Minutes of S-124 Project Team 1 meeting – June 11 & June 18, 2020

Hosted on Microsoft Teams by Canadian Coast Guard. Agenda is found in Annex A and attendees are listed in Annex B. Record of discussions follows. Actions items are listed inline and in Annex C.

1) Roll-call and introductions (1.1)	E. Mong welcomed participants to meeting, round table of introductions.
2) Approval of agenda (1.2)	Agenda reviewed and approved with no changes
3) S-124 status	
Closing up S-124 v/June2019 comment (2.1)	
Use of MRN: the use of MRN should be optional because we can expect some difficulties when implementing the concept and because local warnings are out of IHO's domain. We only need to create one MRN for the dataset (the NW as a whole) and use URN inside the NW to refer occasionally to objects having an URN (an AtoN for example, a regulation,…)	- Per Lofbom (PL) asked how will MRN be implemented? - Eivind Mong (EM): The governance of MRN is in IALA and trickles down, IHO has given a name space and S-124 would fall under the name space since S-124 is developing under the IHO umbrella. The rules themselves are still under development, IALA/IHO are aligning. There is still some work to sort it out but it shouldn't be a problem - PL has no issue with governance in that case. - David Lewald (DL): Governance is a concern. - IALA/IHO have discussed IHO adopting a similar governance policy. - A document needs to be created by IHO on how they view MRN usage. - Christopher Janus (CJ): The use of MRN was discussed at the WWNWS11 meeting. - Using a single MRN to represent an entire data set might make it more difficult to assign a NAVWARN to a certain feature. A benefit of a single MRN rather than multiple ones exists if we're adding to other features, as it is beneficial to use an MRN that already exists. - Is there an instance where this already exists, an MRN representing an entire dataset? - EM: MRN was used in the STM validation project, an MRN for the dataset and also an MRN for the features. - It was found that using an identifier for a particular object being referenced was still premature because MRNs have not been universally adopted. - It was noted that while NAVWARNs have unique identifiers how to use these as machine readable identifiers may not be possible. - Denis Fokin (DF): ECDIS system is used to MRN. The suggestion was made under the STM project that it's important to have MRN ID because they handle messages in the ECDIS system. - Hannu Peiponen (HP): Don't care if it's the entire dataset or individual MRNs per element, as long as the other channels (Navtex, Iridium, etc) can be compared and duplications identified when arriving into the ECDIS.

	• Yves LeFranc (YF) - MRN in the model is a feature part of NAVWARN. The Universal Resource should carry the MRN and not each part of the NAVWARN.
	    ○ EM: The MRN now only goes in the Message Series Identifier, the element ID was taken out of the Feature Part in the last iteration of the data model.
	    ○ YF agrees with this approach.
	• <u>Conclusion</u>: MRN is the mandatory identifier for the dataset.

As any dataset not found in the latest in-force bulletin must be considered not valid, an in-force bulletin should always be created when a new NAVTEX message has been released.	• EM agrees with the comment, but noted the way to achieve this is a challenge. • General idea of distribution structure – the current in-force bulletin is issued once a week (S-53), it may not be sufficient in the S-124 system to do it once a week, it should be any time. • Some kind of interaction needs to happen between systems to always have the information available to the end user. • It should be constantly (which needs to be defined, maybe every 10 minutes, maybe every hour) pinging the service to see if there's anything new. • Push function must exist for anything with extra urgency. The means to do this is not yet defined within the S-124 scope. • To achieve this, there needs to be more clarity in the distribution structure. • We need to develop the distribution structure further to be able to see how this would work. • Germany agrees that this is a satisfactory way forward. • <u>Conclusion</u>: Distribution structure must be further developed to establish the up-to-dateness methodology.

