

*Annex A to the Report of the IHO HSSC to the Council 9 –
Draft Revision of Annex 2 to the
Roadmap for the S-100 Implementation Decade (2020-2030)*

Roadmap for the S-100 Implementation Decade (2020 – 2030), Annex 2

S-100 Timelines

Updated: 9 July, 2025

S-100 Implementation Priorities

Most S-100 Phase 1 product specifications under the S-100 Roadmap have been approved in their operational editions late 2024 or 2025. The development of the S-100 test dataset, S-164 and the interoperability standard S-98, which will handle how the different S-100 layers will work together, will requires further development. HSSC-17 (2025) endorsed the operational edition of S-98 (2.0.0), but the need for a new edition 3.0.0 has already been identified. IHO MS approval of the S-164 Test datasets is planned for February 2026. An additional challenge is to develop validation test (S-158:xxx) for all new product specifications. The development of these validation tests are well underway but not yet fully finalized

With S-100 phase 1 finalized in their first operational edition the next focus of S-100 development is the S-100 phase 2 standards. The phase 2 standards are product specifications that will include information traditionally available in nautical publications. In addition, weather related product specifications from the World Meteorological Organization (WMO) are included in phase 2. In order to focus on the most prioritized phase 2 standards, a phase 3 is included for S-100 standards that currently do not have a fixed development timeline.

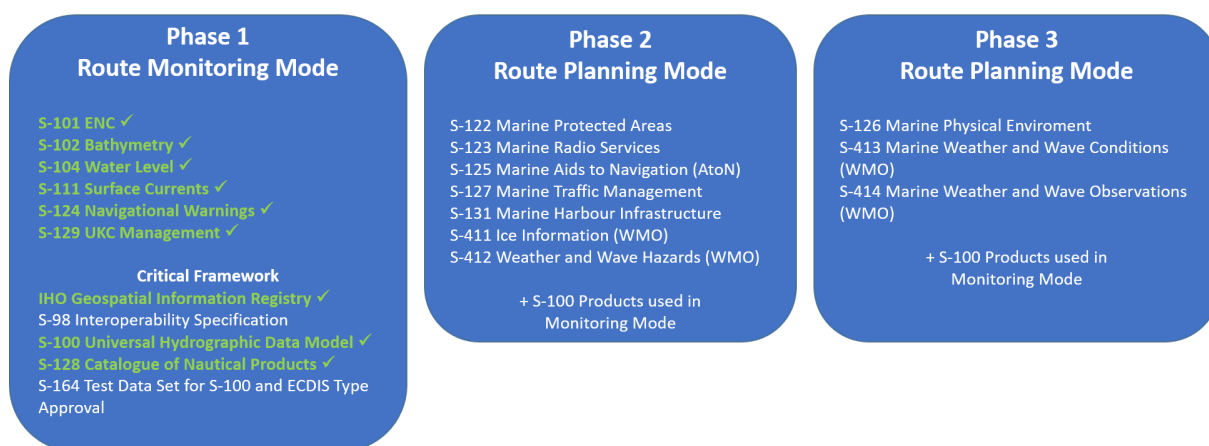


Figure 1 ; The S-100 Products to support the IMO SOLAS chapter V carriage requirements on Nautical Charts, Nautical Publications, Meteorological Services and Navigational and Meteorological Warnings. It should be noted that SOLAS requirements on Navigational and Meteorological Warnings are still based on Radiocommunication Services (GMDSS), SOLAS chapter IV. S-100 MSI related products (Maritime Safety Information) are supplementary products (S-124 and S-41x) until further decisions are taken by IMO. Updated July 2025.

