**Port Call Optimization (PCO) Guide**©

Guide for Harmonized Communication

and

Electronic Exchange

of

Nautical and Operational Data for Port Calls©

Concept

Version 0.1

#### Document endorsement history

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#### Dissemination

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# Acknowledgements

# References

* Guidelines For Harmonized Communication And Electronic Exchange of Nautical Data For Port Calls – IMO FAL49/INF.6
* Guidelines For Harmonized Communication And Electronic Exchange of Operational Data For Port Calls – IMO FAL5/Circ. 52
* IMO GIA Just In Time Arrival Guide – IMO GIA to support low carbon shipping
* ITPCO Business Process and Business Process Appendix
* Port Call Optimization through Data Quality – IAPH

# 1 Executive Summary

SOLAS vessels have a minimum set of equipment on board according SOLAS requirements.

Ports have been asked to have a minimum set of data to operate these SOLAS vessels port to port:

* Identification of the terminal and it’s berths
* Planned Time of Arrival at Pilot Boarding Place
* Planned Time of Departure Berth

These data elements have been identified as most critical for ensuring safe and sustainable navigation from port to port and berth to berth. Per port more data may be exchanged, as long as the port meets the minimum criteria; same as for equipment on board of SOLAS vessels.

While notifications and declarations to port authorities are also important, especially as they can contribute to crew fatigue and delays, most port authorities do not control the Maritime Single Window. Therefore this data set is excluded from the scope of this guide for now.

This guide outlines how ports can join a global network of ports which provide access to this data through a global and ready to go connection. It is built on universally accepted IMO and IHO standards which are the same for every port and every vessel, ensuring consistency across all ports and vessels. Additionally, it incorporates the ISO standard for location identifiers (GLN) and times, recognizing the port’s central role in the global supply chain.

Recognizing that both the port and shipping industry are still in a steep learning curve and are conservative by nature, the data scope is limited, and data exchange is based on simple yet robust techniques and existing chains of command and contracts.

The benefits are substantial:

* It will reduce ship emissions en route, in and around ports, terminals and port cities
* Ensure greater safety and compliance, and improve rest hour planning of crew on board.
* Related, but as important, is the improvement of the global supply chain.

The intended readers of this Guide are

* Harbour Masters; they are seen as the neutral facilitator to bring parties together
* IT personnel of the port, policy makers and solution providers

The guide is a Joint Industry Paper, developed in collaboration with all initiatives connected to the PCO Network and IMO NGO’s.

The guide will be valid from April 1 2026 to April 1 2031. Then the guide will be updated to ensure that the standards and guidelines are still up to date.

Captain Ben van Scherpenzeel - Project Officer IHMA

# 2 Abbreviations

|  |  |
| --- | --- |
| AIS | Automatic Identification System |
| API | Application Programming Interface |
| ATA | Actual Time of Arrival |
| ATC | Actual Time of Completion |
| ATD | Actual Time of Departure |
| ECDIS | Electronic Chart Display Information System |
| ENC | Electronic Navigational Chart |
| ETA | Estimated Time of Arrival |
| ETC | Estimated Time of Completion |
| ETD | Estimated Time of Departure |
| FAL | Convention Facilitation of International Maritime Traffic |
| HD ENC | High Density ENC |
| HO | Hydrographic Office |
| IMO GISIS | IMO Global Integrated Shipping Information System |
| JIT | Just In Time |
| MLC | Maritime Labour Convention |
| MSW | Maritime Single Window |
| PCO | Port Call Optimization |
| PCS | Port Community System |
| PMIS | Port Management Information System |
| PTA | Planned Time of Arrival |
| PTC | Planned Time of Completion |
| PTD | Planned Time of Departure |
| RENC | Regional Electronic Navigational Chart Coordination Center |
| RTA | Requested Time of Arrival |
| RTD | Requested Time of Departure |
| SMDG | Ship Message Design Group |
| TOS | Terminal Operating System |
| UKC | Under Keel Clearance |
| VAR | Value Added Resellers |
| VDES | VHF Data Exchange System |
| VHF | Very High Frequency |
| VTS | Vessel Traffic Services |
| WGS 84 | World Geodetic System |

# 3 Port Call Optimization (PCO)

## 3.1 What is a port call

A port call is the arrival and departure of a vessel at a particular port as part of its journey or itinerary. During a single port call, the vessel may call at one or multiple berths.

