



15th Meeting of the Hydrographic Services and Standards Committee

IALA Activities affecting HSSC

Agenda Item 7.3

Minsu JEON, Technical manager IALA

HSSC-15, Helsinki, Finland, 5 – 9 June 2023



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IALA AND ITS IGO PROJECT



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IALA



- Non profit, international technical association established in 1957
- Standards, Recommendations, Guidelines, Manuals, Model Courses
- Two strategic goals aimed at development and harmonisation of global Marine Aids to Navigation system
- Transition from NGO to IGO



S1010
ATON PLANNING
AND SERVICE
REQUIREMENT



S1020
ATON DESIGN
AND DELIVERY



S1030
RADIONAVIGATION
SERVICES



S1040
VESSEL TRAFFIC
SERVICES



S1050
TRAINING AND
CERTIFICATION



S1060
DIGITAL
COMMUNICATION
TECHNOLOGIES



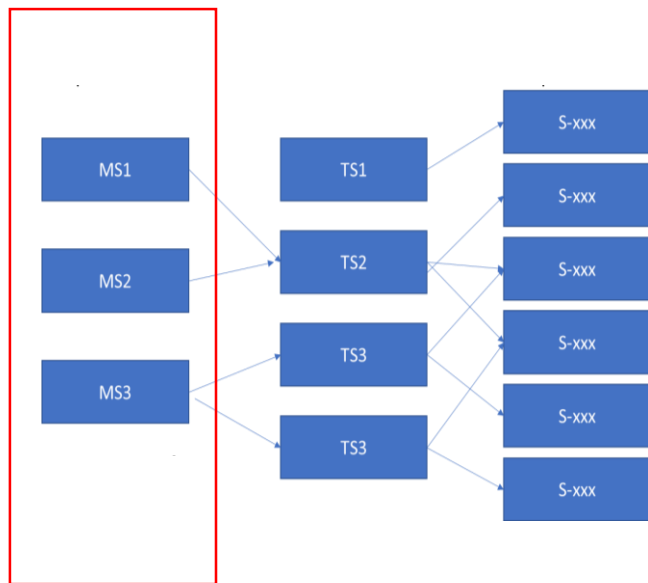
S1070
INFORMATION
SERVICES



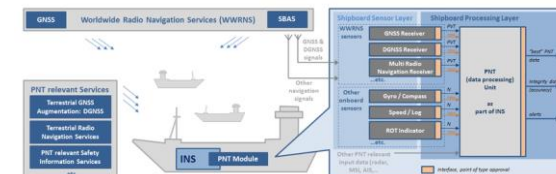
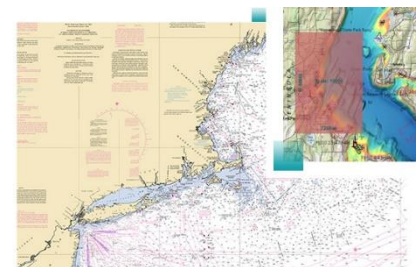
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MARITIME SERVICES IN THE CONTEXT OF E-NAVIGATION

International Hydrographic Organization



- 1 VTS
- 2 AtoN (PNT)
- 4 LPS
- 5 MSI
- 6 Pilotage
- 7 Tug
- 8 VSR
- 9 TMAS
- 10 MAS
- 11 NCS
- 12 NPS
- 13 INS
- 14 MIS
- 15 RHEIS
- 16 SAR





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IMO IMSAS AUDIT

NCSR 10/21
Annex, page 1

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SUB-COMMITTEE ON NAVIGATION,
COMMUNICATIONS AND SEARCH AND
RESCUE
10th session
Agenda item 21

NCSR 10/21
16 January 2023
Original: ENGLISH
Pre-session public release:

ANY OTHER BUSINESS

**Amendments to the guidance to the
Auditor's Manual for the IMO Member State Audit Scheme (IMSAS) related to
the revised Guidelines for vessel traffic services (resolution A.1158(32))**

Submitted by IALA

SUMMARY

Executive summary: This document proposes updated amendments to the guidance to the Auditor's Manual for the IMO Member State Audit Scheme, set out in annex 3, part 1 to Circular Letter No.3425, which reproduced the annex to document MSC 81/24/1. It also updates the previous document submitted by IALA (MSC 103/20/9) to reflect necessary changes due to the adoption of the revised Guidelines for vessel traffic services (resolution A.1158(32)).