Table A – IHO list of S-100 products with special focus	
Phase 1 / Route monitoring	
S-101	Electronic Navigational Chart (ENC)
S-102	Bathymetric Surface
S-104	Water Level Information for Surface Navigation
S-111	Surface Currents
S-124	Navigational Warnings
S-129	Under Keel Clearance Management
Critical Framework	
	IHO Geospatial Information Registry
S-98	Interoperability Specification
S-100	Universal Hydrographic Data Model
S-128	Catalogue of Nautical Products
S-158:xxx	Validation checks
S-164	Test Data Sets for S-100 and ECDIS Type Approval
Phase 2 / Route planning	
S-122	Marine Protected Areas
S-123	Marine Radio Services
S-125	Marine Aids to Navigational (AtoN)
S-127	Marine Traffic Management
S-131	Marine Harbour Infrastructure
S-411 (WMO)	Ice Information
S-412 (WMO)	Weather and Wave Hazards
Phase 3 / Route Planning Mode	
S-126	Marine Physical Environment
S-413 (WMO)	Marine Weather and Wave Conditions
S-414 (WMO)	Marine Weather and Wave Observations

Figure 2 ; The S-100 Implementation Priorities. Phase 1 is product specifications for Route Monitoring which must be supported by the Critical S-100 Framework. Product specifications for Route Planning will be developed as phase 2 and 3. Phase 3 is included for S-100 standards that currently do not have a fixed development timeline. Updated July 2025.

ENDS Tree Diagram

In the IMO Resolution MSC.530(106)/Rev.1 Performance Standards for ECDIS the term for *Electronic Navigational Data Service (ENDS)* is defined as “...a special-purpose database compiled from nautical chart and nautical publication data, standardized as to content, structure and format, issued for use with ECDIS by or on the authority of a government, authorized hydrographic office or other relevant government institution, and conforming to IHO standards; and, which is designed to meet the requirement of marine navigation and the nautical charts and nautical publications carriage requirements in SOLAS regulations V/19 and V/27. The navigational base layer of ENDS is the electronic navigational chart (ENC).”

To illustrate the ENDS definition and the relationship between S-100 products, the IMO Maritime Services, as defined in the IMO E-Navigation Strategy, and the SOLAS Regulations the ENDS Tree Diagram, has been developed. The diagram is intended to be a useful tool to help hydrographic offices communicate the importance of their S-100 implementation and in instances like IMO audits, once regulatory enforcement takes the availability of new S-100 data services and products into account.

