

5th HSSC Meeting
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Paper for Consideration by Hydrographic Services and Standards Committee
Creation of an S-100 Working Group

<i>Submitted by:</i>	United States
<i>Executive Summary:</i>	A proposal to establish an "S-100 Working Group" to provide dedicated support to developers of S-100 based products, to more evenly distribute the HSSC workload amongst working groups and to enhance the capabilities of the HSSC as a whole to support the development of a growing suite of S-100 based products.
<i>Related Documents:</i>	HSSC3-04A, The Restructure of HSSC WGs HSSC5-04.2C, Optimizing HSSC Working Groups
<i>Related Projects:</i>	N/A

Introduction / Background

2011 Proposal to Restructure HSSC

At HSSC3, the chairs of TSMAD, DPSWG, and DQWG submitted the paper, HSSC3-04A, [The Restructure of HSSC WGs](#). The HSSC did not agree to the proposals in the paper. The United States did not support the paper, as we believed it presented an overly complicated and unworkable means of fostering greater coordination amongst working groups that included adding another level of bureaucracy and a complex solution to the problem of providing a dedicated group of experts to maintain S-100. Nevertheless, the United States believes that some of the ideas proposed in 2011 merit further exploration. This paper and the related paper, HSSC5-04.2C, "Optimizing HSSC Working Groups," present a modified set proposals that we believe will provide a more comprehensive solution to effectively organize the HSSC working groups and will be easier to implement.

How this Proposal is Different

This paper does not prescribe a particular means for working groups to meet or to coordinate their efforts, but like the 2011 proposal, it recommends changing the focus of TSMAD's efforts and the creation a new S-100 working group. This includes shifting the maintenance responsibilities for some standards and specifications to more evenly distribute the workload and more logically group related activities. Details and the rationale for the changes are provided below. An overview of the recommended changes is provided in Figure 1 and tables indicating where the responsibility for maintaining each specification or standard are provided in tables below and are summarized in Annexes B and C.

Analysis/Discussion

An Unbalanced Workload within HSSC

The need for change stems from the success of the S-100 Universal Hydrographic Data Model. The hydrographic community and others have embraced the concept of having many interoperable S-100 based products resulting in a growing and unsustainable burden on TSMAD. TSMAD is currently responsible for nine separate standards, specifications, guides and test datasets, nearly half of which will be updated this year. TSMAD has increasing requests from other working groups to hold joint or contiguous meetings and to provide liaison support to other non-IHO working groups to provide advice on S-100 and the S-100 registry. The working group is struggling to fulfill five important roles listed in Table 1, below.

TSMAD Responsibilities	Standard / Specification
1. Maintain the current ENC related standard, specifications and other artifacts, as well as the RNC Specification	S-57, S-58, S-61, S-64, S-65
2. Develop a new S-101 ENC Product Specification	S-101
3. Maintain the Bathymetric Surface Data Product Specification	S-102
4. Maintain and extend the new Hydrographic Data Model, the Geospatial Information Registry and related procedures for managing the GI Registry	S-100, S-99
5. Provide guidance to developers of other S-100 based product specifications	Ice, Weather, IALA, Nautical Pubs Data, etc.

Table 1

For the most part, we propose that TSMAD retain responsibility for the items in table rows 1 through 3, that the items in 4 and 5 are taken over by a new S-100 Working Group, and that the new group also takes over the section of S-100 that is currently maintained by DIPWG. This is illustrated in Figure 1 below. S-102 is shown as remaining under TSMAD, but after the S-100 WG has been established, we recommend that this specification be moved to another working group in a second phase of reorganization, as described in HSSC5-04.2C.

S-100 WG

We endorse the idea proposed at HSSC3 to create a dedicated "S-100 Working Group."¹ This would free the S-57 and S-101 product specification experts in TSMAD (primarily Member States) to focus on maintaining and enhancing the utility of ENC data for mariners. The core of S-100 experts in the new working group (primarily ECDIS Original Equipment Manufacturers (OEMs) and other related industry experts) could then focus on maintaining and extending the S-100 standard and other infrastructure (most notably the Geospatial Information Registry), as well as providing liaison support regarding new S-100 based products to other IHO working groups and other non-IHO organizations.

