

*Annex A to the Report of the IHO HSSC to the Council 8 –
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

Version 4.0 Dated: 8 July, 2024

S-100 Implementation Priorities

For the first edition of S-98, Phase 1 / Route Monitoring Mode will be prioritized, addressing interoperability between different layers in the future S-100 ECDIS. Phase 2 / Route Planning will be included in a following edition of S-98. In order to achieve usage of S-100 products in future S-100 ECDIS it is critical to develop the supporting framework in accordance with the S-100 timeline and to speed up development in some cases. The critical S-100 framework consist of the IHO Geospatial Information (GI) Registry, the S-100 Universal Hydrographic Data Model, the Interoperability Specification (S-98), the Catalogue of Nautical Products (S-128) and the Test Data Set for S-100 and ECDIS Type Approval (S-164).

It should be noted that priorities given to the products used in route monitoring mode and the critical S-100 framework do not prevent the development of route planning products in parallel with the ones in the Phase 1. Phase 1 product specifications should be operational late 2024, with the exception of S-98 and S-164 which will be operational mid-2025. In addition to Phase 1 specifications, the Phase 2 specifications S-122, S-123, S-127 and S-131 should be operational in late 2025.

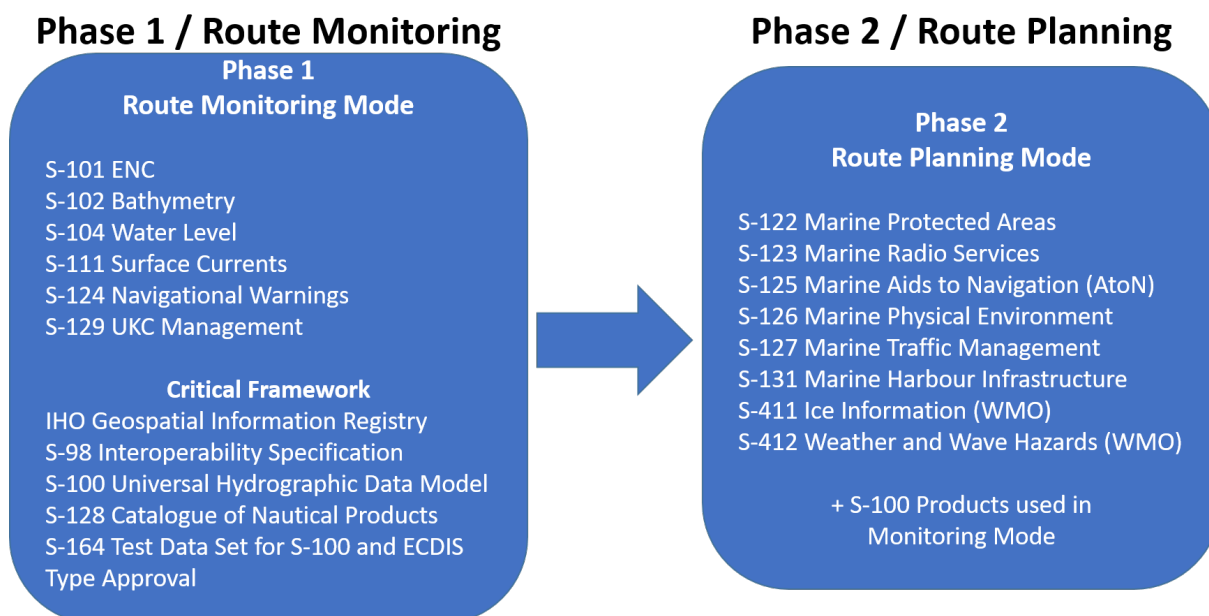


Figure 1 ; The IHO Navigational Package, for S-100 ECDIS, to be handled by the Interoperability Specification S-98. Additional layers and Phases may be added in the future. Updated October 2023.

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-164	Test Data Set 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-126	Marine Physical Environment
S-127	Marine Traffic Management
S-131	Marine Harbour Infrastructure
S-411 (WMO)	Ice Information
S-412 (WMO)	Weather and Wave Hazards

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 the phase 2. Updated October 2023.

ENDS Tree Diagram

In the IMO Resolution MSC.530(106) 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.

