S100WGX-X.XX

**Title: XML schema maintenance**

S-100 Maintenance - Change Proposal Form

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| --- | --- | --- | --- |
| **Organisation** | Portolan Sciences LLC | **Date** | 26-Nov-2021 |
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Change Proposal Type *(Select only one option)*

|  |  |  |
| --- | --- | --- |
| 1.Clarification | 2.Correction | 3.Extension |
| X |  |  |

Location (*Identify all change proposal locations)*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| No. | S-100 Version No. | Part No. | Section No. | Proposal Summary |
| 1 | 4.0.0 | 12 | 4, 5 | New clauses 12-4 and 12-5 clarifying XML schema maintenance and versioning. |
| 2 |  |  | App 12-A | New proposal form. |
|  |  |  |  |  |

# Change Proposal

This proposal defines the maintenance procedures for S-100 implementation schemas and updates the proposal form.

## *Item 1 (new text in red)*

## 12-4 Maintenance of S-100 Implementation Schemas

**12-4.1 Introduction**

Certain concepts in S-100 are implemented by means of XML schemas (XSD files) that specify the structure and content of XML files that are used by S-100 implementations. The maintenance of these implementation schemas is covered by this clause.

**12.4.2 Procedures for maintenance of S-100 implementation schemas**

**12.4.2.1 General**

Implementation schemas may need to be updated either as a consequence of changes to an UML model or other S-100 content, or due to causes not arising from any other change to S-100.

All S-100 change proposals must be assessed by the proposer and the S-100 WG to determine whether a corresponding change to an implementing schema is necessary.

**12.4.2.2 Schema changes arising from modelling or other changes**

If an S-100 change proposal entails a change to an implementing schema as a consequence of a change to a UML model or other S-100 content, the proposal must indicate that a change to implementing schemas is also required. The proposal must be classified as a new edition, correction, or clarification based on the underlying change, according to the criteria in clause 12-2.

**12.4.2.3 Schema changes independent of other changes**

Changes to implementing schemas that are not consequences of changes to an UML model or other S-100 content must be submitted to the secretary of the S-100WG using the S-100 Maintenance - Change Proposal Form in Appendix 12-A, marked as an “Implementation Schema only” change.

**12.4.2.4 Rules applying to all schema changes**

A change shall not be classified as an “Implementation Schema Only” change in order to bypass the provisions of Clause 12-2.

All proposed changes to implementation schemas shall be technically and commercially assessed before approval. However, changes to S-100 implementation schemas do not constitute a new edition, revision, or clarification of S-100 as defined in Resolution 2/2007.

**12-4.3 Providing information about changes in maintenance proposals**

The following criteria must be used to determine whether indicating the necessity of a schema change is sufficient, or additional details about the schema change are required.

1. If the schema change is a direct consequence of a UML model change described in the proposal, and there are no additional constraints or other special conditions required of the schema, the proposal is not required to provide additional details about the change to the schema.
2. In all other cases the proposal must describe the desired change to the XML schemas.
3. In case of doubt, the proposal should describe the desired change to the XML schemas.

The description may be in any form (textual, XSD fragment, XML example, diagram, etc.), but must be comprehensive and sufficient to avoid any ambiguity about the desired result.

**12-5 Version Control for Implementation Schemas**

**12.5.1 Version numbers**

Implementation schemas contain information indicating the S-100 edition, revision, and clarification to which they correspond. They also include additional information to distinguish schema versions corresponding to the same S-100 edition, revision, and clarification number combination (as may arise in case of a schema correction or change to the Internet location of ISO or OGC schemas).

This information is provided in the *version* attribute of the *schema* tag in XSD files, encoded as *version=”N.N.N‑YYYYMMDD”* (where N.N.N indicates the S\_100 version and YYYYMMDD a “build date” which is incremented whenever the schema is updated).

**12.5.2 Namespaces**

Implementation schemas also contain namespace information to designate substantively different versions of schemas. A “substantive difference” is defined as a change that affects the validation of XML files.

The namespace information will consist of the S-100 edition, revision, and schema base build numbers suffix to an IHO namespace encoded as */N/M/YYYYMMDD*. (For example, *http://www.iho.int/S100/5/0/20220331* for the S-100 Edition 5.0.0 generic schemas.)

Note: S-100 changes do not necessarily require changes to implementation schemas.

**12.5.3 Issue of Implementation Schemas**

The following principles apply to the issue and reissue of implementation schemas:

* The namespace will be updated if and only if the change to schema(s) is substantive (i.e., a change that affects the validation of XML files).
* The *version* attribute will always be updated for any new issue or reissue.
* For S-100 clarifications, implementation schemas will be reissued if and only if any content in the XSD file changed. If reissued, the *version* attribute will be updated in the reissue but the namespace will remain the same.

***Item 2:***

*[See accompanying updated blank proposal form. It would replace the template in App. 12-A, with a Word version posted in the appropriate place on the IHO site(s).*

*The updated form adds a “schema-only” choice to the Proposal Type, adds an item no. column to the Location table, adds text explaining what should go in the Change Proposal and Justification sections, and formally adds the checkbox section indicating which components of related infrastructure are affected.]*

# Change Proposal Justification

XML schemas (XSD files) are the tangible implementation specifications for those components of S-100 that are implemented in XML, such as the exchange catalogue, feature catalogue, and portrayal catalogue formats. While there is usually a 1/1 correspondence between UML models and the corresponding implementing XSD files, it is occasionally necessary to specify special conditions on the XSD implementation of a UML model or correct a discrepancy. Maintenance procedures for implementation schemas are currently not defined in S-100.

The extension to maintenance procedures is needed to clarify maintenance of the XML schemas that implement S-100. Changes to these schemas have a direct impact on S-100 implementations and on any dependent schemas that are defined in Product Specifications. Most importantly, schema changes may require corresponding changes to implementations. It is therefore necessary to ensure that the relevant IHO working groups and stakeholders have the same opportunity to evaluate proposed schema changes as they do changes to any S-100 textual or modeling content.

The changes to the proposal template are needed to conform with experience with the actual usage to date of the proposal form, and with the formalization of maintenance procedures for the S-100 implementation schemas.

What parts of the S-100 Infrastructure will this proposal affect?

S-100 Feature Concept Dictionary Interface or Database

S-100 Portrayal Register

S-100 Feature Catalogue Builder

S-100 Portrayal Catalogue Builder

S-100 UML Models

S-100 GitHub Schemas

### Please send completed forms and supporting documentation to the secretary S-100WG.