*Strategic direction,
if applicable:* 1 and 7

Output: Not applicable

Action to be taken: Paragraph 7

Related documents: SOLAS regulation V/12; resolutions A.1158(32), A.857(20), A.1067(28) and A.1070(28); MSC 81/24/1, MSC 103/20/9; Circular Letters No.3425 and No.4317

Introduction

1 In March 2021, IALA submitted a document to the Maritime Safety Committee at its 103rd session (MSC 103/20/9) to reflect the changes that had been made to Circular Letter No.3425 on Auditor's Manual for the IMO Member State Audit Scheme (IMSAS).

2 Due to the COVID-19 pandemic, MSC 103 was held as a remote session and as a consequence, time did not permit all documents to be considered. Consideration of document MSC 103/20/9 was postponed to MSC 104.

ANNEX

PROPOSED AMENDED GUIDANCE FOR THE AUDITOR'S MANUAL FOR THE IMO MEMBER STATE AUDIT SCHEME (IMSAS) (Annex 3, part 1 to Circular Letter No.3425)

GUIDANCE FOR MEMBER STATES ON PRE-AUDIT QUESTIONNAIRE IN RELATION TO VESSEL TRAFFIC SERVICES AND AIDS TO NAVIGATION

This section is intended to assist Member States in responding to the pre-audit questionnaire for Administrations responsible for vessel traffic services (VTS) and aids to navigation (AtoN) prior to being audited in the IMO Member State Audit Scheme (IMSAS).

SOLAS regulation V/12 provides for VTS and sets out, inter alia, that Contracting Governments:

- .1 undertake to arrange for the establishment of VTS where, in their opinion, the volume of traffic or the degree of risk justifies such services;
- .2 shall, wherever possible, follow the guidelines developed by the Organization (resolution A.1158(32) on *Guidelines for vessel traffic services*); and
- .3 shall endeavour to secure the participation in, and compliance with, the provisions of VTS by ships entitled to fly their flag.

Resolution A.1158(32) describes the purpose, general principles and provisions for the operation of a VTS and participating vessels. It also describes the roles and responsibilities of Contracting Governments, competent authorities for VTS and VTS providers and the qualifications and training for VTS personnel. It also sets out the regulatory and legal framework and states that Contracting Governments are encouraged to take into account IALA standards and associated recommendations, guidelines and model courses.

The Guidelines are associated with SOLAS regulation V/12 and should be taken into account by Contracting Governments to the Convention when planning, implementing and operating vessel traffic services (VTS) under national law. Members of the Organization that are not Contracting Governments to the Convention are also encouraged to take these Guidelines into account.

SOLAS regulation V/13 provides for the establishment and operation of AtoN and sets out, inter alia, that each Contracting Government undertakes to:

- .1 provide, as it deems practical and necessary either individually or in cooperation with other Contracting Governments, such AtoN as the volume of traffic justifies and the degree of risk requires;
- .2 take into account the appropriate recommendations and guidelines of IALA and SN/Circ.297 on the IALA Maritime Buoyage System, when establishing such aids; and
- .3 arrange for information relating to AtoN to be made available to all concerned.

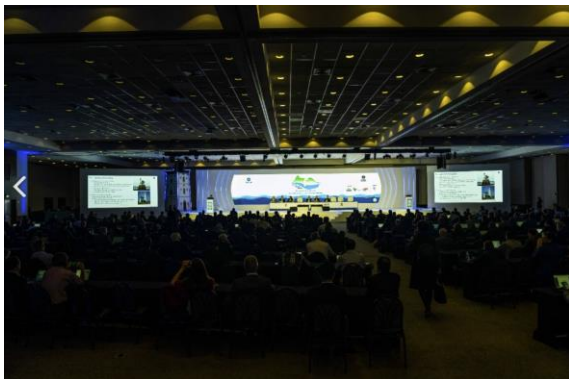
* Resolution A.857(20) was replaced by resolution A.1158(32) on 15 December 2021 at the 32nd session of the Assembly.



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20TH CONFERENCE AND 15TH GA RIO DE JANEIRO, BRAZIL

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20th IALA Conference Conclusions

The 20th IALA Conference concluded that:

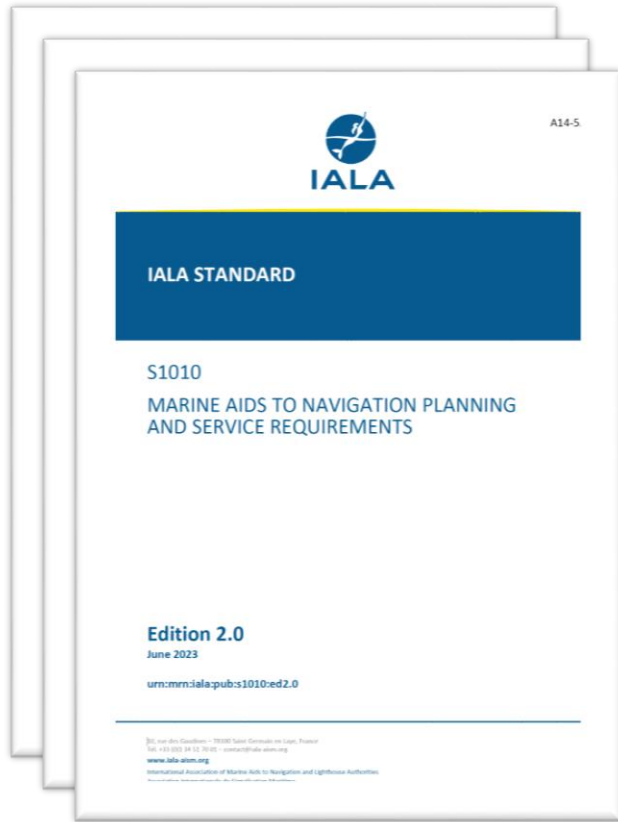
- Sustainability and its link to the UN SDGs is of increasing importance and IALA is duty bound to raise the profile of this area in the committees. Members should continue to innovate sustainable approaches by recognizing, developing and reviewing the whole lifecycle of AtoN services.
- In addition to GNSS, various space and terrestrial technologies are able to provide PNT and integrity information to the maritime user. IALA should continue to facilitate collaboration and standardisation taking a holistic approach to achieve resilient PNT.
- To achieve digital transformation in the S-100 domain, the importance of collaboration and continued dialogue between IHO, IALA and other domain controllers is necessary. IALA should stand ready to assist coastal authorities with their transition to S-100 related products.
- Autonomy is a driver to leverage the development of digital products. AtoN has a role in support of autonomous vessels and technology needs to be standardized to meet the future requirements of all vessels.
- The IALA Risk Toolbox has proven benefits for members but should be enhanced to cover all ships on all voyages. The IALA Toolbox forms an essential part of assessment of risk and their



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NEW PUBLICATIONS

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Ed2.0 Standards



R1001 Ed2.0 The IALA MBS



Ed9.0 NAVGUIDE



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WORK PROGRAMME 2023-2027

International Hydrographic Organization

ANNEX A DRAFT COMMITTEE WORK PROGRAMME 2023-2027

Reference to Standards	Scope	Title	Description	Expected outcome	Committee # (*leading no.)	Committee work item no.	Related documents	
S1010 Marine AtoN	1.1 Marine AtoN planning	Compile new Guideline on AtoN Buoy Tender requirements and specification	New Guideline on Tender requirements.	New Guideline	ARM*, ENG			
		Compile guidance for buoy tender activities	WWA related	Model courses	ARM			
		Providing guidance on the process to implement developments of innovation	Develop a guideline on how to move from development test bed/trial reporting to implementation of innovative solutions.	New Guideline	DTEC			
		Full review of Guideline G1078 The Use of AtoN in the Design of Fairways	Revise Guideline G1078	Revised Guideline	ARM			
		Development of aspects of digital communications, including promoting broadband connectivity for operational technology.	Based on IHO/IALA portrayal and IALA comms workshop output.		ARM, DTEC			
	1.2 Obligations and regulatory compliance		Guidance on the use of simple IOT sensors on physical aids	Establish requirement for IOT sensors.	Guideline	ARM		
			Develop further guidance for navigators on the use of AtoN	Develop a guideline and make relevant training material available to enhance mariners' understanding of marine aids to navigation (AtoN) and to facilitate the effective use thereof.	Guideline Model course for use in STCW courses	ARM		
			Prepare an appropriate submission to IMO advising of the publication of the updated MBS highlighting MATON and MASS content.		Proposal for IMO Circular	ARM		
			Develop guidance on the provision of AtoN and risk management for autonomous vehicle/vessel operations (Maritime Autonomous Surface Ship, MASS)		New or revised guideline	ARM		
			Review relevant sections of NAVGUIDE as requested by Secretariat		NAVGUIDE	ARM, ENG, VTS, DTEC		
		Develop guidance on the provision of Marine AtoN for autonomous vehicle/vessel operations (Maritime Autonomous Surface Ship, MASS).	The Guideline will be continued led by DTEC	New Guideline	ARM, ENG, DTEC*, VTS			
		Consider developing guidance on the certification of technical equipment, information systems and technical infrastructure related to MASS in the domain of IALA.	Develop a guideline on the certification of technical MASS equipment, information systems, and technical infrastructure within the domain of IALA.	New Guideline	DTEC*, ENG, ARM, VTS			
		Monitor IMO work on STCW and develop IMO submissions and supporting advice on amendments to STCW in respect of IALA's inclusion within the Convention to cover AtoN training for navigators.	Develop a training course and make relevant training material available to enhance mariners' understanding of marine aids to navigation (AtoN) and to facilitate the effective use thereof. IALA Model Course and IMO submission and IALA	Input to relevant IMO meetings and update IMO Model course	ARM			

- Cyber security guideline
- MASS guideline
- Review of the AIS (ASM) related recommendations and guidelines
- Continue the development of S-200 series product specifications
- Guideline on VDES related guidelines
- Technical service specification for the provision of AtoN information and VTS
- Maritime digital communication manual
- Etc.