## 3.2 What are the benefits of port call optimization

Reduce ship emissions en route, in and around ports, terminals and port cities; ensure greater safety and compliance, promote cleaner environment; lower costs for shipping lines, shippers, terminals and ports.

## 3.2 What is the port call process

To optimize a port call, it is important to first have an understanding of the port call process.

The logical diagram is based on a high-level business process of port calls, which is based on IMO regulations, industry contracts, like BIMCO, requirements of port authorities and other stakeholders, making it a port and trade agnostic process. It has been created by the Industry (a group of leading ports and shipping lines) and validated during Industry Roundtable sessions organized by the IMO Global Industry Alliance to Support Low Carbon Shipping (Low Carbon GIA)

See also the appendix of the port call process for more detailed explanations and the video for a quick introduction, both available on [www.portcalloptimization.org](http://www.portcalloptimization.org)

Afbeelding met tekst, schermopname, diagram, nummer

Door AI gegenereerde inhoud is mogelijk onjuist.

Afbeelding met tekst, diagram, schermopname, Plan

Door AI gegenereerde inhoud is mogelijk onjuist.

#### The steps in the port call process

Contractual phase

1. Sale of goods contract (bulk sector)
2. Contract for chartering ships
3. Sale of goods contract (bulk sector), carriage contract (container sector)
4. Terminal contract

Operational phase

1. Passage planning
2. Berth planning arrival, including VTS/pilotage area planning (if relevant)
3. Port planning arrival, including VTS/pilotage area planning (if relevant)
4. Vessel / Cargo service planning
5. Port / berth arrival
6. Vessel / Cargo service
7. Berth planning departure, including VTS/pilotage area planning (if relevant)
8. Port planning departure, including VTS/pilotage area planning (if relevant)
9. Berth / port departure

#### The port call actors

Most actors can be represented by any of several different real stakeholders, dependent on the governance structure of the port, the ship management organization, VTS/pilot organization, port and terminal organization, type of trade etc. In the description of message exchanges in this Guide, these actors will be used as endpoints for communication. The term “port call actor” refer to the function which they perform (rather than the individual stakeholder entity and these include the following:

* Ship operator
* Ship charterer
* Berth planner
* Port planner
* Hydrographic service provider
* Ship manager
* Nautical service providers
* Vessel service providers
* Cargo service providers
* Authorities

For definitions of these actors please consult the appendix. Definitions have been made in such a way that the name of the actor can apply to any port and any ship.

## 3.3 What data is exchanged in the port call process

#### 3.3.1 Nautical data - blue

Data necessary for navigation (SOLAS use) and chartering and planning (non-SOLAS use) of vessels. Data for SOLAS use is provided by hydrographic offices in Navigational Charts, Nautical Publications or coast pilots and tide tables. Hydrographic offices collect data for port passages and berths from ports. Data for non-SOLAS use is provided by the same ports.

Examples of nautical data include the location of terminal, berths, anchor areas, maximum sizes, depths and tides, weather features, nautical services, communication procedures, port emergency procedures.

#### 3.3.2 Operational data - yellow

Data that is submitted to non-authority parties as part of planning or execution of certain operations. It is used to facilitate the day-to-day planning of vessels, berths and their related services.

This data may normally not be shared to any other party (e.g., starting and completion times of services)

Examples of operational data include arrival and departure times of ships, starting and completion times of nautical, cargo and ship services.

#### 3.3.3 Administrative data - green

Data that is submitted by ships or other non-authority parties to authorities in notifications and declarations.

The data is based on legislation or regulations. This type of data can normally be shared between the authority parties covered by said legislation but can normally not be shared with non-authority users.

Examples: notifications and declarations to port authorities, customs, immigration, health.

#### 3.3.4 Explanation per data set

For both nautical and operational data the following paragraphs have been provided to provide detailed explanations for:

#### Paragraph 1: Data in the business process

This section outlines the role of each data set within the port call process. It explains what the role of the data set in the port call process is and how the data is utilized by various stakeholders, including ship operators, port planners, and nautical service providers, to facilitate smooth and coordinated port calls.

#### Paragraph 2: Data from regulatory and legal point of view

Here, the legal implications and requirements associated with each data set are discussed. This includes compliance with international regulations such as SOLAS and IMO standards, as well as contractual obligations under e.g BIMCO agreements.