It should be considered whether the technical service description should be part of the Product Specification. Usually the data provision is not provided.	• There is no answer to this yet. It is unclear whether this should be a separate document.
	• It is a description of how the service works, from IT point of view.
	• PL: In view of what we're doing with SECOM, If we're using it to distribute NAVWARN, it's at three different levels in accordance with IALA G1128: service specification, service design, instance level.
	    ○ Service specification is supposed to be able to transfer any product with SECOM, adoption is a question for IHO/IALA.
	    ○ EM: There is not enough information about the overall distribution structure to make a determination at this time. The service description points to certain versions of S-124 product specifications.
	    ○ HP agrees with this. Technical service descriptions point to a product specification, however the overall structure of e-Navigation data distribution is still in development and it is therefore not possible to determine at present. Use cases and details around them need to be in the Product Specification. S-421 has 11 use cases that serve as a guide.
	        ○ YF: understood from previous workshop from WWNWS meeting in Halifax that specification of technical service from the issuing system is within the scope of the S-124

	working group and thinks its simple to have a clear view of perimeter of the group's work. There will be some systems outside, but the first step is to define how the client system should use and manage the data provided.
	• EM agrees it's within scope, but the question is whether or not it is part of the product specification. It may jeopardize the project deadline if it's part of it, if it's external, it can be worked on separately from the product specification.
	• YF: We need to work on distribution and management of data on the client side and set up a scenario.
	• EM: We need to ensure the usage description and technical description are not hindered.
	Conclusion: Use cases and details should be in the product specification and S-421 has use cases that can be used as a guide.
Currently NW are broadcast separately in English via international SafetyNET and international NAVTEX, and in national language via national safetyNET and national NAVTEX. Considering that broadcasts generally need limited among of data, this might imply that datasets will not be multilingual but will be replicated in both languages for separated broadcasts. This point should be examined.	○ The data model supports both options, one dataset with multiple languages or multiple datasets with different languages. The challenge is on the distribution side, would have to come up with a service for language.
	○ France: It would be simpler to take the current method of two different broadcasts, one in the international language, another broadcast in the national language.
	• It would be two versions, but not the same warning, two versions of the series.
	• DF: It is important to have one unique identifier for this message.
	• France: How is this done if you have different messages inside one series?
	• HP: Commented that France's idea is simpler.
	• Christopher Gill (CG): From a display point of view, will the same NAVWARN be displayed twice? Or will it be displayed and then the user is presented with an option to choose the language.
	• EM: With one dataset per language, there would have to be a filtering system to eliminate the items that are not in the preferred language. We don't want to have duplicated information, with both displayed, just one or the other.
	▪ HP: The user can select the language in the human-machine interface. A single MRN with different attributes will simplify management. If they arrive through separate datasets and the ECDIS has to manage it, will be a big mess.
	• Conclusion: Challenges with identifier if the language is separated into different datasets.
	○ Lucia Bakker (LB): We have two separate possibilities of language, when they are coded the onboard receiver should

	have a filter. More discussion is needed, but filtering needs to be linked to the identifier at the beginning of the dataset. ○ YF, DF, HP & EM will work together on a proposed solution.
Dataset size of e.g. 50KB. Do we have any definitions on that in relevant IMO papers? Although we did an intensive cross check, we were not able to find any information.	• EM noted that the limit is not based on anything but a best guess, but that no one has objected to it. The group should evaluate if they want to stick with that limit. • The current limit is big in terms of what's been observed so far with regards to test data. For example, 8 kb is the largest that's been done in Canada so far. • The question is whether we want to reduce or increase this limit. • Conclusion: Keep the 50KB limit but we have to monitor what will be the capability of radio broadcast systems (GMDSS) in future.
S124 product specification should specify only NWs and their delivery by their producers which are government authorized institutions. The delivery of NAVAREA, sub-area and coastal warnings from the producer to the ship should be defined by WWNWSSC in the framework of the GMDSS. Composite exchange sets issued and sold by third party vendors should not be in the perimeter of S-124.	• YL: The note about repackaging by 3rd party is not in the scope of the work of S-124. • The paragraph (14.4) should focus on the content relative to the sub sections only. • EM will edit the text to better match 14.4.1.
b. Data model and concept definitions (2.2)	• EM: The latest data model is fairly stable with the latest change. • Proposal from YL for an additional set of values • Focus on different changes to AtoNs. • Not added to the list yet, but will be, the challenge is with definitions. • The list is quite extensive and although it is not good to have long list, there is value in it as well. Given limited bandwidth issues, numerical values can be assigned to each item on the list. The outcome can be to shrink the dataset size by having pre-defined types, reducing the need for additional text in the warning. The data is more numeric and by combining it with the feature catalog, can save several bytes per message. ○ Group agreed that there is value in keeping the list. ○ YL, LB and JB will help add definitions to elements that are missing definitions within the document.
c. Submissions to GI Registry (discussion)	• EM gave quick synopsis of the purpose of the GI Registry and the submission process. Post meeting: Elena Gnehm (EG) will submit the S-124 concepts to the Registry.