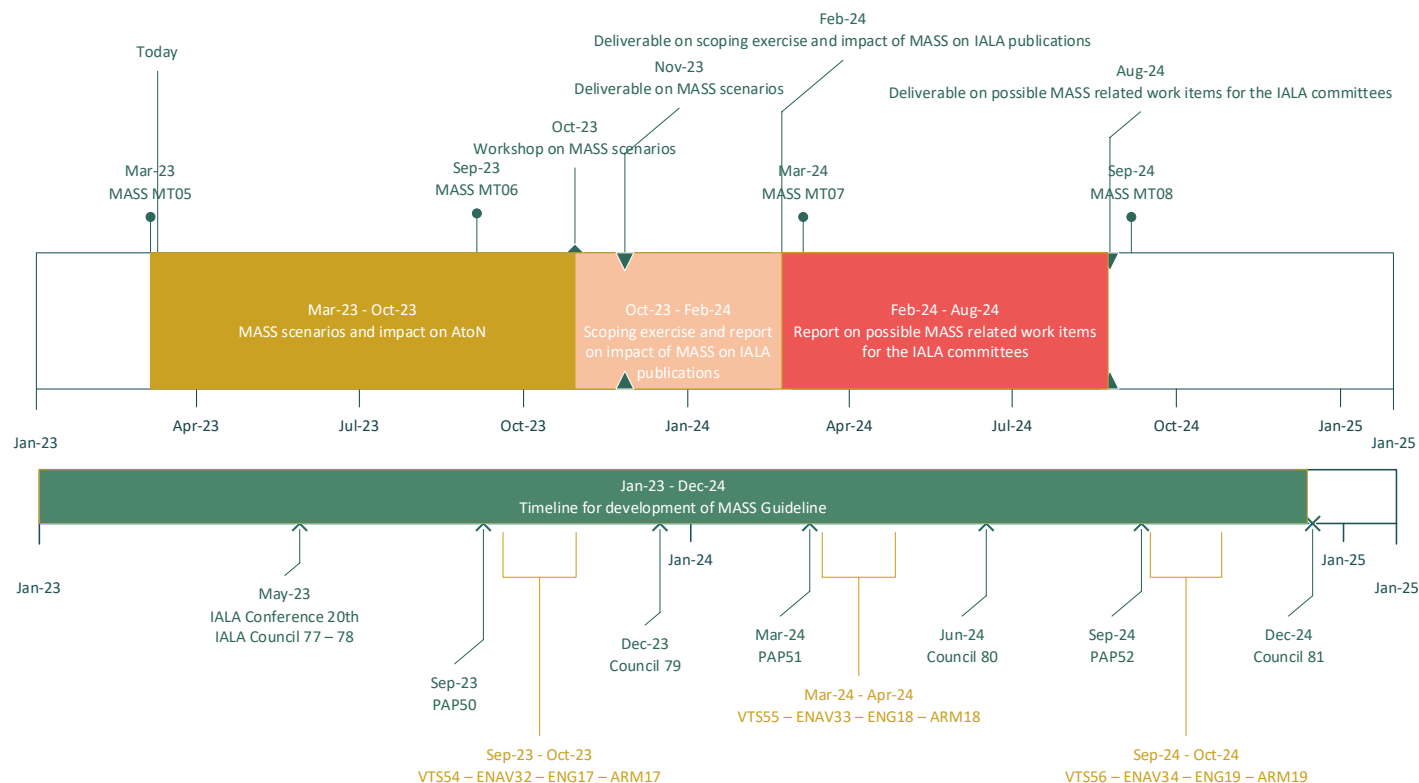


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IALA MASS GUIDELINE

International Hydrographic Organization

Committees	Section to develop in the Guideline
ENAV	<ul style="list-style-type: none"> General Communication Data transfer standards Cyber Security
VTS	<ul style="list-style-type: none"> VTS interaction with MASS Safe and efficient operations
ARM	<ul style="list-style-type: none"> Management Portrayal Spatial Awareness Interaction with manned vessels Risk Management & Assessment
ENG	<ul style="list-style-type: none"> PNT Position augmentation Power availability Conventional AtoN visibility to MASS
LAP	<ul style="list-style-type: none"> Legal aspect





