WWNWS
Meeting 12
Agenda Item 2.3.1

WWNWS12/2/3/1
18 August 2020

S-124 Navigational Warning Project Team (S-124NW PT) Report

Submitted by Chair, S-124NW PT

SUMMARY

Executive Summary: The development of S-124 continues with focus on portrayal and distribution. IMO submission made to NCSR7 to clarify the role of IMO SN.1/Circ.243/Rev.2 in relation to portrayal of Navigational Warnings. E-Navigation testbeds continue to provide valuable input.

1. Introduction / Background

The World-Wide Navigational Warning Service Sub-Committee (WWNWS-SC) established the S-124 Correspondence Group to develop next generation navigational warnings to enable integration with bridge systems and shore systems using the S-100 framework. The Hydrographic Standards and Services Committee (HSSC), at its 9th meeting, invited S-124CG to reinvigorate the liaison with NIPWG and S-100WG (HSSC9/44). This report of S-124CG is to update WWNWS-SC on the progress in developing S-124 Product Specification and related activities.

At WWNWS11 it was agreed to transition S-124 Correspondence Group into a Project Team (WWNWS11 Action 20). Terms of Reference (ToR) was drafted and reviewed by the Correspondence Group membership. The ToR[1] were approved by WWNWS chair on December 20, 2019. The name of the new name of the group is S-124 Navigational Warning Project Team (S124NW PT).

1.2 Analysis/Discussion

Since WWNWS10, the S-124Pt chair has attended S-100WG7, NIPWG7 and S-100WG5 to report on S-124 development, seek input on the direction of S-124 development and remain current with s-100 and related developments. This activity is particularly useful in preparing the S-124 product specification to enable ECDIS use of S-124. The chair has also attended IEC SECOM development meetings and S-124 related discussion forums organized by Maritime Connectivity Platform (MCP) consortium.

[1] https://iho.int/uploads/user/Inter-Regional%20Coordination/WWNWS/S-124PT/Misc./S124NW-PT_2020_EN_ToRs_v1.0.pdf

2. Membership updates

Since WWNWS11 the membership of the Project Team has remained fairly steady. Some replacements have taken place due to changes in responsibilities. Craig Longmuir (Australia) has been replaced by Nick Lemon and Grant Judson. Ana Emilia de Souza Silva Ferreira (Brazil) has been replaced by Rafaela Pereira de Castro. Christopher Gill (UKHO) has joined. The full membership list can be found in Annex A.

3. Portrayal of S-124

Discussions with industry and IEC at S-100WG and TSM meetings revealed that the MSI symbol present in SN.1/Circ.243/Rev.2 would present a challenge in developing portrayal for navigational warnings. To address this, the chair worked with Transport Canada, Australian Maritime Administration and others to create an input paper that was submitted as a Canadian input to IMO NCSR7 (NCSR 7-22-2). Discussions around the submission took place in the Navigation Working Group and resulted in agreement in the sub-committee on recommending Maritime Safety Committee remove the MSI symbol from the circular. This act will remove the limits imposed by the circular on the S-124 portrayal discussions and development.

4. Meetings

Face to face meeting have been cancelled due to COVID-19, two online meetings were held online June 11 and June 18, hosted by Canadian Coast Guard using Microsoft Teams. The focus of the meetings were on progressing the development of the S-124 Product Specifications. Attendance was 25 and 18 people in attendance to the two meetings, respectively. Minutes from the meetings can be found on the S-124 Project Team webpage[2].

4.1 Product Specification development

4.1.1 Product Specification development outlook and timeline

Momentum in the development is a little slower since COVID-19 has changed working practice and planned development sprints that were anticipated with face to face meetings.

4.1.2 Major Product Specification development outcomes of the June meetings

Missing definitions for various data model elements. Chiefly with the warning type list are being drafted. This work is essential to progress towards submissions to the IHO GI Registry and creating of a feature catalogue. Elena Gnehm (Germany) volunteered to become the submitted for S-124 to the GI Registry. Ed Weaver (GeoNavigation Technologies) volunteered to create the S-124 feature catalogue using the Feature Catalogue builder.

A new draft GML schema has been developed with support from the Maritime Connectivity Platform (MCP) Consortium. Julius Muller, from OFFIS, created new version of the schema based on the stable

[2] https://iho.int/uploads/user/Inter-Regional%20Coordination/WWNWS/S-124PT/S-124%20PT1/S124PT1_2020_EN_Minutes_Final_v1.0.pdf

data model. Schema will need minor updates once definitions and cleanup of warning type codelist has been finalized. Work in underway in creating test data utilizing the new schema.

Portrayal discussions led to the formation of a group to work on the portrayal document. Drafting of symbols and portrayal operation descriptions is underway. Some of the portrayal functions that have been identified as important will likely need a change to S-100 Portrayal to accomplish what is desired. Submission planned for TSM meeting in the fall. NCWG input has not been received. The working draft of the portrayal work is available in Annex A.

