S-100 Working Group

Terms of Reference

1 Introduction

The Internationa Hydrographic Organization (IHO) S-100 data model is the baseline for the Common Maritime Data Structure (CMDS), which defines what data should be exchanged in e-Navigation (MSC 90/28, paragraph 10.10). The IHO and several other international organisations such as the International Organization of Lighthouse Authorities (IALA), World Meteorological Organization (WMO) and International Electrotechnical Commission (IEC) are developing data exchange standards for various types of navigational information, and some of these product specifications are now ready for testing. Multiple agencies in Australia are impacted by several of these standards.

The formation of the S-100 Working Group (S100WG) establishes formal structure to bring together the people, processes and knowledge to manage and set priorities for the implementation of S-100 based standards into Australia's data chain now and into the future.

The S100WG is a working group under the Intergovernmental Committee on Surveying and Mapping (ICSM)[1].

2 Role of the Working Group

To take a leadership role in the creation, implementation and oversight of the introduction of S-100 based services in Australia by developing documentation, creating national standards and policies, defining roles, responsibilities and controls that will harmonize the Australian e-Navigation data chain.

In general, working group members:

- Participate in meaningful discussions and consultations to drive the harmonized implementation and maintenance of S-100 based services;
- Facilitate and coordinate S-100 products' generation, their quality and usage; ensuring the alignment of these products with the S100WG goals set in the S100WG Work Plan;
- Work collaboratively to ensure that product management activities are in alignment with the established priorities of the affected organisations to enable sound decision making;
- Facilitate cooperation in international engagement with S-100 relevant international bodies and provide a forum for evaluation of international work and its impact on Australia.

[1] ICSM's core function is to coordinate and promote the development and maintenance of key national spatial data including geodetic, topographic, cadastral, street addressing, tides & sea level, and geographical names.

3 Roles and responsibilities

The Chair is responsible for:

- Calling, convening and chairing quarterly meetings;
- Gathering agenda items and circulating documents in advance of meetings;
- Maintaining the WG Roadmap and Work Plan;
- Reporting on progress and emerging issues to the working group members and to ICSM (6 monthly).

The Vice Chair is responsible for:

- Acting as the Chair (same powers and duties), if the Chair is unable to carry out the duties of the office.

The Secretary is responsible for:

- Developing and circulating meeting agendas and related materials and reports of the meetings (i.e. Record of Decision, action items);
- Tracking action items;
- Following up on outstanding items;

The WG members are responsible for:

- Participating as subject-matter experts, providing input and making recommendations in support of data related needs;
- Contributing agenda items, as needed;
- Providing data quality and data management advice, and assisting with the collection and interpretation of performance data, where feasible and appropriate;
- Building awareness around the use of business data;
- Participating in a forum of knowledge and sharing issues of common interest and concern;
- Developing and maintaining best practice guidelines for the lifecycle of S-1XX products from creation to retirement;
- Identifying and analyzing data related challenges, highlighting potential solutions;
- Attending all meetings, or appointing a replacement to attend in their place;
- Ensuring completion of tasked action items and reporting on progress to the WG.

4 Membership

The Working Group membership should draw from organisations involved in the maritime domain and likely to be impacted by the introduction of some of the S-100 based products and services. Members can be from governmental or non-governmental organisations.

Private industry engagement is key to help materialise several products and provide support during test beds and other services. Representatives from private industry are welcomed to attend WG meetings as Subject Matter Expert (SME) partners.

Chair	*Elected yearly at the first meeting of the WG from nominations made by governmental organisations. Can be re-elected.*
Vice Chair	*Elected yearly at the first meeting of the WG from nominations made by governmental organisations. Can be re-elected.*
Secretary	*Elected yearly at the first meeting of the WG from nominations made by any member of the WG. Can be re-elected.*

Members
Government Agencies (including state-own & state-operated)
Australian Hydrographic Office (AHO)
Australian Antarctic Division (AAD)
Australian Maritime Safety Authority (AMSA)
Australian Fisheries Management Authority (AFMA)
Port of Brisbane – Harbour Master
Bureau of Meteorology (BOM)
Department of Climate Change, Energy, the Environment and Water (DCCEEW)
Department of Agriculture, Fisheries and Forestry (DAFF)
Geosciences Australia (GA)
Great Barrier Reef Marine Park Authority (GBRMPA)
Port of Gladstone – Harbour Master
Land Information New Zealand (LINZ)
Parks Australia
Port Authority NSW (PANSW)