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IALA'S ROLE ON S-200 DEVELOPMENT

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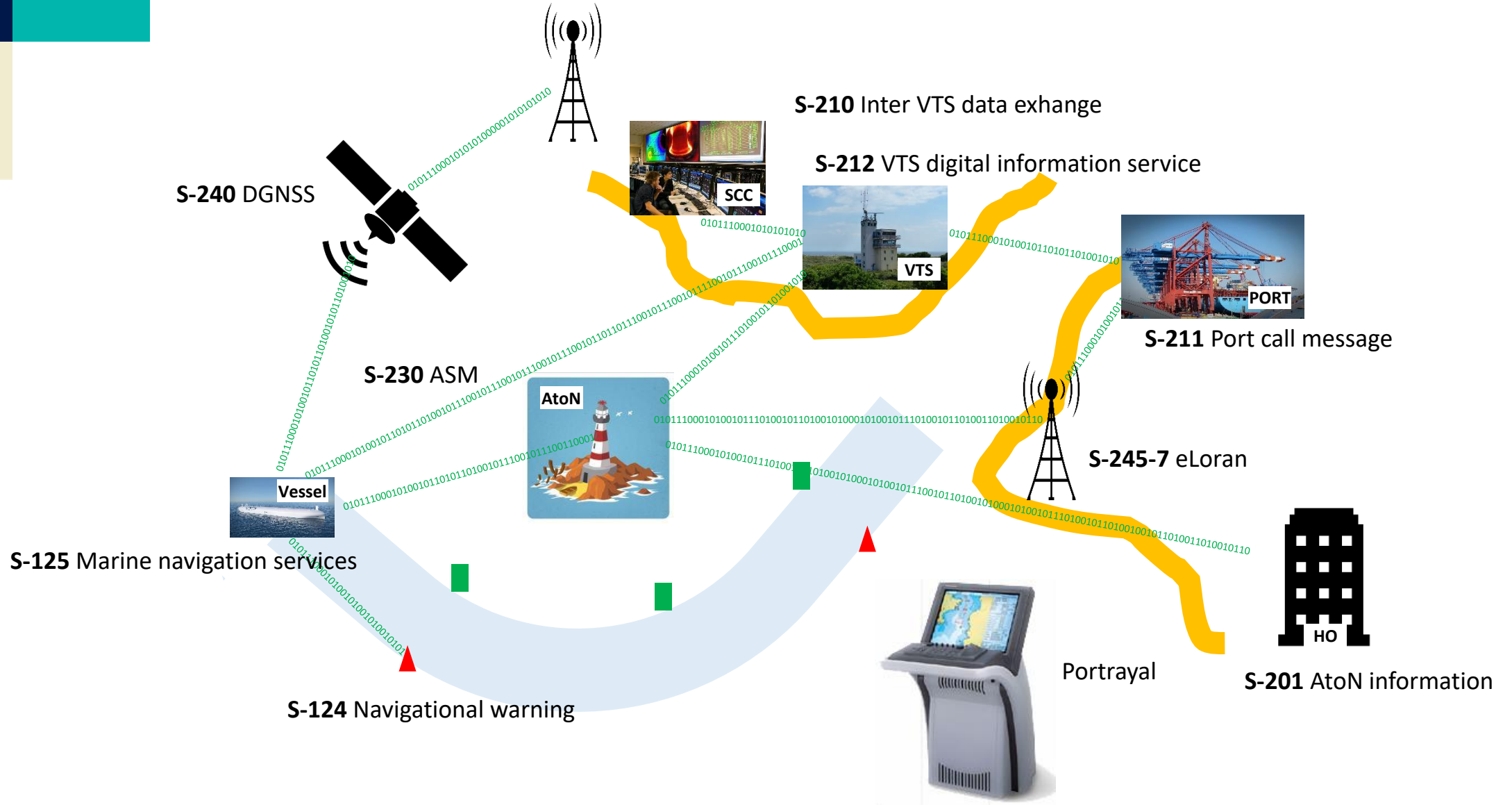
- IHO has approved IALA as a **Submitting Organization** and **Domain Controller**
- IALA Product Specifications compliant with the IHO S-100 standard, use the numbering series S-201 to S-299
- **IALA Domain covers:**
 - Aids to Navigation (AtoN)
 - Vessel Traffic Services (VTS)
 - Positioning Systems
 - Communication Systems
 - AIS, ASM, VDES
- **Publications**
 - IALA G1106 on the Development of Product Specifications
 - IALA G1087 on the Management of the IALA Domain
 - New guideline on the S-201 implementation guideline



