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1 Executive summary

1.1 General

This document contains a collection of meeting topics related to software development in other work-packages of STM BaltSAFE, development of standards and MCP (Maritime Connectivity Platform) platform development. During the course of the project a total of 21 Developer forum meetings were conducted. With participants from the project together with participants from MCC (Maritime Connectivity Platform Consortium) and occasionally a representative from EMSA.

The main topics discussed relates to the following:

- VTS STM BaltSAFE functionality development
- STM BaltSAFE reporting functionality development
- S124 Navigational Warning Service standard development
- S421 Route Plan Exchange standard development
- Procurement of MCP Platform access for STM BaltSAFE project participants
- STM BaltSAFE service interoperability through VIS (Voyage Information Service)
- Future service interoperability through developed SECOM (SEcure COMmunication between ship and shore) standard.
- MCP platform development to ensure secure identification and service discoverability.

Developer forum meetings have been very appreciated especially in the beginning of the project when developers are in need of more support and guidance. Introduction of working with a Trello board was a success since this facilitates registration of issues and questions (with appointed responsible participants) in between meetings. It has also proven as a very good tool for tracking progress of the different tasks.

It is the work-package firm recommendation to continue the Developer Forum meetings after the project. The project has received positive feedback from participants and as a result the Navelink consortium has promised to take over the responsibility for Developer Forum meetings after project close.

1.2 Terms and definitions

Acronym	Description	Comment
API	Application Program Interface	Describes an interface to be able to communicate system to system.
EMSA	European Maritime Safety Administration	EMSA provides technical expertise and operational support to improve maritime safety, preparedness and response in the event of emissions and maritime security.
MCC	Maritime Connectivity platform Consortium	The MCP consortium (MCC) is governing body of the MCP. It defined the criteria of being MCP service providers and endorses organizations to be such.
MCP	Maritime Connectivity Platform	A platform consisting of an identity register for authentication and a service register to enable discovery of services to communicate with, i.e. a "Yellow Pages" for machine readable services.
PKI	Publik Key Infrastructure	A public key infrastructure (PKI) is a set of roles, policies, hardware, software and procedures needed to create, manage, distribute, use, store and revoke digital certificates and manage public-key encryption.
PoC	Proof Of Concept	Corresponds to a prototype to prove the feasibility of a developed solution.
SECOM	IEC 63173-2 standard for SEcure COMmunication between ship and shore	SECOM provides standards for secure data exchange with technical services. Further it contains a technical service interface design that is in accordance with the service guidelines and templates defined by IALA and partly included in IHO S-100.
STM	Sea Traffic Management	Sea traffic management (STM) is a methodology, developed by the Swedish Maritime Administration, MonaLisa project, endorsed by the European Commission, sought to define a set of systems and procedures to guide and monitor

		sea traffic in a manner similar to air traffic management.
VIS	Voyage Information Service	A general purpose API for exchanging STM messages (route, text, area)
VTS	Vessel Traffic Service	A traffic center that, among other things, provides traffic information and other services to shipping in some of the country's most trafficked or environmentally sensitive sea areas.

2 Background

Within the STM Validation Project, a massive system development effort by many involved partners, have taken place and where existing commercial products have been adapted for interoperable information exchange. In this process, biweekly online interactive conferences have addressed various practical issues on a technical level.

These meetings have been greatly appreciated and typically gathered over 30 participants. A landmark event in the project was the integration workshop held in Oslo, Norway in March 2017. More than 50 IT specialists gathered to address last remaining issues and verify interoperability in successfully exchanging information over the STM infrastructure. Within this Activity, this work format, which offer the collective competence of the partnership in creating solutions and solving problem.

There is a need of continued support to the project partners in system development, particularly in IT integration between systems and implementation of the standardized STM artefacts into proprietary systems. The activity encompasses actions to lower the entrance barriers and leveraged development work among the different partners and system providers.

For system developers in the STM partnership, open source software has significantly lowered barriers in becoming STM compliant and interoperable. Within the concept, a repository has been set up on the project website where code examples have been made readily available, together with all format standards and other specifications needed during system development. The STM repository represents a significant accumulated value and should be sustained beyond the STM Validation project for the benefit of STM developers.

3 Objectives

The objectives of work package 2.3 obtained through developer forum meetings are the following:

- Ensure interoperability between stakeholders
- Spur and engage participating developers
- Disseminate technical results emanating from the project w.r.t. development and standards
- Gather technical feedback

4 Scope

In scope for the work package are project findings regarding software development, S421 - Route Plan Exchange and SECOM (IEC 63173-2 SEcure COMmunication between ship and shore) standard development and the development of the MCP platform. In additions to this collected issues, question & answers together with suggestions for further development. In scope are also development guidelines, user guides, architectural artefacts, demonstrations of developed functions and release notes for the MCP based platform, Navelink.