Port of Melbourne
Ports Victoria
Private Industry (including privately operated)
Bathy Pty Ltd
DHI Group
Flinders Port
Flinders Ports - Hydro Survey
Southern Ports
OMC
Ports Australia
Gladstone Ports Corporation Ltd
Seaport OPX
Svitzer Australia

5 Guiding principles

The purpose of the S100WG is to develop a national strategic direction and implement plans regarding the S-100 based data chain, and to provide ongoing feedback on issues and progress regarding these issues. The specific objectives of the S100WG are to:

- **Provide consistency** in the approach, designation, governance and dissemination of data;
- **Recommend clear and commonly used structures, models, and processes** to support coordination and collaboration, effective decision making, and efficient operations;
- **Provide guidance and recommendations** concerning system data related to expanding access, improving quality, strategic planning, assuring security, and business performance management;
- **Recommend policies** establishing procedures and guidelines such as: classification, access, data security, data documentation, data integrity, validation and correction, data manipulation, modification, audit, monitoring application of policies, etc.;
- **Share best practices**, ideas and products, and build on each other's initiatives;
- **Promote a culture of collaboration** to share information between users and producers of S-100 products and services;

- **Prioritize and manage** Australian change proposals towards S-100.

6 Operating Procedures

Meetings	Members will meet at the call of the chair.
Frequency	Quarterly. Ad hoc meetings will be scheduled, as needed.
Communication	S100WG Chairperson will provide updates to ICSM members at their bi-annual meeting and to the ICSM Executive on an as required basis.
Records of Decision	A record of decisions will be recorded and distributed to members after each meeting.
Information Management	All relevant documents will be posted in a dedicated MS Teams group space and will be accessible to all members.
Project Teams	Project Teams (PT) will be established to address specific issues/tasks, as required. Membership of project teams will vary, as required.
Duration	This WG will remain in operation as a body responsible for monitoring and providing regular advice and recommendations to ICSM on the introduction, production and maintenance of S-100 based products and services.
ToR review	The WG will review the Terms of Reference (ToR) annually.
Costs	Members pay for their own travel etc.
Invited SMEs	SMEs can be invited, as and when expert input is required

7 Decision Making

Decisions will be made by democratic voting (simple majority) of meeting attendees. In case of a tie either, the accountable member for the topic (SME; best fit organisation as listed in Annex A), or the Chair (for general topics) will have the power to make the final decision or escalate the issue.

Escalation: Most decisions will be made by this group; however, some items may be escalated. When a decision cannot be made by the group, the issue will be presented to ICSM for guidance, decision, or for direction to the appropriate governing bodies for resolution.

8 Endorsement and Approval

These Terms of Reference have been endorsed by the members of the S100WG at their 3rd meeting in August 2023.

Endorsed by ICSM:

Date: 15 April 2024

Name: Craig Sandy

Position: Chair, Intergovernmental Committee on Surveying and Mapping (ICSM)

Signature: 

Annex A – List of S-100 based Product Specifications

S-100 based product specification	Description	Best fit
S-101 Electronic Navigational Chart (ENC)	The S-101 ENC Product Specification (PS) specifies the content, structure, data encoding and metadata required for compiling S-101 ENC data. The Specification also includes the portrayal requirements for use within an ECDIS. The S-101 PS will supersede the S-57 ENC PS.	AHO
S-102 Bathymetric Surface	The S-102 Bathymetric Surface Product Specification is based on the Open Navigation Standards Working Group (ONSWG) work on the Bathymetric Attributed Grid (BAG). It will be used as a bathymetric coverage layer for navigation and other purposes.	AHO
S-104 Water Level Information for Surface Navigation	The S-104 Water Level Information for Surface Navigation is intended the encapsulation and data transfer of tidal and water level data for use in an ECDIS or any proposed dynamic tide application. Tidal and water level predictions are fundamental in route planning and entry to ports for navigation and other purposes.	AHO- BOM
S-111 Surface Currents	An understanding of surface currents is an important factor in the safety of navigation as currents affect the motion of vessels. Surface current information may be considered auxiliary information that complements the S-101 ENC.	AHO-BOM
S-121 Maritime Limits and Boundaries	The Maritime Limits and Boundaries Product Specification is intended for the encoding and exchange of digital maritime boundary information; including maritime limits, zones and boundaries as described under the United Nations Convention on the Law of the Sea (UNCLOS).	GA