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S-200 WORLD

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DEVELOPMENT STATUS OF S-200 SERIES

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S-200 development summary table as of June 2023

Domain	PS	Title	Developing Committee	Version
AtoN	S-201	AtoN information	ARM	1.1.0
	S-125	Maritime Navigational Service	NIPWG (ARM)	
Positioning	S-240	DGNSS almanac	ENG	1.0.0
	S-245	eLoran ASF	ENG	0.7.0
	S-246	eLoran almanac	ENG	1.0.0
	S-247	eLoran reference stations	ENG	1.0.0
Comms.	S-230	Application Specific Message (ASM)	DTEC	Planned
VTS	S-210	Inter VTS exchange	VTS	Started
	S-211	Port Call Message	IPCDMC	1.0.0
	S-212	VTS digital information service	VTS	0.6.4



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S-200 TESTBED

S-201 Testbed - CCG Feedback

October 20, 2022

Entry #58 in the S-201 testbed

38 CCG - Saint John Harbour v2

31 aids were added to the testbed covering 4 out of the 5 aid types.

General Feedback

- Unable to edit entry after entering
- Sometimes, the name of the aid appears as "null"
- Unable to include additional equipment related to the aid (e.g. adding a bell to a buoy)
- The testbed allows users to include information that does not appear after clicking on an aid (e.g. "Installation Date")
- The testbed automatically generates an "AidNumber" and "MCode" for both the structure and the light of an aid based on the country code provided and in order of feature creation.
- The testbed appears to be "adjusting" the coordinates of most aids slightly.
- It appears that the "Light beacon" type does not have all the fields necessary to sufficiently capture information for sector and range lights.
- It appears that the testbed is predicting certain information.
 - The testbed can correctly predict the "category/Lateral/Marks" and the corresponding light colour for "Light buoy" and "Buoy" types based on the colour of the structure and the IALA MBS type selected.
 - However, the light colour is not necessarily predicted correctly for "Light buoy" types that are "BuoySpecialPurposeGeneral."
 - The testbed appears to predict the colour of the light for "Light beacon" types based on the colour of the structure.
 - However, the choice of colours and patterns do not match what is used in Canada, as well as the lack of indicating the presence of a diymark, and therefore it would not be possible for the testbed to accurately predict the colour of the light of these aids.
- The testbed allows the user to indicate the colour of the light for the "Lighthouse" type.
- There appears to be a typographical error under the S201.Landmark attribute names where it is written "visuallycompoued" and should be corrected to "visuallycompoued".

S201.Landmark	
Name	Value
Category/landmark	buoy
visualcolor/light	visually compoued

Additional Notes

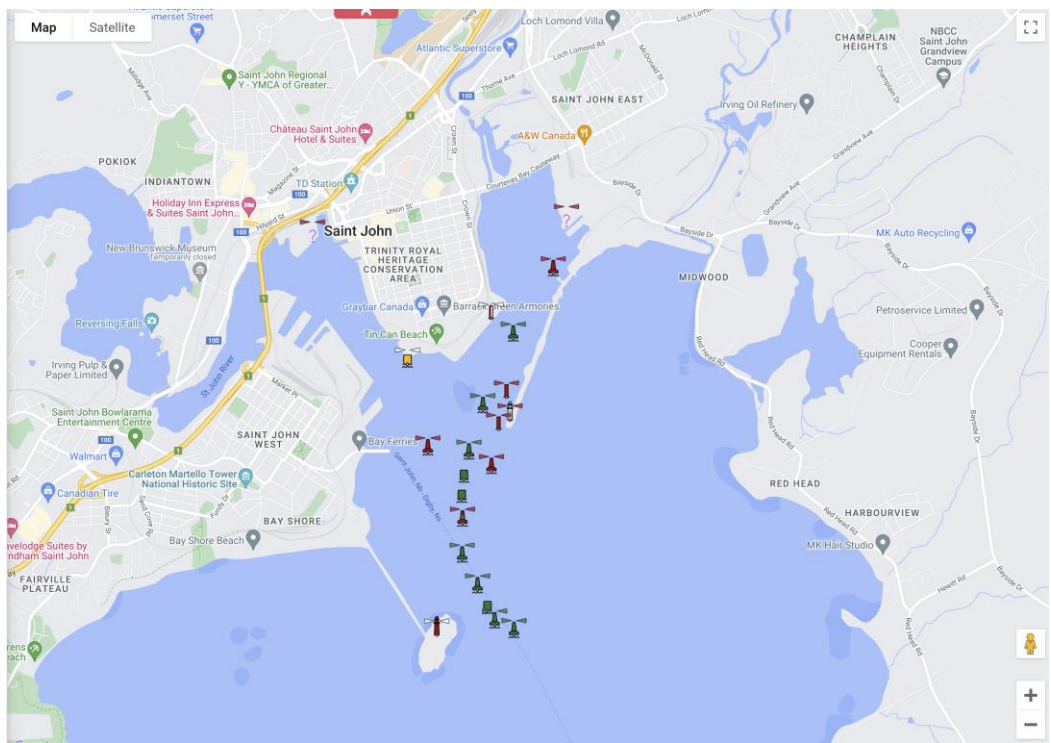
- The English name of an aid was indicated under the "Name" field, while the French name of the aid was indicated under the "Name in national language" field.
- Only the year could be provided for the "Installation Date" field.

