

IHO File No. S3/8151/S-100

CIRCULAR LETTER 31/2025
24 July 2025

ADOPTION OF IHO PUBLICATIONS

S-100-BASED PHASE 1 PRODUCT SPECIFICATIONS S-124 and S-128 Editions 2.0.0

References:

- A. IHO Resolution 2/2007 - Procedures for making changes to IHO Technical Standards and Specifications.
- B. IHO CL 07/2025 dated 03 February 2025 – Call for the approval of S-100-Based Product Specifications (Phase 1) – S-124 and S-128.

Dear Hydrographer,

1. In accordance with reference A, the adoption of operational Editions 2.0.0 of S-100 Based Product Specifications (Phase 1) S-124 and S-128 were proposed through the Circular Letter in Reference B.
2. The IHO Secretariat thanks the thirty-seven Member States who responded to Reference B: Algeria, Australia, Belgium, Brazil, Canada, Chile, China, Croatia, Cyprus, Denmark, Estonia, Finland, France, Germany, Greece, Iran, Ireland, Italy, Jamaica, Kenya, Malaysia, Netherlands, New Zealand, Norway, Peru, Poland, Portugal, Republic of Korea, Romania, Russian Federation, Singapore, Slovenia, Spain, Sweden, Ukraine, United Kingdom and United States of America.
3. Thirty-six Member States supported the adoption of the proposed S-124 Edition 2.0.0 Product Specification. Six Member States submitted comments in addition to their vote. All comments received on the S-124 proposed Edition are provided in Annex A to this Circular Letter with responses from the WNWNS-SC, the HSSC Chair and IHO Secretariat.
4. As for the proposed Edition 2.0.0 of S-128, although thirty-five Member States supported its adoption, the comments received from the Member States in addition to their vote call for a thorough consolidation effort to align contents of the GI Registry, Feature Catalogue, Schemas and documentation.
5. When the Reference was issued, there were 100 Member States of the IHO with two States suspended. In accordance with the provisions of the Convention on the IHO as amended, the minimum number of affirmative votes required is 33. As a result, the abovementioned proposed Product Specifications have been adopted. Edition 2.0.0 of S-124 and S-128 is now available (English versions only) on the IHO GI Registry > GI Registers > [Product Specification](#). A link to the Product Specifications has also been placed on the IHO website > Publications > [Standards and Specifications](#).

6. The IHO Secretariat and the HSSC Chair would like to congratulate and thank all those involved in achieving this significant milestone in S-100 implementation. With the publication of the first operational editions of S-124 and S-128, the Phase 1 Product Specifications portfolio is now completed, which stands as a remarkable achievement by the IHO Community, in particular the IHO Member States and expert contributors for providing who actively contributed to achieve this milestone as included in the IHO Roadmap for the S-100 Implementation Decade (2020-2030).

On behalf of the Secretary-General

Yours sincerely,

A handwritten signature in black ink, appearing to read 'J. Nyberg', written in a cursive style.

John NYBERG
Director

Annex:

- A. Responses to Member States' comments to IHO CL 07/2025 from the relevant Working Group and Project Team Chairs, the HSSC Chair and IHO Secretariat (in English only)

**MEMBER STATES' RESPONSES TO IHO CL 07/2025 AND COMMENTS
FROM THE WORKING GROUP and PROJECT TEAM CHAIRS, IHO SECRETARIAT**

S-124, Ed. 2.0.0	Operational Product Specification
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AUSTRALIA (Vote for adoption = YES)

At the time of this response, we checked the updated S-124 GML schema "S-124_GML_Schema.zip" (from IHO Geospatial Information Registry) and it seems that the S-124 version in the XSD is not correct:

```
<xs:schema
  xmlns=http://www.iho.int/S124/1.0
  xmlns:xs=http://www.w3.org/2001/XMLSchema
  xmlns:S100=http://www.iho.int/s100gml/5.0
  xmlns:gml=http://www.opengis.net/gml/3.2
  xmlns:xlink=http://www.w3.org/1999/xlink
  targetNamespace=http://www.iho.int/S124/1.0
  elementFormDefault="qualified"
  version="1.0.0-20220818">
```