S-122 Marine Protected Areas	The S-122 Product Specification is intended to encode Marine Protected Area (MPA) information for use in ECDIS and other information systems. MPAs are protected areas of seas, oceans, estuaries or large lakes. Marine Protected Area information may be considered supplementary additional information that complements the S-101 ENC.	**TBD** (several state and federal agencies); GA
S-124 Navigational Warnings	This Product Specification is developed for creating datasets containing navigational warning information primarily targeting use in ECDIS. Navigational warning means a message containing urgent information relevant to safe navigation broadcast to ships in accordance with the provisions of the International Convention for the Safety of Life at Sea, 1974, as amended.	AMSA
S-125 Marine Aids to Navigation	This Product Specification describes navigational features including lights and other navigation aids, both physical and virtual; temporary and seasonal marks; and local AIS application-specific messages. Navigational services information may be considered supplementary additional information that complements the S-101 ENC.	**TBD**
S-126 Marine Physical Environment	This Product Specification describes marine and terrestrial topography; prevailing, seasonal and hazardous currents; tides; weather; and other environmental conditions. Physical environment information may be considered supplementary additional information that complements the S-101 ENC.	AHO
S-127 Marine Traffic Management	Product Specification for vessel traffic services; pilotage; routeing systems; and ship reporting systems. Marine traffic management information may be considered supplementary additional information that complements the S-101 ENC.	**TBD** (multi-agency responsibility)

S-128 Catalogue of Nautical Products	Product Specification for the exchange of catalogues of nautical product information. It includes information about printed and digital products; on-line resources; and access metadata. It should include all the S-xxx products and services within a defined geographic area.	AHO
S-129 Under Keel Clearance Management (UKCM)	This Product Specification is intended to provide a suitable format for the exchange of digital data pertaining to maritime safety and efficiency of marine traffic. It includes a digital format with the necessary attribution features to enable the exchange of information between an Under Keel Clearance Management System and an onboard navigation system such as ECDIS.	**TBD** (multi-agency responsibility – Ports + AMSA)
S-131 Marine Harbour Infrastructure	This PS is mainly intended to facilitate information exchange between harbours and hydrographic offices. The IHO-Singapore lab is currently working on a project to assist with the development of this PS.	**TBD** (multi-agency responsibility)
S-201 Aids to Navigation Information	The Aids to Navigation (AtoN) Information Product Specification provides a common structure for the exchange of information about AtoNs. This includes buoys, beacons, racons, lights, sound signals and AIS. The product contains the positions, properties, operational status and general comments related to an AtoN.	**TBD** (multi-agency responsibility)
S-210 Inter-VTS Exchange Format	Exchange format for vessel and target information that need to be exchanged between VTS sites.	**TBD** (multi-agency responsibility)
S-211 Port Call Message Format	The S-211 Port Call Message (PortCDM) Format has been developed to enable the coordination of stakeholder activities associated with port calls by providing a standard format to share the necessary information, particular time stamps, for example on Estimated Time of Arrival (ETA) and Estimated Time of Departure (ETD). For example, S-211 provides a standard format for sharing relevant	**TBD** (multi-agency responsibility - Ports)

	information such as Estimated Time of Arrival/Departure time stamps).	

S-212 VTS Digital Information Service	Exchange format for reporting to VTS, VTS reply and VTS information service.	**TBD** (multi-agency responsibility)
S-411 Ice Information	Specification development is still in an early stage	BOM
S-412 Weather Overlay	Specification development is still in an early stage	BOM
S-413 Weather and Waves Conditions	Specification development is still in an early stage	BOM
S-414 Weather and Waves Observations	Specification development is still in an early stage	BOM