Input paper: [[1]](#footnote-1) ARM X.X.X

Input paper for the following Committee(s): check as appropriate Purpose of paper:

**X** ARM **□** ENG **□** PAP **X** Input

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Agenda item [[2]](#footnote-2)

Technical Domain / Task Number 2 …………………………………

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S-211 Context

# Summary

This input paper is intended to provide the committee with the necessary context of the development of the S-211 draft. It will explain the development to date, the reason for the submission to IALA and the usage of the standard as foundation of the PortCDM concept. It also will explain the role of the International PortCDM Council, who was the submitter.

## Purpose of the document

The committee is invited to acknowledge the paper and take it in consideration when discussing S-211 draft.

## Related documents

Port Call Message Format\_0.7.0\_20180215 (Draft accepted and assigned S-211)

# Background

During the execution of the EU funded projects MonaLisa 2.0 and STM Validation Project, a Port Call Message Format (PCMF) was developed and validated to support Port Collaborative Decision Making (PortCDM) as an enabler of Sea Traffic Management (STM).

To move the concept of PortCDM from project orientation towards sustainability and to survive the end of the STM Validation project, the International PortCDM Council (IPCDMC) has been established. The council supported the idea of migrating PCMF in the Common Maritime Data Structure (CMDS) as defined by IALA in the e-Navigation overarching architecture and as endorsed by IMO during the development of the IMO e-Navigation Strategic Implementation Plan (SIP). With the support of RISE (Research Institutes of Sweden), one of the STM Validation partners, PCMF has been migrated and subsequently submitted to IALA for further development and final endorsement.

# Discussion

## The Concept of Port Call Messages

The Sea Traffic Management (STM) concept takes a holistic approach to promote enhanced efficiency, safety, and environmental sustainability in berth-to-berth processes enhanced by digital collaboration. STM is a concept that consists of three sub concepts: voyage management, flow management, and port collaborative decision making (PortCDM) (see figure 1 below).



Figure 1 STM and PortCDM in Context

Within the objectives of STM, PortCDM has been launched for the purpose of enabling shipping companies to experience just-in-time arrivals, just-in-time departures, just-in-time operations, and shorten turnaround times (TTT). As a result of enabling ships, ports, and port call actors to connect and share time stamps in real-time, it is expected that the port call processes will be more synchronized than today.

The sharing of time stamps will enable actors to achieve enhanced situational awareness. Such situational awareness provides the port call actors enhanced capabilities to co-ordinate and synchronize their operations as just-in-time and thereby performing their own and the port’s operations, it total, more efficiently.

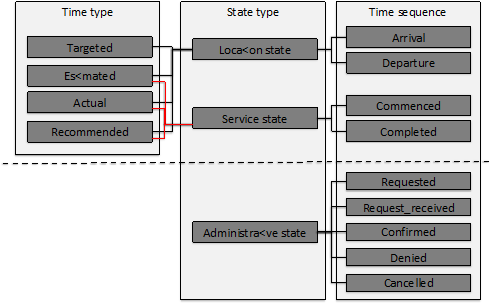
The port call message format is built upon three state types, where two of those (location states and service states) can be combines with a time type (see figure 2). Each state type comes with a time sequence and should express at which location or between which locations the service or movement refers. A time stamp of an administrative state is not combined with a time type since all administrative states are actuals. Since the format itself is flexible on which reference objects (such as vessel, pilot, tug boat etc.) as well as which service objects (such as e.g. berth visit, pilotage, cargo operations etc.) this allows each port to utilize the time stamps they need for sharing data among the stakeholders. Combinations of reference objects, service objects, and locations constitute a state catalogue that in combination with the time type defines the set of time stamps that a particular port could adopt. This means that the port call message format does not build upon a fixed set of time stamps; rather it provides a structure to expand the repertoire of time stamps dependent on context and situation. For example, time stamps related to ice breaking are applicable to just a few ports.

Figure 2 Overview of time stamp composition and its relation to time sequences for different time types

Since the port call message format also encapsulates possibilities to express the agreement process, port call messages can share data related to the subjective as well as the objective world.

## The International PortCDM Council

Given that port operations may be vastly different between individual ports, the focus of PortCDM is locally driven. It should be developed with local stakeholders. But ports are hubs within the international maritime trade context and cannot be looked at in separation, especially once you put the ship in the centre of the action. As such it is essential, that a common framework is defined, which allows for greatest customization to meet each ports specific needs, but provides enough standardization that ships can move from port to port and best utilize the different implementations of PortCDM. It also ensures compliancy with the overarching STM concept where applicable, and as such supports seamless transition of ships from sea voyage to Port call.