It defines version="1.0.0-20220818", but it should be 2.0.0. Also, the namespace is set to xmlns=http://www.iho.int/S124/1.0 . Version 1.5 of the GML schema did this differently:

```
<xs:schema
  xmlns=http://www.iho.int/S124/1.5
  xmlns:xs=http://www.w3.org/2001/XMLSchema
  xmlns:S100=http://www.iho.int/s100gml/5.0
  xmlns:gml=http://www.opengis.net/gml/3.2 targetNamespace=http://www.iho.int/S124/1.5
  elementFormDefault="qualified" version="1.5.0-20240330">
```

The AHO request the IHO Secretariat to review and amend as necessary.

Comments by the WWNWS-SC Chair and IHO Secretariat:

The WWNWS-SC Chair and IHO Secretariat thank Australia for their comments. The version number has been corrected to have both the S-124 version and namespace reflect S-124 Edition 2.0.0 for the S-124 GML Schema Edition 2.0.0.

CANADA (Vote for adoption = YES)

1. The GML schema should have the language sub attribute as a minOccurs="1" in all cases to match the UML and the spirit of the product specification document. The language currently reads:

<!-- subattributes --> <xs:element name="language" type="languageType" minOccurs="0" maxOccurs="1"/>

2. It appears that the S-124 ed 2.0 XSD file (S124_v2.0.0-20241210.xsd) is an incorrect version. It refers to S-100 5.0.0 and the S-124 version indicated is 1.0.0. In the XSD, *maxOccurs* of information is not indicated, and the XSD rule seems to be that when *maxOccurs* is not indicated, its value should be assumed to be 1. This is inconsistent with the model. Thus, the *minOccurs* and *maxOccurs* should therefore always be entered in the XSD (at least when they're not equal to 1).

Comments by the WWNWS-SC Chair and IHO Secretariat:

The WWNWS-SC Chair and IHO Secretariat thank Canada for their comments. The *minOccurs* for the *language* sub-attribute has been amended to 1 throughout the GML Schema XML to reflect the Product Specification. The GML Scheme XML has also been amended to include both *minOccurs* and *maxOccurs* in all cases as described in the S-124 data model in the Product Specification.

For the version of S-124 quoted in the XSD file, see the response to the comment from Australia above. However, the S-100 version quoted is consistent with the version quoted in other Phase 1 S-100 implementation Product Specifications, so has been retained as is.

CYPRUS (Vote for adoption = YES)

General comment: Cyprus thanks the IHO, the HSSC and all Member States that contributed to the development of the standards. Their contribution is valuable for the progress and safety of navigation.

Comments by the WWNWS-SC Chairs and IHO Secretariat:

The WWNWS-SC Chair and IHO Secretariat thank Cyprus for their comment.

SWEDEN (Vote for adoption = YES)

General comment: Sweden would like to congratulate the project team, WWNWS-SC and other parties involved for successfully finalizing the development of the operational version of S-124.

Comments by the WWNWS-SC Chairs and IHO Secretariat:

The WWNWS-SC Chair and IHO Secretariat thank Sweden for their comment.

CANADA (Vote for adoption = YES)

Canada has a concern that though the maximum CNP file size is now increased to 50 MB in ed. 2, this limit may still be too low.

Comments by the NIPWG Chair and IHO Secretariat:

The NIPWG Chair and IHO Secretariat thank Canada for their comment. The comment and possibility to further increase maximum size of S-128 datasets will be considered within the relevant NIPWG Task Group, and implemented unless negative consequences are identified.