Information entered into the testbed		Resulting information	
Latitude	Longitude	Latitude	Longitude
12.1° N	66° 2' 40.5" W	45° 14' 12.898° N	66° 2' 40.898° W
24.1° N	66° 2' 48.9" W	45° 14' 24.1° N	66° 2' 48.901° W
34.7° N	66° 2' 56.3" W	45° 14' 34.899° N	66° 2' 56.299° W
44.1° N	66° 3' 2.9" W	45° 14' 44.898° N	66° 3' 2.901° W
56.1° N	66° 3' 10.4" W	45° 15' 6.898° N	66° 3' 10.4° W
16.7° N	66° 3' 17.8" W	45° 15' 16.7° N	66° 3' 17.798° W
4° 55' N	66° 3' 2.7" W	45° 14' 54.999° N	66° 3' 2.699° W
5° 11' N	66° 2' 50.2" W	45° 15' 11.801° N	66° 2' 50.2° W
15.4° N	66° 3' 0" W	45° 15' 15.4° N	66° 2' 59.999° W
23.6° N	66° 2' 47.1" W	45° 15' 23.601° N	66° 2' 47.101° W
29.5° N	66° 2' 54" W	45° 15' 29.498° N	66° 2' 53.898° W
33.4° N	66° 2' 43.8" W	45° 15' 33.4° N	66° 2' 43.799° W
51.3° N	66° 2' 40.8" W	45° 15' 51.299° N	66° 2' 40.801° W
52.6° N	66° 2' 32.6" W	45° 15' 52.599° N	66° 2' 32.6° W
11.15° N	66° 2' 23.51" W	No change	No change
43.4° N	66° 3' 26.6" W	45° 15' 43.401° N	66° 3' 26.6° W

- Editing the data
- Language issue
- Coordinates error
- More field required

- Input and export S-201 data model
 - AtoN CA & HO
- Portrayal of S-200 series PS datasets
- Updating the datasets
- Quality validation of S-200 datasets
- Utilization of MRN
- AtoN information Service in terms of e-Navigation
- And more

ID	Name	Type	FC Ver	Info
26	S-201 Data	IALA.S.2011.1.0	0.9.9	✓
27	ARM TEST	S-201	0.9.9	✓
28	shantou	S-201	0.9.9	✓
29	汕头港10号	S-201	0.9.9	✓
30	CCG-Saint John Harbour v2	S-201	0.9.9	✓
31	France	S-201	0.9.9	✓
32	test	S-201	0.9.9	✓
33	汕头港9号	S-201	0.9.9	✓
34	test1	S-201	0.9.9	✓
35	canada	S-201	0.9.9	✓
36	gusman	S-201	0.9.9	✓
37	test1	S-201	0.9.9	✓
38	test1	S-201	0.9.9	✓
39	basra	S-201	0.9.9	✓
40	test1	S-201	0.9.9	✓