In order to ensure this, the international PortCDM Council (IPCDMC) has been established. The goal is to win all key stakeholders on international level, mainly IGOs and NGOs involved in Port activities. This consortium then should further define its own charter to define and ratify the above-suggested common procedures, processes and standards to maintain. Not all of that may be defined in the PortCDM Council, but rather standards of respective competent bodies may be referenced and enforced by the PortCDM Council guidelines and other documents. The objectives of the PortCDM Council in detail as well as an illustration of the role of the PortCDM Council are listed below.

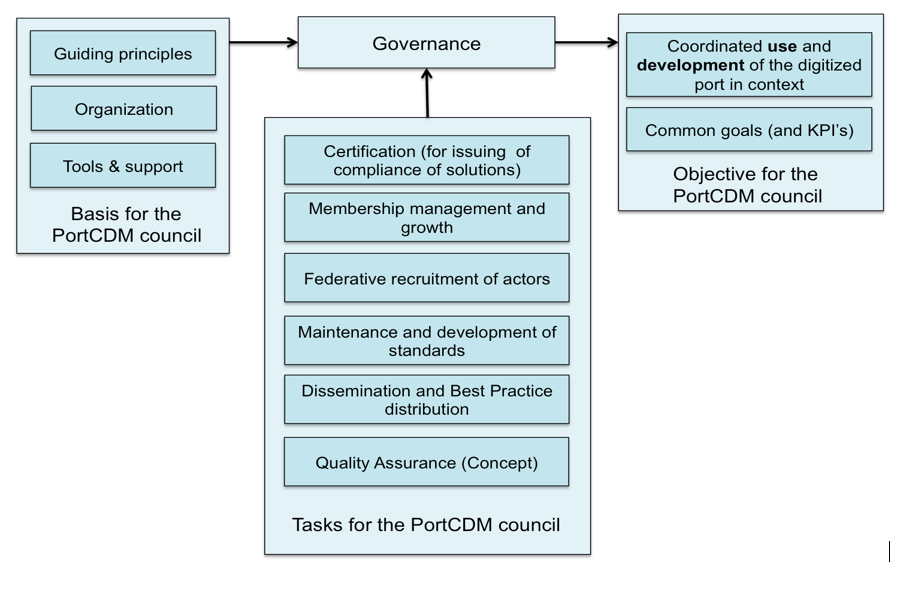


Figure 3 The role of the International PortCDM Council

## PCMF and IALA

In order to ensure sustainability and interoperability with the IMO initiative “e-Navigation”, the International PortCDM Council (IPCDMC) has supported the idea to migrate the Port Call Message Format used in PortCDM into a Common Maritime Data Structure (CMDS) format and as such integrate it in the CMDS GI Registry currently managed by the International Hydrographic Office (IHO). The research institute RISE Viktoria, Sweden, has engage well known experts to IALA, namely Eivind Mong and Raphael Malyankar, to create a first draft of such a standard. The IPCDMC has agreed to handed it over to IALA for further consideration as the council sees IALA as the appropriate body to maintain this standard, especially as VTS is a key actor on most Port Calls and PortCDM use of S-211 is in support of the MSPs 1 to 8 and the e-Nav Committee of IALA plays an essential role in defining and further developing the MSP concept.

IALA accepted the draft and assigned S-211 as the identifier for the completion of this draft standard through the responsible IALA committee and working groups.

S-211, once completed and adapted, will be part of the IALA domain within the CMDS GI Registry.

## S-211 and other standards

Since IALA has accepted the PCMF draft and assigned S-211, the IEC has removed Port Call aspects from its S-421 standard for Voyage Information System (VIS), currently under review as Committee Draft (CD). Once adopted IEC can reference S-211. Being in CMDS, both standards are compatible

The S-211 standard has also been discussed in detail with the Industry Input workshop of the International Port Call Optimization Task Force (IPCOTF) and both initiatives, and as such S-211, are aligned.

In addition, discussions with GS1 their EPCIS standard for the logistic supply chain, is being aligned. GS1 has applied for a MRN domain at IALA and will include MRN in EPCIS and as such can be interlinked with S-211 and S-421 to support the needs of the logistic industry.

The functional definitions in S-211 are harmonized with the “Functional Definitions for Nautical Port Information” document of IHMA and UKHO.

# References

1. Lind M., Bergmann M., Haraldson S., Watson R.T., Park J., Gimenez J., Andersen T. (2018) Port Collaborative Decision Making (PortCDM): An enabler for Port Call Optimization empowered by international harmonization, Concept Note #1, STM Validation Project
2. UKHO, IHMA (2017) Functional Definitions for Nautical Port Information
3. Lind M., Bergmann M. (2018) Functional Definitions of Port Call Message – The Ability of the Port Call Message Format to address functional definitions for nautical port call information, STM Validation project

# Action requested of the Committee

The ARM Committee is requested to consider the content of this document, as seen appropriate.

1. Input document number, to be assigned by the Committee Secretary [↑](#footnote-ref-1)
2. Leave open if uncertain [↑](#footnote-ref-2)