5 Method

Continuation of regular meetings between system developers of system manufacturers, providers of maritime services and public authorities. Every such meeting is documented and recorded. The documents and recordings from these meetings are shared to the stakeholders as they are published on the STM website. The meetings are organized into monthly or bi-weekly online meetings throughout the duration of the Project, depending on the intensity of ongoing development activities. Each meeting has an agenda sent out prior to the meeting. The meeting is recorded (given the consent of participants) and meeting minutes are distributed afterwards. All meeting documentation is posted on the Balt Safe Project Place site area. Invited participants are typically developers and/ or other technical representatives from all relevant work packages in the project.

To facilitate ongoing work a Trello board available for all participants is used with incoming-, pending-, active- and closed work items. The Trello board was introduced to be able to keep track of all ongoing activities at a later stage in the project.

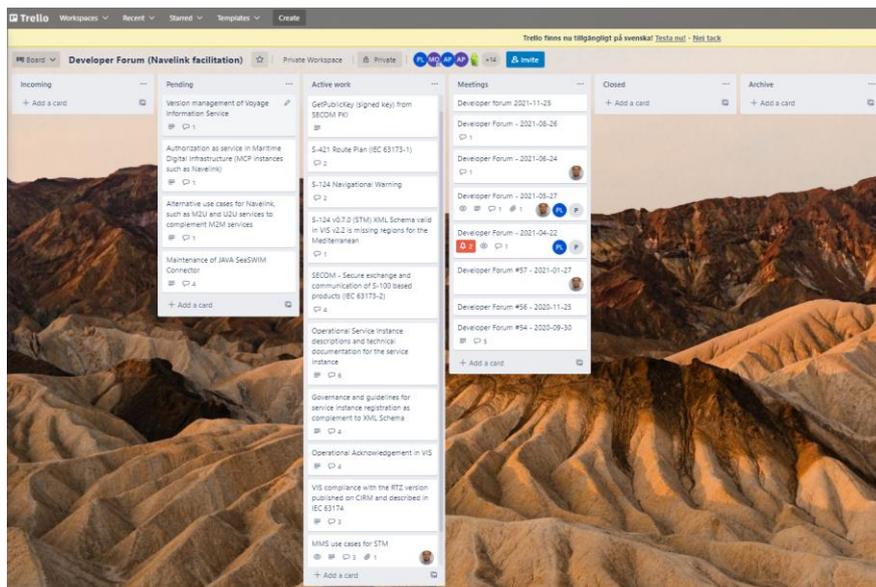
6 Results

Below a typical agenda for developer forum meeting is outlined:

Agenda

- Introduction
- STM status and updates
- Maritime Digital Infrastructure
 - Navelink
 - MCP
- STM Development
- Data Formats and Standards
- Technical Standard Forecast
- Q&A

A snapshot of the Trello board used is shown in the picture below:



Developer forum meetings has taken place at the following occasions.

Date	Meeting highlights
2019-01-23	<ul style="list-style-type: none"> • Testbed status and statistics • Service usage and ship installations • Port status • RTZ Extension Schema • Empty manual and calculated schedule • Service updates <ul style="list-style-type: none"> ○ BNWS Baltic Navigational Warning Service ○ WNS Winter Navigation Service • SeaSWIM Connector update • Info from MCP • S-421 Route plan status • Other <ul style="list-style-type: none"> ○ Project prolongation ○ Act 2 Report delivered in March ○ Proposal for standard interface sent to IEC ○ Will be sent to national committees for voting • Q&A
2019-02-27	<ul style="list-style-type: none"> • Schedule handling in monitored route • National characters issue • Service categorization discussion • RTZ Extension schemas proposal • BNWS add description of “in-force” list • Upgrade of VIS Technical Design discussion
2019-04-03	<ul style="list-style-type: none"> • Ships will continue to be installed within STM Validation Project until June 2019 • 21 installations moved from Wärtsilä/SAM to Furuno • Information of pre-study ongoing to describe and establish an STM Governance body
2019-05-29	<ul style="list-style-type: none"> • Service status in STM live testbed + 300 ships • Information regarding IEC 63173-2 SECOM Secure service Exchange and COMMunication of S-100 based products • Efficient Flow hub service for route distribution to actors in an area of interest • Update to AIS route message • New service ETA information service based on RTZ route plan
2019-10-02	<ul style="list-style-type: none"> • Discussions regarding problems with availability of search services in MCP STAGING • Discussions regarding cyber security and the need for common PKI on bridge, not only for STM services but also to sign other data, such as VDES data.