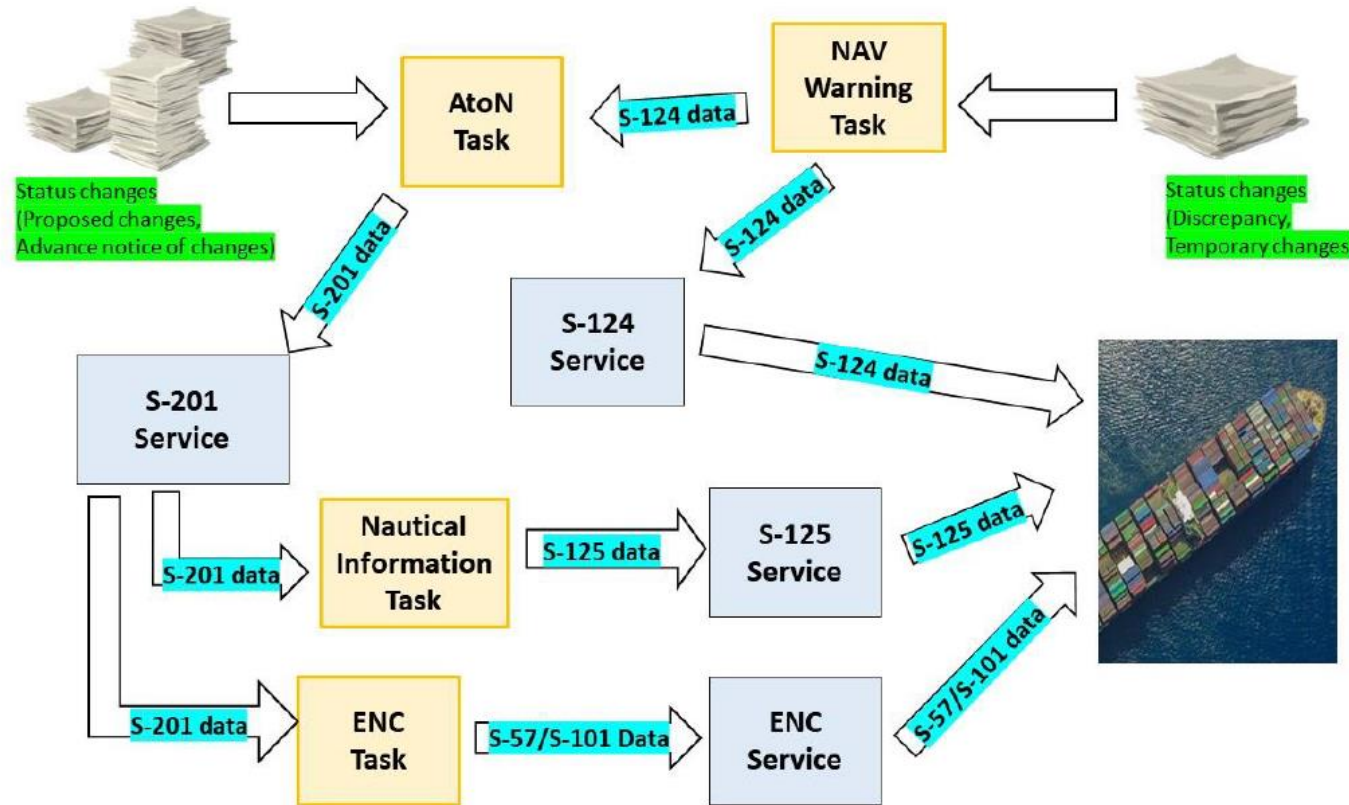




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S-125 MARINE ATON AND S-201 ATON INFORMATION

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S-125 is a product specification owned by NIPWG, but has a close relation to S-201. IALA ARM volunteered to develop this PS in cooperation with NIPWG.



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JOINT IHO IALA WORKSHOP ON S-100/200 DEVELOPMENT

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Purpose: To gain a common understanding between organizations regarding the concepts and use of the S-100 framework to advance the development and delivery of e-Navigation maritime services. Examine current efforts with the goal of harmonization between organizations.

The objective of the workshop is to:

- Harmonize and open feedback channels between IHO and IALA regarding Product Specification requirements and development processes.
- Share visions of the use of S-100 based Product Specifications of IHO and IALA and relevant stakeholders.
- Identify possible updates and recommend amendments existing documents.
- Provide clarity regarding development of S-100 / S-200 series Product Specifications for IHO/IALA.

Proposal to host the second joint IHO IALA workshop in Sep 2024 in the US

05 - 09 September 2022

Joint IALA/IHO workshop on S-100/200 development and portrayal
Norwegian Coastal Administration, Ålesund, Norway



KYSTVERKET

The International Association of Marine Aids to Navigation and Lighthouse Authorities (IALA) and the International Hydrographic Organization (IHO) in association with the Norwegian Coastal Administration (NCA) are hosting a joint workshop on S-100/200 development and portrayal to be held in Ålesund, Norway, from 05 to 09 September 2022.



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IALA STRATEGY

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- IALA is developing and coordinating PS and data exchange formats that will underpin e-navigation services in the future.
- Develop an IALA training course on S-100/200 PS
- Focus on the technical service and streaming of the data.
- Promote the S-200 Testbed and invite members to participate.
- Continue the regular IALA/IHO technical cooperation meeting.
- Joint IALA/IHO Workshop in Sep 2024 in the US.

HSSC is invited to approve the joint workshop and note the information provided.