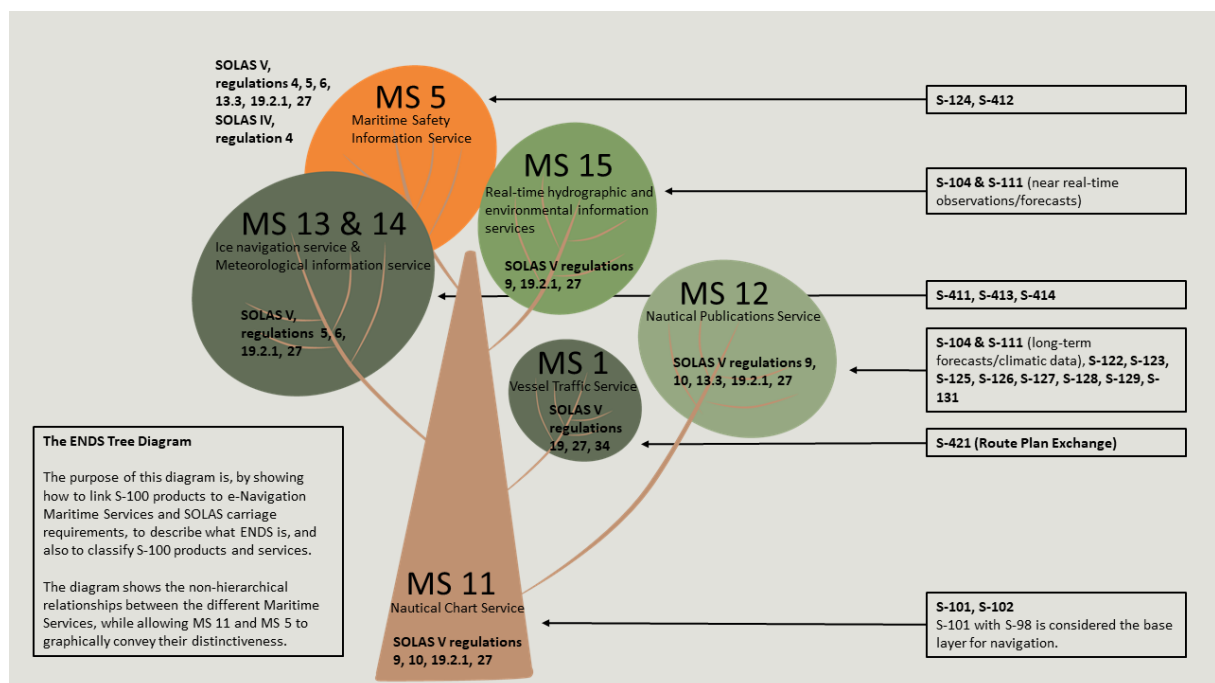


Figure 3 ; The ENDS Tree diagram illustrating the relationship between S-100 products, the IMO Maritime Services and the SOLAS Regulations. The ultimate goal is that these S-100 products, listed in the ENDS Tree Diagram, will support these Maritime Services and subsequently the mentioned SOLAS regulations. Updated 27 June 2024.

S-100 Timeline for the prioritized IHO Product Specifications

The S-100 timeline is maintained by the IHO Secretariat as a version-controlled Gantt Diagram and is updated and reported annually to the IHO Council.