#### Paragraph 3: Data scope

The minimum scope of each data set is defined based on the principle of "basics and compliance first." This ensures that all necessary information is included to meet regulatory requirements and operational needs without overcomplicating the data exchange process

#### Paragraph 4: Data exchange

This section describes the current methods of data exchange, respecting existing technologies and the minimum requirements for SOLAS vessels. It emphasizes the importance of not interfering with the current "chain of command" and maintaining the integrity of established communication channels.

#### Paragraph 5: Data implementation recommendations

Lessons learned from previous implementations are shared, along with metrics for measuring the effects of data implementation. This provides practical guidance for stakeholders on how to effectively integrate and utilize each data set in their operations

#### Paragraph 6: Non-technical standards

Non-technical standards (semantics) are a critical starting point for defining the exchange of data between system. For each data set they are provided to ensure consistent understanding and interpretation across different stakeholders. These standards are crucial for harmonized information exchange between humans. They’re 100% based on existing IHO and IMO definitions.

#### Paragraph 7: Technical standards

Technical standards for each data set are outlined to facilitate seamless data exchange between computer systems. This includes specifications for APIs and other digital interfaces that support automated data sharing. They can be built on many different formats (e.g., JSON, XML, html, etc.) - these are just languages. The APIs all use the non-technical standards of the IHO and IMO, and ISO definitions for locations and times.

## 3.5 Road map of PCO Guide

PCO Guide road map as discussed during the PCO Network meeting in Valencia 26/05/25:

1. PCO Guide first version completed 01/07/25
2. PCO Guide second version completed 01/09/25
3. PCO Guide last round for comments closed 01/10/25
4. PCO Guide finalized 01/11/25
5. PCO Guide submitted to IMO FAL 01/12/25 as INF paper
6. PCO Guide presented to IMO FAL 23/03/26
7. PCO Guide disseminated to industry 01/04/26
8. PCO Guide distributed to Harbour masters during IHMA congress 09/06/26

The guide will be valid from April 1 2026 till April 1 2031.

Then the guide will be updated to ensure that the standards and guidelines are still up to date.

# 4 Nautical data

## 4.1 Nautical data in the business process

#### Contract for hiring ships

If the party responsible for transport does not own a vessel, a vessel needs to be hired (chartered). The charterer needs to sign a contract with the (disponent) vessel owner or (disponent) operator, the so-called Charter party. The risk of a port or berth being unsafe is very often primarily for the Charterer. The Charterer uses shore-based databases and applications to select ships and make a ship-berth compatibility check, to ensure the selected berth is safe.

#### Passage planning

A Master is responsible for making a voyage plan from berth to berth. The Master can only use Nautical Charts (Electronic Navigational Charts, so called ENC’s) and Nautical Publications which are issued by, or on the authority of a Government-authorized hydrographic office or other relevant government institution. Only these publications fulfill the SOLAS carriage requirements.

#### Berth and port planning

The port admission policy is based on the port’s data and used on a daily basis to grant approval for arriving and departing vessels.

Also notifications and declarations to authorities are based on identifiers of terminals and berths.

## 4.2 Nautical data from regulatory and legal point of view

#### General

Broad guidance is needed to help ports to disclose nautical data: is it better or worse to keep or to give data?

#### Solas

Masters of vessels are obliged to navigate berth to berth as per IMO Resolution A.893(21), Guidelines for voyage planning, paragraph 1.3: “*Voyage and passage planning includes appraisal, i.e., gathering all information relevant to the contemplated voyage or passage; detailed planning of the whole voyage or passage from berth to berth, including those areas necessitating the presence of a pilot”.*

As per SOLAS Chapter V Regulation 2, Nautical Charts and Publications used for safe navigation in ports and berths are issued officially by or on the authority of a Government, authorized Hydrographic Office or other relevant government institution. This is in alignment with the provisions of SOLAS Chapter V Regulation 9: “*Contracting Governments undertake to arrange for the collection and compilation of hydrographic data and the publication, dissemination and keeping up to date of all nautical information necessary for safe navigation*” and “*Contracting Governments undertake to ensure the greatest possible uniformity in charts and nautical publications and to take into account, whenever possible, relevant international resolutions and recommendations*.”

#### Clauses in charter parties

A common clause in a charter party is that a charterer may send a vessel only to a safe port and to a berth that is safe and where it can always lie afloat. In other words, the charterer has to warrant the owner the safety of the place to which he/she intends to send the ship. Therefore, generally, the risk of a port or berth being unsafe is very often primarily on the charterer. Or, as a minimum, the charterer should demonstrate “due diligence”.