	<ul style="list-style-type: none"> Discussions regarding migrating from current MCP Production to the foreseen operational MCP environment by STM Industry Consortium (Navelink).
2020-03-24	<ul style="list-style-type: none"> Service status in STM live testbed + 421 ships VTS in STM BALTSAFE presentation Change proposal for operational acknowledgement to secure message received onboard Suggest to add attribute in service registry to indicate a service provided by an authority Changes to the private interface of SMA project VIS MCP status information Navelink platform and company presentation
2020-04-22	<p>Review of payloads S421, S124, RTZ</p> <p>SECOM status presentation</p> <p>Migration methodology from MCP to Navelink</p> <p>Cyber Security related to Route plan exchange</p>
2020-05-27	<p>New STM site introduced: seatrafficmanagement.info</p> <p>Demo of Navelink</p> <p>MCP net change 0.10 walkthrough</p>
2020-06-24	<p>S124 Navigational warnings changes</p> <p>Plan for update of VIS service descriptions</p> <p>RTZ presentation in different manufacturers ECDIS</p>
2020-09-02	<p>Introduced test suite for VIS instances following VIS design</p> <p>Navelink demo</p> <p>S421 CDV walkthrough</p>
2020-09-30	<p>Trello board design discussion</p> <p>Unikie demonstration of Port Activity App in Gävle</p>
2020-11-25	<p>Trello board walkthrough</p> <p>Navelink status update of services</p> <p>MCP to Navelink migration issues</p>
2021-01-27	<p>Input to SECOM workgroup meeting IEC TC 80 WG 17</p>
2021-03-25	<ul style="list-style-type: none"> Walkthrough of Trello board issues <ul style="list-style-type: none"> S-124 Navigational Warning service deployment MCP version 0.12 plan for Navelink environment SECOM IEC work status update Migration of STM operational vessels to Navelink operational environment Discussion on how Finnish, Korean, Navelink, etc, MCP instances will communicate Agent feature in Navelink, walkthrough of partly erroneous functionality Discussion regarding changes in Service documentation guidelines and examples with regards to SECOM standard

2021-04-22	<ul style="list-style-type: none"> • Walkthrough of Trello board issues • Navelink How to connect to VIS instance • Navelink VIS-hotel to facilitate transfer of SMA hosted VIS instances • Navelink is to provide an alternative for hosting a service instance registered in Navelink. The first phase constrains the services to instances based on design Voyage Information Service (VIS) v2.2. • Later, support for SECOM service can be added to this. • Demo of how to use VIS hotel for your VIS instance.
2021-05-27	<ul style="list-style-type: none"> • Walkthrough of Trello board issues • Service registry events in Navelink Operational • Wärtsilä ECDIS upgrade within STM project Baltsafe • Upgrade of Navelink environment to MCP v0.12 • Navelink VIS Hotel status • Verification Service • Report of S-421 status • Report of SECOM status • Maintenance of JAVA Sea SWIM Connector • Demonstration of CSR i.e. HOW-TO Get keys signed in Navelink
2021-06-24	<ul style="list-style-type: none"> • Walkthrough of Trello board issues • Navelink status update • Updates around STM • Latest news about the SECOM standard • STMLiveTestbed update • STM in NILS (STM Search and Rescue service at SMA) • SECOM live demo • Q&A
2021-08-26	<ul style="list-style-type: none"> • Recap of SECOM demo together with outstanding questions • Information on Maritime Digital Infrastructure procurement • Walkthrough of Trello board • A report of the status of services in the Navelink Operational environment • A report of the status of MCP 0.12.1 upgrade • Adveto ships will be brought in to the Navelink system. • An issue with Navelink's status page was brought up, and will be looked into.
2021-09-24	<ul style="list-style-type: none"> • Status update – current status <ul style="list-style-type: none"> ○ All environments operational, Navelink implementation updated to MCP v.0.12 ○ No security breaches identified ○ Still awaiting US IPO approval ○ VIS hotel established since 30 April (free of charge first year) • Technical roadmap of Navelink platform

	<ul style="list-style-type: none"> • Service registration guide updated • Issue exchanging large RTZ • Proposed changes of service description guideline G1128
2021-10-28	<p>Walkthrough of MCP 1.0.0 release notes</p> <ul style="list-style-type: none"> • Alignment with good RESTful principles • Implemented more fine grained functionality of the Agent feature • All endpoints that return JSON now set the Content-Type header as application/json <p>Plan for MCP 1.0.0 on Navelink platform</p> <ul style="list-style-type: none"> • 6/12 -2021 Development and Test environment gets upgraded to 1.0.0 • Test your services. • 10/12 -2021 Operational will be upgraded to 1.0.0 <p>Proposed changes to G1128</p>
2021-11-25	<p>Technical Roadmap of the Navelink platform</p> <ul style="list-style-type: none"> • MCC compliance – Release of MCP1.0.0 4th – 10th December on Navelink environments <p>MCC demonstrated the new version of the MSR. Which included the G1128 compatibility.</p> <p>The new SECOM standard was rejected by the Norwegian Kystverket with the argument that it was too technically detailed.</p> <p>Proposed changes to G1128 was presented</p>

Recordings and minutes of meetings are uploaded to STM BALTSAFE project site available for all project participants.

7 Conclusions & recommendations

Developer forum meetings have been very appreciated especially in the beginning of the project when developers are in need of more support and guidance. Introduction of working with a Trello board was a success since this facilitates registration of issues and questions (with appointed responsible participants) in between meetings. It has also proven as a very good tool for tracking progress of the different tasks.

It is the work package firm recommendation to continue the Developer Forum meetings after the project. The project has received positive feedback from participants and as a result the Navelink consortium has promised to take over the responsibility for Developer Forum meetings after project close.

8 References

All additional technical documentation can be found at:
<https://www.seatraficmanagement.info/developers-forum/>

All recordings and minutes of developer forum meetings can be found on STM BaltSafe project site.



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