This arrangement will allow OEMs to contribute to optimizing the overarching structure of the data that will be used in the ECDIS that they are building and allow the Member States to focus on the encoding and presentation of the data that they produce.

While S-64 is not directly related to S-100, the purpose of S-64 has expanded beyond its original concept of a simple ENC test dataset and now includes tests that are specific to the display of chart content in an ENC that were formally in IEC 61174. The TSMAD members who understand S-100 (who would become the core of the new S-100 WG) also have the expertise in IEC 61174 and would be the best resources to manage S-64.

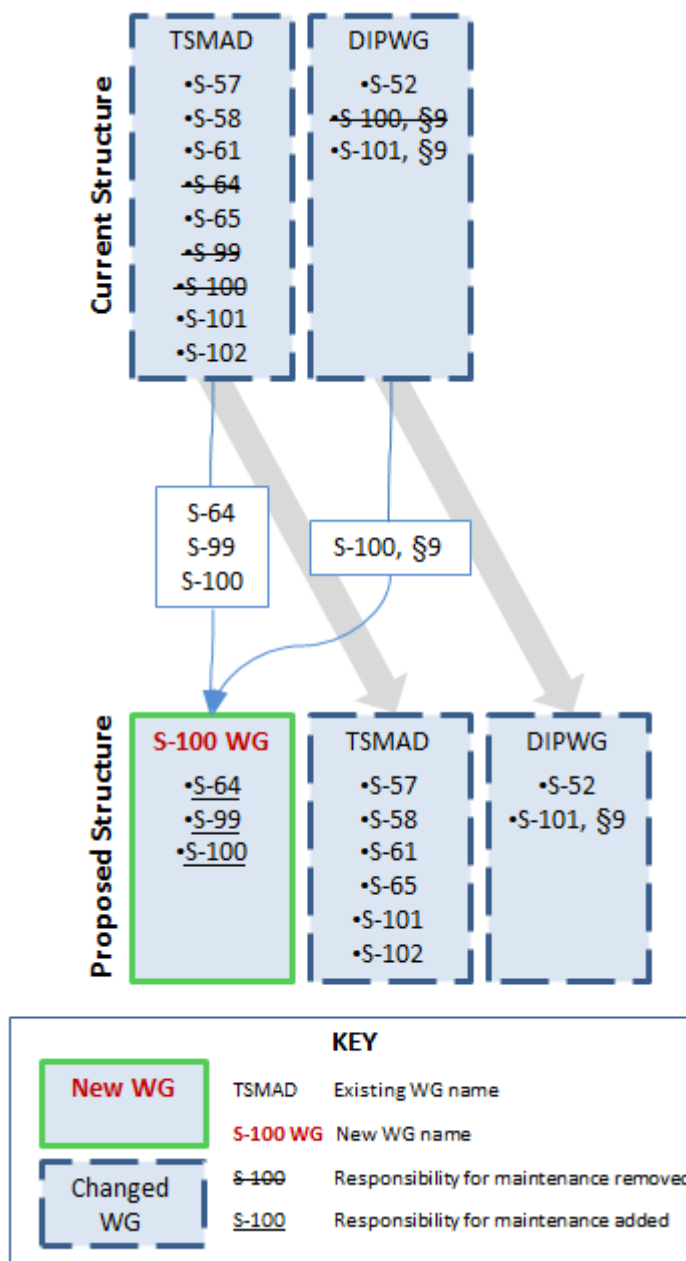


Figure 1

¹ The paper presented at HSSC3 proposed the rather unwieldy name of "Digital Data Technical Support Working Group (DDTSWG)". Although "S-100 WG" suggests a bit narrower role than we are proposing for the group, we believe it will be an easier name to remember and it aligns with the primary responsibility of the working group.