d. Feature Catalogue creation (discussion)	• EM: Looking for a volunteer to create the feature catalogue, an XML structure that mimics the feature model. It is a big job but once done it is easy to manage. • Edward Weaver (EW) will assist.

e. Portrayal update and post NCSR7 (2.5)	• EW: Will assist with this. EM confirmed that it is the full catalog, but that first the group needs to agree on symbols.
	• DL will help out, and thinks that the group really need to work hard on these symbols.
	• There is a working draft of symbology.
	• NAVWARN with position approximate used ECDIS methodology - are we happy with that?
	    ○ PL - are these used in the STM? Have they been tested? EM: They are similar, but have not been tested.
	    ○ DL: They are a throw-back to S-57 style in general with screwheads (isolated danger marks) and exclamation points. We should look into making it a bit better. DL has never been happy with it, but comes empty-handed to the table. He would like to look at STM and involve private manufacturers such as Rose Point.
	    ○ The symbol needs to not be too complex and cannot use a huge amount of display area for a single symbol, has to be of a reasonable pixel count and area in the screen.
	        • There is sometimes a question of whether the user is in an area or a point, but there is a simple solution of identifying it as A or P (area or point).
	        • Symbology needs to be more intuitive
	    ○ Grant Judson (GJ) agrees with this. We can't introduce symbols that are not easily recognizable. This was an issue with the S-Mode standard. There is a requirement for user testing to make sure symbols are appropriate.
	        • GJ volunteered to contribute to the portrayal and symbology development aspects of the work.
	    ○ DF: Portrayal rules should be clearly readable and very simple
	    ○ Christopher Saarnak (CS): presented the Danish Niord system and showed how the symbols there worked. The symbols and polygons used in Denmark have been welcomed ok by users and they haven't heard any protests. DL: Still questioning if inside an area, how do you know that. It needs to be clear. DL is willing to contribute to this further discussion. CG: commenting on the Niord display, is unlikely that navigators will be this zoomed out on the interface and a lot of the areas won't be shown. The current display shown has no other ECDIS data, and in reality it would be very cluttered. The web interface won't work in the same way on ECDIS.
	    ○ CJ - will contribute to work on portrayal.
	    ○ This was tested in STM and only the warnings that are affecting a vessel's route would be displayed.

	○ A sub-group is needed for portrayal recommendation. ○ EM: IEC provides testing methodology for testing portrayal of areas, types of information, based on other standards, not setting the standard. ○ EM proposed working group to work this out. Will consist of GJ, DL, CJ, EM, CJ.

Meeting extended over the scheduled 2h. Agreement to hold a follow-up meeting. Items below are from the follow up meeting hosted June 18 by CCG on Microsoft Teams.
EM welcomed participants to meeting followed by round table of introductions.

f. Technical Service description (2.6.1 + 2.6.2 + 2.6.3 + 2.6.4)	• Julius Moller (JM) and PL presented IALA's draft Web Service Based S-100 Data Exchange. It is still a work in progress by the IALA ENAV Committee. • Classical approach of sharing S-100 via file exchange with an FTP server, for example, a chart service. The chart service uploads a new dataset with new metadata when an update is released, and the consumer gets the update by checking the ftp server from time to time. • This is not a good approach for messages that need to be updated frequently (eg. Navwarns) via satellite communications • The Service Specification is a high level, technology-independent service description, which includes such things as requirements, interface specification, data structure definition and dynamic behaviour description. • The Service Technical Design is the description of a service technical design, including the chosen technology and formal interface definition. • The Service Instance describes one particular instance. • The example of the service specification for S-124 was presented. • What we end up with is a description of the functionality and the input and output values. • This provides a more detailed description of the technical design, for instance, the used technologies, parameter restrictions and the encoding. It is fine to use gml-encoding of S-100 data, which is also established in the technical design. The instance description would follow as a last part. • The gml schema transmits the data model into something that can be used to generate data. It provides the structure of the data sets and tells the system how to go from the database into a gml structure. Data validation can also be built into the schema to allow basic testing, to ensure it matches the data model. • In general, it is better to use a standardized way of describing maritime services. We also need to consider things such as how a secure service registry can be established and the upcoming technology of web services for maritime services.

