, consider adding *interoperabilityCatalogueProducts* as an optional element of S100_DatasetDiscoveryMetadata in S-100 itself.

- Add explicit statements in S-100 Part 4a to allow S-100 products to "nil" inapplicable metadata elements, as described in the accompanying proposal to amend S-100 Parts 4X. Further, metadata elements for vertical and sounding datum metadata should be made optional since there are multiple products where they are not used. S-101 and other products that require them can restrict S-100 metadata to make vertical and sounding datum mandatory, and this can be enforced by Schematron rules in separate rule files written specifically for those data products.
- Adopt the proposal to add 'interoperabilityCatalogue' as a literal in the enumeration S100_CatalogueScope (which would remove the necessity to extend this enumeration for interoperability catalogues).
- Request IHO to assign a product specification number be assigned for the interoperability specification.

Conclusions

The draft specification is ready for consideration by the S-100 working group, other relevant IHO working groups in IHO, and related organisations, and assuming no significant changes in this consideration stage will be ready for test-beds. Certain actions and modifications to S-100 needed to support interoperability have been outlined earlier in this paper.

Recommendations

- Provisionally retain both S100_IC_DrawingInstruction and S100_IC_Feature in the model pending feedback from test-bed development. Since they are optional elements test-bed developers can use either one. A determination to retain one or the other, merge them, or further differentiate them should be made later based on experiences with test-beds.

- Execution of the supporting actions listed in the discussion section of this paper by the appropriate organisation or group.

Action Requested of TSM5

The TSM5 group is invited to:

a. Discuss the draft specification and provide review comments as appropriate.

b. Endorse the interoperability specification for further consideration by the full S-100 working group, other interested IHO technical working groups, and other interested organisations.

c. Endorse the amendments to S-100 summarized in this paper and described in full in the companion S-100 maintenance proposals.