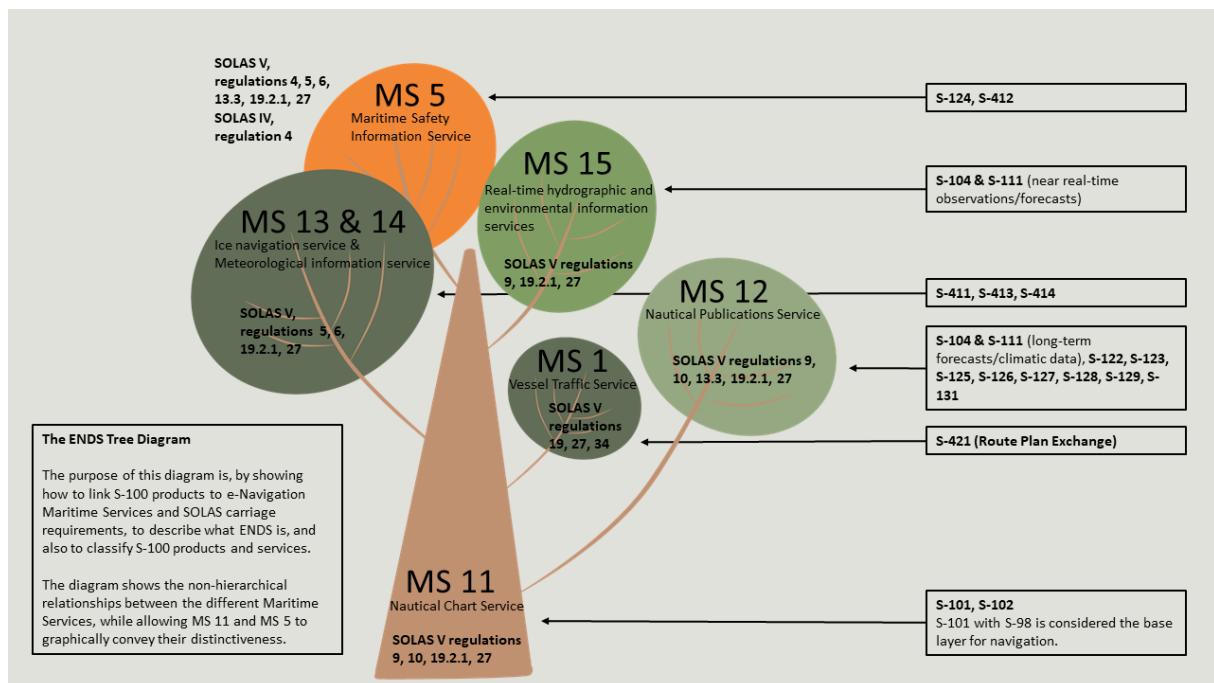


Figure 3 ; The ENDS Tree diagram illustrating the relationship between S-100 products, the IMO Maritime Services and the SOLAS Regulations. The ultimate goal is that these S-100 products, listed in the ENDS Tree Diagram, will support these Maritime Services and subsequently the mentioned SOLAS regulations.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