#### Legal position of data publisher

Based on a number of court cases against hydrographic offices the learning in general is: “*do all that is reasonably practical* ” and “ *what the reasonable hydrographer would have done* ”.

It is also important to correctly address the expectations of data users, and to clearly indicate the purpose, function and intended use of data. A "duty of care metadata”, so to speak. This can be done through as so called “Notice of Intended Use”.

#### Legal options to organize data sharing between Berth planner and Port Authority

So far, the sharing of only the terminal and berth names, has not been leading to the need of a data sharing agreement. If you collect data it is always good to mention for which purpose the data will be used (e.g., for safe navigation).

#### Legal options to organize data sharing between Port Authority and Hydrographic Office

For EU member states: in the EU the “Open Data Directive” is in force. Each EU member state must implement this directive in its own national legislation. However, implementation may differ between member states, but should contain the minimum requirements.

Steps to be taken:

1. Public parties must comply with this “Open Data Directive”. Therefore, it’s good to first check whether the port authority is indeed a public party
2. If you’re considered to be a public party, then it’s important to know that data which has been collected through a public organization must be shared with open standards, so one does not need a license to read the data. The only exception is if the data concerns critical infrastructure data
3. No exclusive sharing: data must be accessible to all parties, and parties must be able to re-use the data
4. Data sharing is based on not for profit, but costs for sharing can be charged. This also applies to the data publisher who receives the data from a public party

For non-EU members states: not known at this moment

## 4.3 Nautical data scope

#### Selection of data elements as a first step

The two data elements which have been identified as most critical:

* Terminal: unique identifier, name, position, type
* Berth: unique identifier, name, position, type

For only those terminals and berths which receive SOLAS vessels.

For both only identifiers have been used which apply to any SOLAS vessel and are not trade specific (e.g., identifiers which only apply to container segment).

Per port more data may be exchanged, as long as the port meets the minimum criteria; same as for equipment on board of SOLAS vessels.

#### Benefits

Ship operator, ship charterer, ship manager:

* The contract regarding slots and safe berth is with the terminal. Therefore, it’s important to understand that all parties are on the same page regarding terminal identifier and location.
* The terminal operates berths, so it’s important for a ship-berth compatibility check that all parties are on the same page regarding berth identifier and location. An improved ship-berth compatibility check prior to chartering the vessel can lead to less idle time of vessels waiting for the tide to enter port, or vessels that need to lighter to reach the berth. This also reduces the GHG emissions.

Hydrographic service provider:

* The hydrographic service has now the ability to identify only the changes instead having to work through all data of the entire port. This allows them to produce more reliable ENCs and significantly reduce their processing time: after an update of the port the new ENC will be much quicker available to the vessel.

Ship manager:

* Up to date ENC’s improve safe navigation berth to berth.

By sharing this data through an API, all parties have access to the same data at the same time, so everyone is singing from the same hymn sheet.

#### Compliance

Compliant with SOLAS regulation chapter 9 and safe port and safe berth charter party clauses.

#### Next steps

Other data elements for chartering and navigation will be addressed in a later stage:

* Vessel sizes at berth and in port passage (e.g., length, beam, draught, air draught)
* Depths and tides
* Weather features
* Nautical services (e.g., VTS, pilots, tugs, linesmen, icebreaker)
* Communication procedures
* Port emergency procedures

## 4.4 Nautical data exchange

#### General

Hydrographic offices normally collect their nautical data from governmental entities in charge (e.g., port authority), depending on when new data becomes available. Hydrographic offices of the IHO Nautical Information Provision Working Group experience a lack of data availability and consistency by ports, resulting in hydrographic offices being unwilling to publish port infrastructure data in their nautical charts and publications as they cannot guarantee the correctness of the data.

Ports (normally public organizations) in their turn face difficulties gathering data from all data owners in the port, as the port is not the data owner of all port data. E.g., terminals (normally private businesses) may be the data owner of the name of the terminal and berth. Additionally, ports are not always aware that the nautical chart is not up to date, as not all ports have a nautical chart in their office. Ports may have an outdated paper nautical chart, and sometimes an electronic nautical chart (ports normally do not have an ECDIS to display it).

