4th Meeting of S-130PT

Steps in the development of S-1XX PS

**SSG Leader
(Schema Sub Group)**

24 October 2022 / VTC Event

S-100 READINESS LEVELS

- ## S-97 A-5 S-100 Readiness Levels
  - Main document
  - A Default Encoding
  - Feature Catalogue
  - DCEG

  Level 1
  -
  - Portrayal Catalogue
  - Data Quality Checks
  - Test data Sets
  - Data Validation
  - Exchange Catalogue

  Level 2

- Submission of S-130 1.0.0 to HSSC15 (May 2023)
- Initial implementation of S-130 Edition 1.0.0 (Sep. 2024)
- From gaining experience for S-130 2.0.0 (End of 2024)
- Final approval of S-130 2.0.0 and S-130 Final dataset (Q1 of 2025)

Required Product Specification component	Level 1 v1.0.0	Level 2 v1-2.0.0	Level 3 >v2.0.0	Level 4 >v2.0.0	Level 5 >v2.0.0
Main Document (Defines the relevant parts of S-100 that are required for the Product Specification)	X	X	X	X	X
A Default Encoding	X	X	X	X	X
S-100 Compliant Feature Catalogue	X (draft)	X (updated)	X (final, from IHO GI Registry)	X	X
Data Classification and Encoding Guide	X (draft)	X	X (final)	X	X
S-100 Compliant Portrayal Catalogue NOTE: Not every Specification will need a Portrayal Catalogue – this should be determined as part of the development process and stakeholder feedback.		X	X	X	X
Data Quality Checks		X	X	X	X
Test Data Sets		X	X	X	X
Data Validation (and test datasets)		X	X	X	X
Exchange Catalogue		X	X	X	X
Encryption / Digital Signatures			X	X	X
Interoperability			x* (draft)	x* (tested)	X*
Alerts and Indications				x*	x*
Operational data					x

(X* = ECDIS only)

PARTS OF S-130 MAIN DOCUMENT

- The overview section and its sub-elements **(On-going)**

  - Introduction
  - References
  - Terms, definitions and abbreviations
    - Use of Language
    - Terms and Definitions
    - Abbreviations
  - General data product description
  - Data Product Specification metadata
  - Product Specification maintenance

- Version numbers

- Specification scopes / Dataset identification **(TBD)**

- Data content and structure (Application schema) **(On-going)**

MAIN PARTS OF AN S-100 PRODUCT SPECIFICATION

- Data product format **(Decided)**
- Feature Catalogue **(Drafted)**
- Dataset
- Dataset loading and unloading
- Geometry
- Reference systems **(Decided)**
- Data quality
- Data capture and encoding instructions
- Maintenance
- Data product delivery
- Dataset naming rules

- Metadata
- Portrayal

STEPS IN THE DEVELOPMENT OF S-1XX PS

1) Initiation — Identify the need for a new data product; define its scope; and decide the boundaries between the new product and existing data Product Specifications. Obtain sample source material. Describe typical application use cases

2) Data Model / Application Schema — Define the classes and attributes that describe the domain and which are relevant to the data product. Define the relationships between the classes and specify applicable constraints. Prepare one or more UML diagrams describing the Domain Model

3) Registration of feature elements — Propose amendments to existing classes and attributes and propose new classes and attributes for addition to the Concept and Data Dictionary Registers in the IHO GI Registry using the Registry interface.

4) Develop the Feature Catalogue — Prepare the XML Feature Catalogue from the feature and information classes, attributes and relationships as approved in the IHO GI Registry, utilizing the Feature Catalogue Builder.

5) Transfer modes and packaging — Determine whether data products are to be delivered as data files contained in transfer (exchange) sets, by web services (and if so, identify or outline a service protocol), e-mail, etc.

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Step	Description
6) Define metadata	Survey the metadata elements listed in S-100 for their appropriateness to the data product and its allowed packaging and delivery methods. Define appropriate values and restrictions for the metadata elements listed in S-100
7) Define the data format	Select an appropriate data format. S-100 provides for 3 standard delivery formats (ISO 8211, GML, and HDF5). Prepare format-specific artefacts if necessary
8) Data Classification and Encoding Guide (DCEG)	A DCEG should contain enough overview and general material about basic concepts such as data types, features, information types, associations, etc, to give its intended audience a basic grounding in the concepts they will need to apply
9) Portrayal symbols and rules	Determine the symbols to be used for portrayal and the rules for generating displays from the data product.
10) Registration of portrayal elements	Propose any new portrayal components (for example symbols, colour tokens, line styles, area fills, etc) to the Portrayal Register in the IHO GI Registry using the Registry interface

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11) Portrayal Catalogues	Prepare a Portrayal Catalogue (or Catalogues) for the features and information types which are intended to be displayed in the intended application domain(s) and usage scenario(s)
12) Define the Spatial reference system	Identify the recommended coordinate reference system and vertical datum(s)
13) Data product packaging and maintenance	Define the content and structure of delivery packages, updating of data, and any auxiliary content delivered either with or as an adjunct to data
14) Validation checks and quality measures	Define tests for the spatial, structural, and conceptual integrity of datasets. Define format-specific implementations of validation checks
15) Determine interoperability	Determine which if any product groups in Interoperability Catalogues are supplemented or enhanced by the data product; and how the IHO Interoperability Catalogue will be affected by the new product

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16) Prepare sample data	for test-beds. Create sample datasets and exchange sets conforming to the data format, packaging, and Feature Catalogue defined in the Product Specification
17) Testing and feedback	Carry out tests of data production and use of the sample data in selected applications to validate the correctness, completeness, consistency, and utility of the Product Specification, including related artefacts such as the Feature Catalogue and XML schemas
Final Step	Production of S-130 dataset

STEPS IN THE DEVELOPMENT OF S-1XX PS

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- Product Specification development process