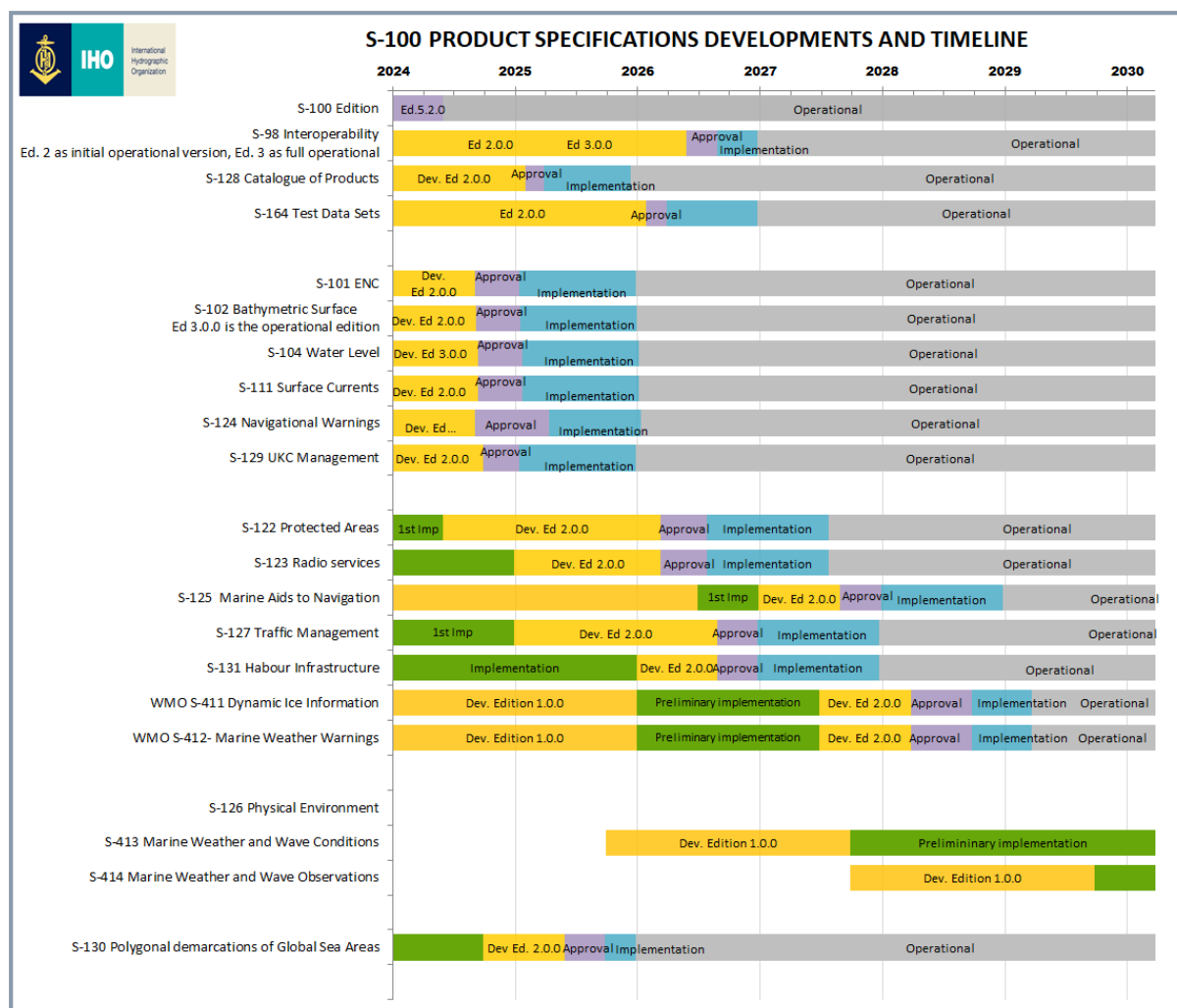


Figure 4 ; This S-100 timeline is updated: 4 July, 2025.

Synoptic Diagram on Options for HOs for Parallel Production of S-101 and S-57 ENCs

It is concluded that the preferred option for HOs would be to produce their ENCs from a database driven production system since it is expected that production systems software companies will include support for parallel ENC production (S-57 and S-101) when using a database driven system. However, HSSC has prepared a synoptic diagram to show other possible options for HOs supporting parallel production.

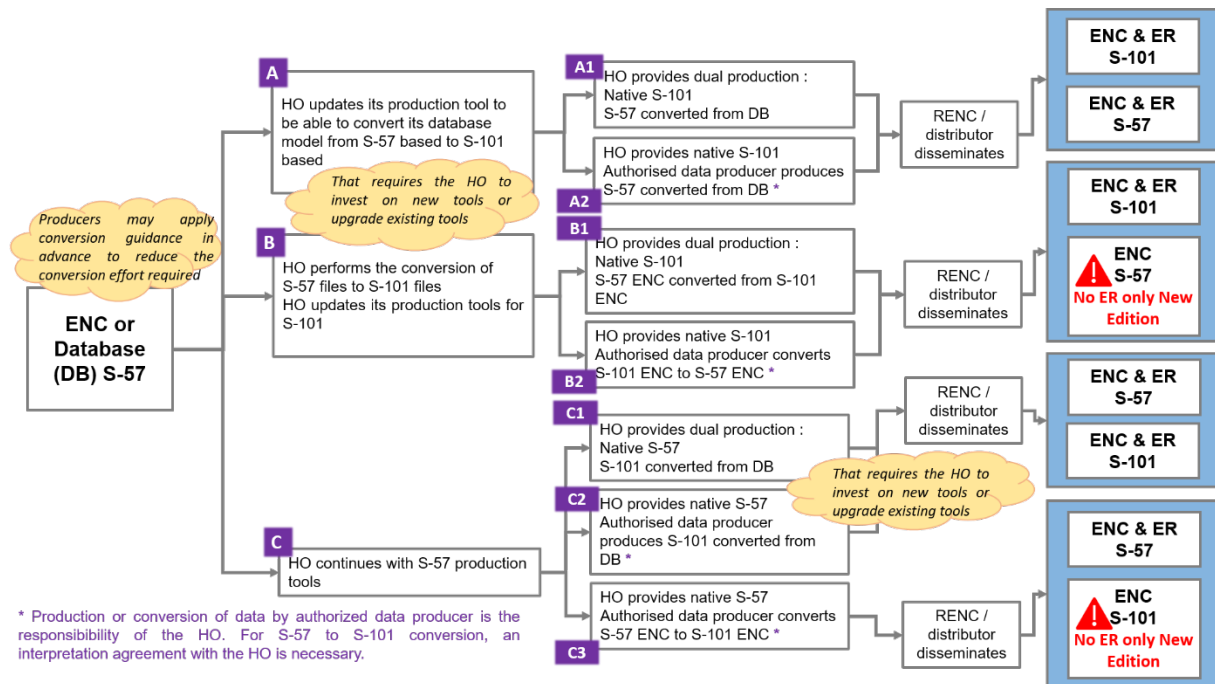


Figure 5 ; Potential options for HOs for future production of S-101 ENCs in conjunction with S-57 maintenance/production. Updated October 2023.