Finland (Vote for adoption = YES)

We have noticed some differences in the syntax between the machine readable parts of the specification and the IHO GI Registry. We would therefore recommend that prior to the publication of edition 2.0.0, the machine readable parts of the specification should be compared to the current state of the registry, in order to align syntax such as use of upper / lower case in the definitions, names and labels and reflect recent changes in the registry.

Comments by the NIPWG Chair and IHO Secretariat:

The NIPWG Chair and IHO Secretariat thank Finland for their comment. The specification will be reviewed against the registry prior final publication.

SWEDEN (Vote for adoption = YES)

General comment: Sweden would like to congratulate NIPWG and other parties involved for successfully finalizing the development of the operational version of S-128.

Comments by the NIPWG Chair and IHO Secretariat:

The NIPWG Chair and IHO Secretariat thank Sweden for their comment.

REPUBLIC of KOREA (No vote)

These are the changes that are required to Clause 12 of S-128 Edition 2.0.0 to align with S-100 Edition 5.2.0:

- Correct Type for identifier and certificates classes at clause 12.2.1
- Add missing first columns (Role Name and Item) at clauses 12.2.1.1, 12.2.1.2, 12.2.2.1, 12.2.2.3, 12.2.2.4, [12.2.2.5], [12.2.2.6], [12.2.2.7], [12.2.2.8], 12.2.3.1, 12.2.3.2, 12.2.3.3, 12.2.3.4, 12.2.4.1, 12.2.5.1, 12.2.5.2, 12.2.5.3
- Correct Type for *digitalSignatureReference* and *digitalSignatureValue* classes at clauses 12.2.2, 12.2.3
- Correct name (syntax) for update, reissue and cancellation values at clause 12.2.2.3

- Remove redundant clauses 12.2.2.5 (*S100_DigitalSignature*) and 12.2.2.6 (*S100_DigitalSignatureValue*) – related to changes at clause 12.2.2. Renumbered clauses 12.2.2.7 to 12.2.2.10 accordingly
- Correct incorrect Code value for value HDF5 at clause [12.2.2.5]
- Correct name (syntax) for all values and add missing Code values for enumeration *S100_ComplianceCategory* at clause [12.2.2.7]
- Add missing Code value for enumeration *S100_ProtectionScheme* at clause [12.2.2.8]
- Update the Remark for the *supportedResource* attribute at clause 12.2.3
- Correct name (syntax) for PDF/AorUA value at clause 12.2.3.1
- Rename *S100_SupportFilePurpose* to *S100_ResourcePurpose* and replaced enumerate names, values and descriptions at clause 12.2.3.3
- Remove redundant clause 12.2.3.5 (ResourcePurpose)
- Amend multiplicity from [1..*] to [1] and Type from *CharacterString* to URI for filename attribute for *S100_CatalogueDiscoveryMetadata* at clause 12.2.4
- Amend multiplicity from [1..*] to [1] for *productSpecification* attribute for *S100_CatalogueDiscoveryMetadata* at clause 12.2.4

NOTE:

- clause numbers enclosed in [] are renumbered clauses after prior clause removal.
- the above changes will also align the Tables with Figure 12-2 in S-128

Comments by the NIPWG Chair and IHO Secretariat:

The NIPWG Chair and IHO Secretariat thank the Republic of Korea for their comments. All changes as identified have been applied as proposed for S-128 Edition 2.0.0.

UNITED KINGDOM (Vote for adoption = YES)

From experience implementing S-128 to date it has been observed that S-128 generation could be frequent and therefore we suggest that the Dataset File name limit indicated at section 11.2.2 of the Data Product Specification is increased to allow twenty-one rather than seventeen characters for producers to utilise as they wish.

The UK would like to thank all those who have contributed to the development of the development of S-128.

Comments by the NIPWG Chair and IHO Secretariat:

The NIPWG Chair and IHO Secretariat thank United Kingdom for their comment. The comment and possibility to further increase characters in file name will be considered within the relevant NIPWG Task Group, and implemented unless negative consequences are identified.