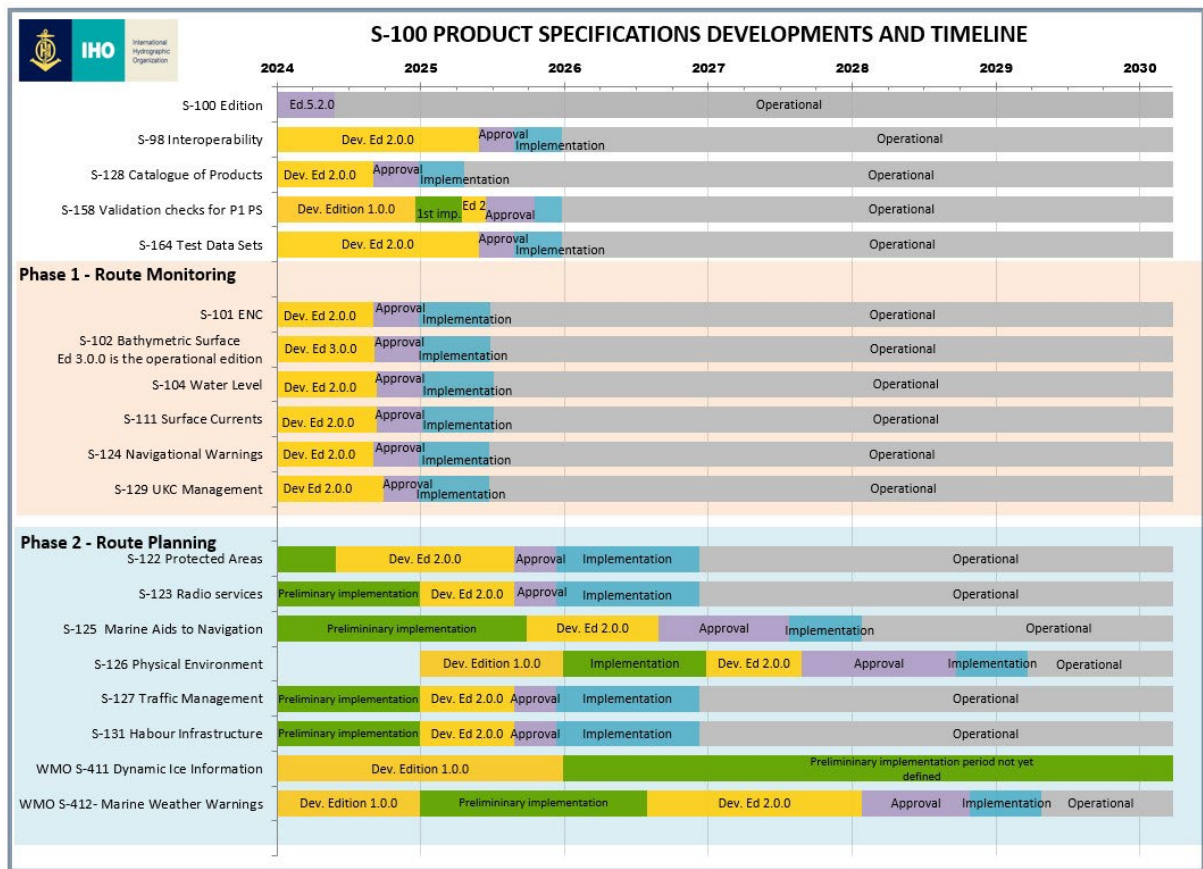


Figure 4 ; This S-100 timeline is updated: 2 July, 2024.

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.

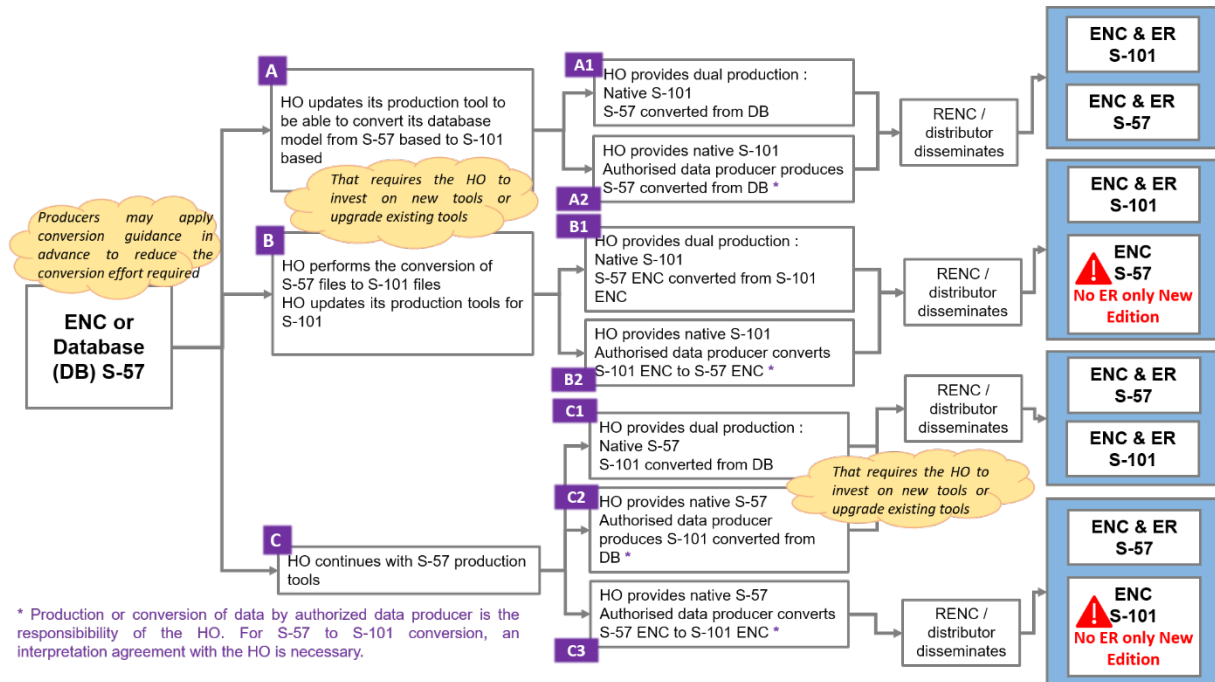


Figure 5 ; Potential options for HOs for future production of S-101 ENCs in conjunction with S-57 maintenance/production. Updated October 2023.