	- A fine-grained communication is also possible, where the consumer can specify the data they want to receive using query functions.
	- Metadata only needs to be transmitted once (unless there are changes) and updates can be pushed to the consumer, rather than pulled from a server. The service provider can also keep track of what information has been transmitted, and it is more efficient than the user checking a server for updates.
	- S-100 has basic support for fine-granular Web Services in Part 14 (Online Data Exchange). It basically specifies how online data exchange can be realized with S-100 but doesn't go into details.
	- Support for additional data is missing and there are no standardized interfaces.
	- Q&A:
	   ○ Christopher Janus (CJ): informative presentation and this seems to be the way to go. Navwarns may have an advantage, or a mechanism in place to help facilitate push/pull. For a webservice, a ship would have to have broadband service, but broadband will likely eventually become part of a carriage requirement. The EGC receiver is in constant connection with Iridium
	   ○ Is this an interim solution or a permanent one?
	   ○ JM: Agreed that this is a valid point as we don't yet have complete coverage of tech for web services all over the world via satellite. It would be good to have a discussion on how to bridge this interim period.
	   ○ EM: The EGC system has bandwidth limitations. They have looked at different ways of compressing data but it is way above what the EGC system does for the same message. EGC is very text-based, usually with an associated position, but often not. It takes human interaction to put it into the system.
	   ○ Systems are becoming smarter, however. Furuno can read EGC by computer and then pull out certain text elements to geo-reference, but there is often not enough information to do it accurately.
	   ○ RTZ S-421 – route exchange – to facilitate route exchange we need a system similar to what was presented here. We can leverage the work on Navwarns and push other information through the same mechanism.
	HP: There are problems with text-based information. IHO/IMO manual describes how free text is arranged in Navtex. If it were organized like S-124 and then machine translated into Navtex and other services it would improve the usability of information by ECDIS.

g. IEC SECOM connection (2.7)	- EM gave an overview of SECOM.

	• Cannot share the IEC SECOM documents at this time due to IEC copy right limitations, but provided a synopsis of their contents in document S124PT1_2.7. • SECOM stands for the Secure exchange and communication of S-100 based products. It standardizes interfaces for S-100 Data Exchange, provides data protection schemes and offers optimized data exchange for IP-based web services. It is designed to cater to all e-Nav products. • Drafting of the this IEC document is ending next year, and there should be a final version available by next summer. • SECOM offer a standardized interface to connect to exchange S-421 route information between ship and ship, ship and shore and shore and ship. SECOM can be used for exchanging any type of data. • SECOM also prove a means service discovery, such as an S-124 service. • There needs to be an infrastructure to address things such as where a mariner can find your service and identity management (ways in which a user could verify that the dataset was created by a secure authority). A message infrastructure is also needed. • One possible answer to these issues is the Maritime Connectivity Platform (MCP), which through its platform architecture helps to provide the environment for digital maritime services. It allows for interoperability and is a very open and standardized solution. • NAVELINK is an example of a service using MCP for maritime information exchange.
4) Review of meeting format and time (discussion)	The meeting time work for most. It was noted that it was hard on those in the far eastern time zones. Between the two meetings a discussion was held which concluded that those in the far eastern time zones were kind enough to stay with the original time to give those in Europe better opportunity to attend meetings.
5) Any other business	None were proposed