Distribution of Navigational Warnings continue to be a topic of great interest and discussion. Several new technologies in development can in combination be viewed as lead candidate methodologies. International Electrotechnical Commission (IEC) is developing a standard named Secure exchange and communication of S-100 based products (SECOM[3]) as a secure communication method. It can work with the Maritime Connectivity Platform (MCP) concept which will mean that both Service Discovery (MCP) and secure distribution (SECOM) from Producer to user can be achieved. Both work using Internet Protocol (IP) communication. The approach MCP/SECOM approach are not expected to put any significant limits in place for any local distribution methodologies, such as local apps and social media.

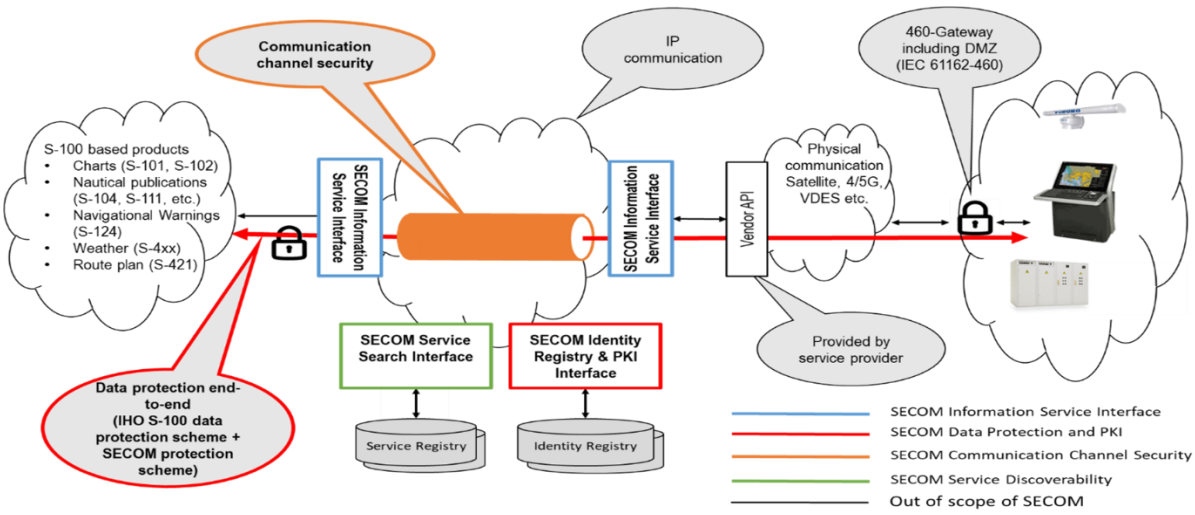

Figure 1 - Elaborated SECOM Overview

Utilizing a SECOM and MCP approach enable the leverage of any internet service; including existing Satellite providers, cellphone networks and several Low Earth Orbit (LEO) satellite constellations currently in development.

MCP Consortium has supported the S-124 development using experience from the Korean SMART Navigation Project, EU STM Validation Project and others. Together with SMA progress has been made with developing S-124 service descriptions using the IALA G1128[4] guideline.

[3] IEC draft 63173-2
[4] IALA G1128 - THE SPECIFICATION OF e-NAVIGATION TECHNICAL SERVICES

The implementation of multi-language in the data was raised as an item for further discussion at the online meeting. The basic options include all languages in each dataset so that all users get the same dataset or different datasets with different languages to service different users. A task group was formed to discuss the item and make a recommendation for the way forward. It is hoped to progress this work in the coming months.