Working Group	Responsibility	Status	Rational
S-100 WG	S-100	Take from TSMAD	Development and maintenance of the S-100 Model and its associated GI Register will become the core business of the newly formed S-100 WG. The OEMs in this group are experts in these areas.
	S-99	Take from TSMAD	
	S-64	Take from TSMAD	The IHO Test Dataset for ECDIS has grown beyond its original of testing the display of ENC data. S-64 now includes tests that were in IEC 61174. Since the OEMs who will constitute most of the membership of the S-100 WG are also the subject matter experts on IEC 61174, the most logical place to assign S-64 is into the S-100 WG.

Table 2

TSMAD

TSMAD would retain responsibility for maintenance of S-57; S-58, the ENC validation checks; S-65, the ENC production guide; as well as the development and testing of S-101 the new ENC product specification. We also recommended reallocation of working group responsibilities as indicated in the Table 3.

Working Group	Responsibility	Status	Rational
TSMAD	S-57	Keep	The core business of the reorganized TSMAD will be maintaining and extending the old and new ENC product specifications
	S-101	Keep	
	S-58	Keep	Provides ENC data validation checks
	S-65	Keep	Provides ENC production, maintenance and distribution guidance
	* S-102	Move to another WG later	We recommend that TSMAD focus on ENC based display ECDIS products and that maintenance of the S-102 bathymetric surface specification and any other S-100 based product specifications be assigned to another new or existing working group.
	* S-61	Move to CSPCWG later	The Raster Nautical Chart (RNC) product specification has not changed in years. We recommend that this specification for a paper chart facsimile product be assigned to the CSPCWG.
	S-99	Move to S-100 WG	Development and maintenance of the S-100 Model and its associated GI Register will become the core business of the newly formed S-100 WG
	S-100	Move to S-100 WG	
	S-64	Move to S-100 WG	The IHO Test Dataset for ECDIS has grown beyond its original of testing the display of ENC data. S-64 now includes tests that were in IEC 61174. Since the OEMs who will constitute most of the membership of the S-100 WG are also the subject matter experts on IEC 61174, the most logical place to assign S-64 is into the S-100 WG.

Table 3

* After the S-100 WG has been established, we recommend that these changes be considered for a second reorganization phase, as described in HSSC5-04.2C.

DIPWG

The DIPWG role in supporting the portrayal of ENC data and information in other S-100 based products will remain. DIPWG would continue to maintain S-52 and the portrayal catalogue for S-101. However, it is recommended that the S-100 portrayal model and the mechanics of maintaining the associated portrayal registers be moved to the S-100 WG where the expertise in data modeling would reside.

Working Group	Responsibility	Status	Rational
DIPWG	S-52	Keep	The core business of the reorganized DIPWG will remain maintaining and extending the implementation of portrayal for the old (S-57) and new (s-101) ENC data.
	S-101, §9	Keep	
	S-100, §9	Move to S-100 WG	Development and maintenance of the S-100 Model and its associated GI Register will become the core business of the newly formed S-100 WG

Table 4

TSMAD and DIPWG

TSMAD currently meets semiannually and DIPWG annually. The two working groups have held a joint meeting at every spring TSMAD meeting since 2008. Joint meetings were initiated to bolster communication and participation amongst two groups of key stakeholders: ECDIS OEMs – who primarily attended DIPWG meetings (called CSMWG at that time) – and member state representatives – who primarily attended TSMAD meetings.

This has been a great success and now nearly 95% of participants attend both the joint spring meeting and the separate TSMAD winter meeting. In fact, DIPWG sub-working group meetings have also been held during a few recent TSMAD winter meetings to facilitate moving work items forward, such as development of the S-100 portrayal model.

This proposal does not recommend combining these two working groups at this time, but it should be considered after the S-101 specification and the implementation of its portrayal are stabilized in the next two or three years

Conclusions

- TSMAD has a growing and unsustainable burden of tasks, which could jeopardize the timely development of S-100 and S-101.
- The HSSC should establish an S-100 Working Group and the reorganization of TSMAD and DIPWG as a high priority. Establishing the S-100 WG will provide dedicated support to developers of S-100 based products and more appropriately employ the talents of member state representatives and ECDIS OEMs.
- A second phase of reorganizing HSSC working groups should also be considered, which will position the HSSC to accomplish its work more efficiently and enable member states and industry partners to target available experts to serve on appropriate working groups more effectively. Some additional, second phase changes are recommended in this paper. A more comprehensive set of working group changes are proposed in HSSC5-04.2C, "Optimizing HSSC Working Groups."
- These steps will more evenly distribute the HSSC workload and enhance the capabilities of the HSSC as a whole to support the development of a growing suite of S-100 based products and the use of ECDIS to provide mariners with a comprehensive understanding of their environs for voyage planning and navigation.