Annex A – Agenda

1) Roll-call and introductions (1.1)
2) Approval of agenda (1.2)
3) S-124 status
   a. Closing up S-124 v/June2019 comment (2.1)
   b. Data model and concept definitions (2.2)
   c. Submissions to GI Registry (discussion) – *Elena to submit to GI Registry*
   d. Feature Catalogue creation (discussion) – *Ed Weaver to do*
   e. Portrayal update and post NCSR7 (2.5) – *Grant Judson, Dave Lewald, Chris Janus, Denis Fokin, Hannu Peiponen, Ed Weaver, Eivind Mong to draft portrayal solution.*
   f. Technical Service description (2.6.1 + 2.6.2)

g.   IEC SECOM connection
   4)   Review of meeting format and time (discussion)
   5)   Any other business

Meeting documents

https://iho.int/en/s-124-pt1

Annex B – List of attendees

Attendees

Country	Name	E-mail	Attended	
			1st	2nd
Australia	Grant Judson	Grant.Judson@amsa.gov.au	X	X
Brazil	Rafaela Castro	rafaela.castro@marinha.mil.br	X	-
Canada	Eivind Mong	eivind.mong@dfo-mpo.gc.ca	X	X
	Lucia Bakker	lucia.bakker@dfo-mpo.gc.ca	X	X
	Cheryl Marshall	cheryl.marshall@dfo-mpo.gc.ca	X	X
	Martin Richard-Cerda	martin.richard-cerda@dfo-mpo.gc.ca	X	regrets
Denmark	Rasmus Madsen Jensen	rmj@dma.dk	regrets	-
	Christopher Saarnak	chs@dma.dk	X	X
France	Yves Le Franc	yves.le.franc@shom.fr	X	X
Germany	Elena Maria Gnehm	ElenaMaria.Gnehm@bsh.de	X	X
Greece	Commander K.Karagkounis HN	nasf_hnhs@navy.mil.gr	-	-
	Lt. Commander V. Panousopoulos H.N.	nasf_hnhs@navy.mil.gr	X	X
New Zealand	David Wilson	David.Wilson@maritimenz.govt.nz	X	X
	Conrad Reynecke	Conrad.Reynecke@maritimenz.govt.nz	X	X
Sweden	Johan Bultzingslowen	johan.bultzingslowen@sjofartsverket.se	X	regrets
	Per Lofbom	per.lofbom@sjofartsverket.se	X	X
United Kingdom	Stephen Gregory	Stephen.Gregory@UKHO.gov.uk	X	regrets
	Christopher Gill	Christopher.Gill@UKHO.gov.uk	X	-
United States	Christopher Janus	Christopher.G.Janus@nga.mil	X	X
	Dave Lewald	Robert.D.Lewald@uscg.mil	X	X
	Tim Stacy	Timothy.E.Stacy@nga.mil	X	X
Furuno Finland	Hannu Peiponen	hannu.peiponen@furuno.fi	X	X
GeoNavigation Technologies	Edward P Weaver	eweaver@geonavtech.com	X	-
Iridium	Chris Snowdon	chris@accesspartnership.com	X	X
KRISO	Sewoong Oh	osw@kriso.re.kr	X	regrets
Wartsila	Denis Fokin	denis.fokin@wartsila.com	X	X
OFFIS	Julius Möller	julius.moeller@uni-oldenburg.de	-	X

Annex C – List of actions

Action #	Action description	Responsible party
PT1-1	Use cases and details should be in the product specification and S-421 has use cases that can be used as a guide.	S-124PT
PT1-2	Develop proposal on how to handle multiple languages in S-124 services.	YF, DF, HP & EM will work together on a proposed solution.
PT1-3	The paragraph (14.4) should focus on the content relative to the sub sections only	EM will edit the text to better match 14.4.1.
PT1-4	Definitions missing from model concepts	YL, LB and JB will help add definitions to elements that are missing definitions within the document.
PT1-5	Submissions to the GI Registry	EG will submit the S-124 concepts to the Registry.
PT1-6	Feature Catalogue creation	EW will assist
PT1-7	Symbology needs refinement	Working group to refine portrayal will consist of GJ, DL, CJ, EM, CJ. EW will assist with creating Presentation Library.