5. Recommendations

WWNWS is invited to note the report

Annex A - S-124NW PT - Membership and Contacts

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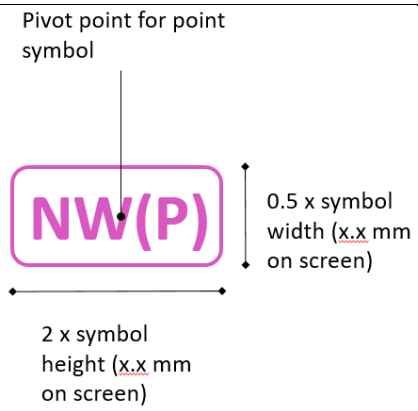
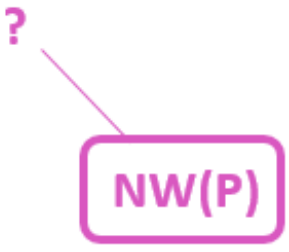
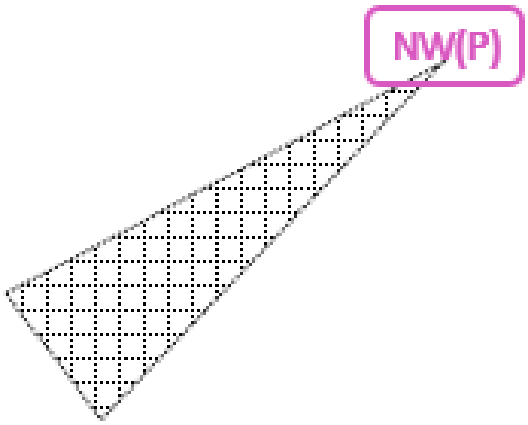
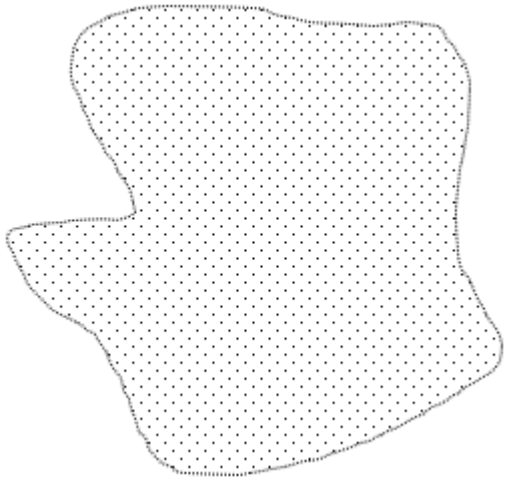
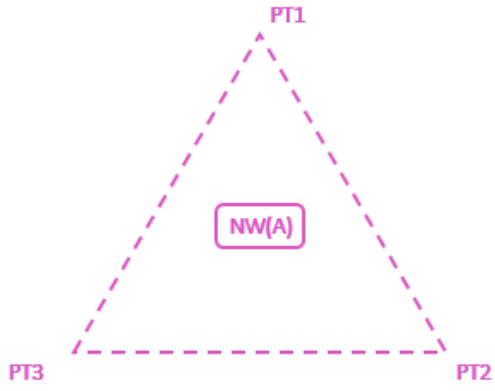
Annex B – Working Draft Portrayal document

Navigational Warning must always be on when use in route monitoring mode.

System must have function to list all Navigational Warning on the screen plus a buffer around the screen (buffer size? Fixed size, e.g. 20NM? Scale based buffer?). List function must include means to distinguish between already viewed Navigational Warning and new to the user Navigational warning. List should be user specific so to track what acknowledgments each user has done and permit easy discovery of changes between watches.

Symbology	Description	Encoding Description
	Point symbol [To do: need to create symbol engineering drawing]	
	Line style	
	Area	
	Navigational Warning point with position approximate. Majority of NW will probably be this kind. No fill background to reduce blocking underlying objects.	

NW(P)	NW with position known. No fill background to reduce blocking underlying objects.	
	Navigational Warning point symbol (position known) with user action (e.g. selected in pick report) causing affected area to be highlighted NW point with affected area highlight. For example a light outage with the light arc. Location of light is the NW and the light arc is the affected area. Use of affected area would be to help user see impact of a Navigational Warning and for enabling a system query based on route + buffer to better find Navigational Warning affecting route planning and monitoring.	
NW(P) 3 2 3 4 5 6 7 8 9	Grouping of NWs that are close and causing clutter at screen resolution. The number of grouped NW is shown in the circle in the right side of the symbol. Numbers 2 through 9 are possible. Any grouping over 9 retain 9. No fill background to reduce blocking underlying objects. From S-100WG5: grouping symbol need further specification. It is at rendering side and could apply to all S-100 symbols. OEMs want some specification. Can be supported by some form of attribute in the portrayal that points to a grouping symbol that systems should use when appropriate. May require some changes to the portrayal model, but are probably limited to point features. May be sufficient to propose an optional attribute to the point symbol reference in	

	portrayal instructions to give an alternative symbol for use with groupings.	
	Line style for NW with line geometry	
	NW Area pattern style with a fixed offset between the NW symbol	
	Affected area pattern style. Only to display when the NW is selected by pick report or other user action. Also recommended to be used for whole NAVAREA messages and other very large areas. Question to consider; should users be allowed to turn it on if they so choose?	
	Area NW with text placements to simplify visual reference between NW text and NW area. An example of use can be a new regulation that adds an area with 3 points. The 3 points can be marked with text to improve the cognitive connection between the text and the point ‘on the screen’.	

Additional portrayal considerations;

Is it possible that NW symbols do not mask the chart details by for example using transparency or symbol with on offset? Example of use case; when a NW is related to a charted AtoN, then the AtoN on the chart should remain visible.

Is it possible to add a function of a trailing symbol behind own ship symbol that can indicate the area type, including any NW area? Trailing symbol function could replace or enhance the centered symbol function described in S-52 Presentation Library, section 8.5. [need drawing to illustrate] It has been suggested that this functionality can serve as an enhancement of portrayal of Navigational Warning with no portrayal (e.g. very large areas, poorly defined areas or whole NAVAREA messages).