Charterers normally collect their nautical data about twice per year through e.g., but not limited to, agents, terminals, surveyors. However, these parties do not have an obligation to provide such data, nor is the accuracy of data verifiable. The standards used are often trade specific (e.g., the bulk segment uses different standards than the tanker segment).

As hydrographic offices and charters collect their nautical data from different parties, at different times and with different definitions, it is inevitable that the same ship is chartered, navigated, planned and permitted based on different data sets.

Therefore, efforts should be made that ports, hydrographic offices and charterers start using consistent standards (e.g., how do we define a terminal and berth) and one Single Point Of Truth (SPOT) from the data owner (Port Authority).

#### Ease of data exchange

Ports need a common method to exchange nautical data to connect one to many and decrease the administrative burden and the risk of human error.

An Application Programming Interface (API) may be used to get the most up-to-date data from the best available source as and share it when needed in operations, meaning the reliability of the data used goes up.

The API can collect the data from:

* Customer data base (e.g., in ports with a landlord system)
* Geographic Information System (GIS) data base
* Excel sheet (lowest for of complexity)

#### Data compatibility

For ships, the IMO has assigned since 1987 unique numbers, the IMO Vessel Number, which remains unchanged during the lifetime of the vessel, and which is used across data bases. This IMO Vessel Number is routinely linked with other codes, e.g., MMSI or Call Sign. If the name or Call Sign changes due to change of ownership, data compatibility is not lost.

For terminals and berths the IMO has not assigned unique numbers, they’re only identified by name. When the name changes, e.g., due to change of ownership, or if due to geopolitical issues the name of the area changes, data compatibility is lost. Apart from changing names, finding data based on names can be cumbersome anyway due to spelling errors or spelling differences. For this reason, most port data bases assign their own unique numbers to locations. However, these numbers are for internal purposes and not shared with users.

Therefore, a globally unique location number is introduced which is already used in the global supply chain since 1996, ensuring both data compatibility and connection to the supply chain. It’s an existing ISO standard (ISO/IEC 6523), applies for all locations and is used already hundreds of millions of times across data bases.

Same as the IMO Vessel Number, the GLN is linked with other codes, e.g., Port Facility Number (for ISPS terminals only), UN/LOCODE (for ports only), is compatible with the future Interoperability Identifier of IHO and also has a format which can easily be recognised.

The combination of both globally unique numbers for ships and berths ensure a robust ship-berth compatibility check for chartering, navigation, planning and admission policy.

#### Data quality – accuracy

For terminal location the accuracy is not an issue, as it’s a “centre of gravity”.

For berth location the accuracy is not an issue for conventional mooring, as the Master and Pilot manoeuvre the ship to the fender line by eye sight. For future automatic mooring, the precise location of the fender line is critical, as this is where the ship should have come to a full stop, 100% parallel to the fender line.

#### Data quality – frequency

Reliability of data goes up by use. By providing access to an API all parties can use the same data in their daily operations, and any errors will be detected on a daily basis.

If data is not used in operations and not shared by API, terminal and berth data are normally reviewed by managers of port data bases every 6 to 12 months, which is the current routine of most port data bases.

#### Data owner willingness – Berth planner

Terminal and berth names are not commercially sensitive data, and no problems have been encountered in that sense to collect data. The Berth planner is the best person to know the exact names which are used in the daily planning of the berth, verified by the Port planner for consistency with other berths.

## 4.5 Nautical data implementation recommendations

#### Implementation step by step

For ports with no data about terminals and berth, the Excel option is the best, having no impact on other systems.

For ports with data in customer or GIS data base, current operational systems may need to be adjusted. As port infrastructure is usually part of the backbone of other systems, the impact might be severe. Best thing is to start with a pilot with different types of terminals to get a full comprehension of the way the international standards should be implemented for terminals and berths. Translate the lessons learned from your pilot to the action plan for all other terminals and berths.

#### Introduction of international standards in a local port community

For both options you have to consider that old names of terminals and berths, which have ceased to exist long time ago, may still be in use. People are used to refer to these old terminals and berths, and accepting names which are today used by the Berth planner requires some change management among parties like Nautical service providers, and Ship managers. This applies more to old ports than to new ports.

#### Measuring effect

A hydrographic office which is already using an API to exchange nautical data, has been asked to measure the effect of implementation. Although it’s too early to measure the effect in hours and minutes, the effect is clear. For the exchange of terminal and berth locations there were different sources of information. It's not hard to imagine how much time and effort it takes to regularly check those different sources, particularly not when the number of terminals and berths is high, and also the number of sources is high. Not even mentioning the error sensitivity.