Recommendations

- Immediately establish a new HSSC "S-100 Working Group"
- Reallocate responsibility for maintenance of working group documents as described in Tables 2, 3 and 4.
- Establish a small ad hoc team to draft the details of necessary changes to affected working groups' terms of reference and work plans.

Justification and Impacts

Establishing a new S-100 WG and reallocating some TSMAD tasks will serve to balance the effort of supporting the development and maintenance of S-100 and S-100 based products, which will improve the efficiency and effectiveness of the HSSC as a whole.

Action Required of HSSC

The HSSC is invited to:

- establish a new HSSC "S-100 Working Group,"
- agree to reallocate responsibility for maintenance of working group documents as described in Tables 2, 3 and 4,
- establish a small ad hoc reorganization team to draft the details of necessary changes to affected working groups' terms of reference and work plans, based on A and B above,
- agree to enable the S-100 WG, TSMAD and DIPWG to operate in an interim manner, based on the work of the ad hoc reorganization committee until the next HSSC meeting, and
- agree to consider formal adoption of changes to working groups' terms of reference and work plans, as proposed by ad hoc reorganization committee at HSSC6.

Annex A Names of IHO Standards and Specifications

Items in **bold text** are assigned to an HSSC working group and are referenced in Figure 1 and the tables in Appendices 2 and 3.

IHO Standards and Specifications	
C-17	Spatial Data Infrastructures: "The Marine Dimension" - Guidance for Hydrographic Offices
S-4	Regulations for International (INT) Charts and Chart Specifications of the IHO
S-5	Standards of Competence for Hydrographic Surveyors
S-8	Standards of Competence for Nautical Cartographers
S-11	Guidance for the Preparation and Maintenance of International Chart Schemes and Catalogue of International (INT) Charts
S-12	Standardization of List of Lights and Fog Signals
S-23	Limits of Oceans and Seas
S-32	Hydrographic Dictionary
S-44	IHO Standards for Hydrographic Surveys
S-49	Standardization of Mariners' Routeing Guides
S-52	Specifications for Chart Content and Display Aspects of ECDIS
S-53	Joint IMO/IHO/WMO Manual on Maritime Safety Information
S-57	IHO Transfer Standard for Digital Hydrographic Data
S-58	Recommended ENC Validation Checks
S-60	User's Handbook on Datum Transformations involving WGS 84
S-61	Product Specification for Raster Navigational Charts (RNC)
S-62	List of Data Producer Codes
S-63	IHO Data Protection Scheme
S-64	IHO Test Data Sets for ECDIS
S-65	ENCs: Production, Maintenance and Distribution Guidance
S-66	Facts about Electronic Charts and Carriage Requirements
S-99	Operational Procedures for the Organization and Management of the S-100 Geospatial Information Registry
S-100	IHO Universal Hydrographic Data Model
S-101	IHO Electronic Navigational Chart Product Specification
S-102	Bathymetric Surface Product Specification

Annex B

Summary of Proposed Working Group Changes (Sorted by Working Group)

Working Group	Responsibility	Status	Rational
S-100 WG	S-100	Take from TSMAD	Development and maintenance of the S-100 Model and its associated GI Register will become the core business of the newly formed S-100 WG
	S-99	Take from TSMAD	
	S-64	Take from TSMAD	The IHO Test Dataset for ECDIS has grown beyond its original of testing the display of ENC data. S-64 now includes tests that were in IEC 61174. Since the OEMs who will constitute most of the membership of the S-100 WG are also the subject matter experts on IEC 61174, the most logical place to assign S-64 is into the S-100 WG.
TSMAD	S-57	Keep	The core business of the reorganized TSMAD will be maintaining and extending the old and new ENC product specifications
	S-101	Keep	
	S-58	Keep	Provides ENC data validation checks
	S-65	Keep	Provides ENC production, maintenance and distribution guidance
	* S-61	Move to CSPCWG later	The Raster Nautical Chart (RNC) product specification has not changed in years. We recommend that this specification for a paper chart facsimile product be assigned to the CSPCWG.
	S-99	Move to S-100 WG	Development and maintenance of the S-100 Model and its associated GI Register will become the core business of the newly formed S-100 WG
	S-100	Move to S-100 WG	
	S-64	Move to S-100 WG	The IHO Test Dataset for ECDIS has grown beyond its original of testing the display of ENC data. S-64 now includes tests that were in IEC 61174. Since the OEMs who will constitute most of the membership of the S-100 WG are also the subject matter experts on IEC 61174, the most logical place to assign S-64 is into the S-100 WG.
	* S-102	Move to another WG later	We recommend that TSMAD focus on ENC based display ECDIS products and that maintenance of the S-102 bathymetric surface specification and any other S-100 based product specifications be assigned to another new or existing working group.
DIPWG	S-52	Keep	The core business of the reorganized DIPWG will remain maintaining and extending the implementation of portrayal for the old (S-57) and new (s-101) ENC data.
	S-101, §9	Keep	
	S-100, §9	Move to S-100 WG	Development and maintenance of the S-100 Model and its associated GI Register will become the core business of the newly formed S-100 WG
CSPCWG	S-61	Take from TSMAD	The stable and unchanging Raster Nautical Chart (RNC) product specification will be assigned to the raster oriented CSPCWG (to be renamed CCCWG)
?	* S-102	Take from TSMAD later	We recommend that TSMAD focus on ENC based display ECDIS products and that maintenance of the S-102 bathymetric surface specification and any other S-100 based product specifications be assigned to another new or existing working group.

* After the S-100 WG has been established, we recommend that these changes be considered for a second reorganization phase, as described in HSSC5-04.2C.

Annex C

Summary of Proposed Working Group Changes (Sorted by Document)

Responsibility	Working Group	Status	Rational
S-52	DIPWG	Keep	The core business of the reorganized DIPWG will remain maintaining and extending the implementation of portrayal for the old (S-57) and new (s-101) ENC data.
S-57	TSMAD	Keep	The core business of the reorganized TSMAD will be maintaining and extending the old and new ENC product specifications
S-58	TSMAD	Keep	Provides ENC data validation checks
* S-61	TSMAD	Remove later	The Raster Nautical Chart (RNC) product specification has not changed in years. We recommend that this specification for a paper chart facsimile product be assigned to the CSPCWG.
	CSPCWG	Add later	
S-64	TSMAD	Remove	The IHO Test Dataset for ECDIS has grown beyond its original of testing the display of ENC data. S-64 now includes tests that were in IEC 61174. Since the OEMs who will constitute most of the membership of the S-100 WG are also the subject matter experts on IEC 61174, the most logical place to assign S-64 is into the S-100 WG.
	S-100 WG	Add	
S-65	TSMAD	Keep	Provides ENC production, maintenance and distribution guidance
S-99	TSMAD	Remove	Development and maintenance of the S-100 Model and its associated GI Register will become the core business of the newly formed S-100 WG
	S-100 WG	Add	
S-100	TSMAD	Remove	
	S-100 WG	Add	
S-100, §9	DIPWG	Remove	
	S-100 WG	Add	
S-101	TSMAD	Keep	The core business of the reorganized TSMAD will be maintaining and extending the old and new ENC product specifications
S-101, §9	DIPWG	Keep	The core business of the reorganized DIPWG will remain maintaining and extending the implementation of portrayal for the old (S-57) and new (S-101) ENC data.
* S-102	TSMAD	Remove later	We recommend that TSMAD focus on ENC based display ECDIS products and that maintenance of the S-102 bathymetric surface specification and any other S-100 based product specifications be assigned to another new or existing working group.
	?	Add later	

* After the S-100 WG has been established, we recommend that these changes be considered for a second reorganization phase, as described in HSSC5-04.2C.