The availability and searchability of terminal and berth data through the assignment of Global Location Numbers to terminals and berths has been improved. These numbers are shared with the hydrographic office and other stakeholders via an API. Importantly, the hydrographic office has now the ability to identify only the changes in nautical data instead having to work through all nautical data of the entire port. This allows the hydrographic office to produce more reliable Electronic Navigation Charts and significantly reduce our processing time.

#### Persons with hands on expertise

Enquiries should be directed to [Scherpenzeel.ehmc@harbourmaster.org](mailto:Scherpenzeel.ehmc@harbourmaster.org)

## 4.6 Nautical data non-technical standards

### Link to the non-technical standards

IHO Concept Register: [https://registry.iho.int/fc/list.do](https://eur01.safelinks.protection.outlook.com/?url=https%3A%2F%2Fregistry.iho.int%2Ffc%2Flist.do&data=05%7C01%7CBRJ.Scherpenzeel%40portofrotterdam.com%7C8f3089f16e65476ddb3008db8eba7ce6%7C3045399847844b0ebdb0a8ba14eff494%7C0%7C0%7C638260703831744307%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C3000%7C%7C%7C&sdata=LTqNWNqr2%2BYqFnroQKOdCNmqQPnR35ntdDy4%2BcZcYS0%3D&reserved=0);

The Concept Register is basically a terminology register.

### Definitions - Terminal

#### Terminal

Definition: A terminal covers that area on shore which provides buildings and constructions for the transfer of cargo or passengers from and to ships

#### Interoperability Identifier

Definition: A common unique globally unique identifier for entities which describe a single real in world feature, and which is used to identify instances of the feature in end-sure systems where the feature may be included in multiple data product types.

Format: ISO/IEC 6523 (Global Location Number, GLN); 13 digits in text format, is compatible with the IHO identifier for nautical data, and with ISO 19987 for supply chain data.

Acquiring GLN’s: through a global company called GS1 and is cost-effective (not-for-profit); contact your national GS1 office or select a GS1 office abroad (prices vary per GS1 office)

Assigning GLN’s to locations works the same as for ships: if the location changes ownership or in size, the number remains the same. Only thing that is different: if a location is split up in two, the principle is to keep the GLN for the largest location, and assign a new one for the additional location.

#### Name

Definition: the individual name of a feature

Format: text, possibly combined with name of terminal name for better human recognition

#### Geographic(al) latitude and longitude

Definition: A general term, applying alike to astronomical and geodetic latitudes and longitudes

Format: for information exchange: degrees and decimal minutes; datum WGS84; for data exchange: decimal degrees to a defined precision (minus to indicate South and West); datum WGS84. For terminals a centre of gravity is chosen

Afbeelding met lucht, Luchtfotografie, buitenshuis, Vogelperspectief

Door AI gegenereerde inhoud is mogelijk onjuist.

#### Port Facility Number

Definition: Number assigned to the port facility in the IMO port facility database

Format: UN/LOCODE followed by a 4-digit code separated with a dash

#### Terminal-Types

* Bulk Terminal - A terminal for the handling of bulk materials such as iron ore, coal, etc.
* Container Terminal - A terminal with facilities to load/unload or store shipping containers
* Ferry Terminal - A terminal for passenger and vehicle ferries
* Passenger Terminal - A terminal for the loading and unloading of passengers
* Ro Ro Terminal - A terminal for roll-on roll-off ferries with facilities to load/unload or store shipping containers
* Tanker Terminal – A terminal for the bulk handling of liquid cargoes

### Definitions - Berth

#### Berth

Definition: A place, generally named or numbered, where a vessel may moor or anchor

Remark:

* The relation to berth pockets is that along a berth, the bodies of water (berth pockets) may have different depths; so one berth may have multiple berth pockets, depending on the berth position (bollard number) the depth is different
* The relation to berth positions is that one berth normally has many berth positions, e.g., the ship is positioned between specified bollards, or at a specified manifold or ramp.

#### Interoperability Identifier

Definition: A common unique globally unique identifier for entities which describe a single real in world feature, and which is used to identify instances of the feature in end-sure systems where the feature may be included in multiple data product types.

Format: ISO/IEC 6523 (Global Location Number, GLN); 13 digits in text format, is compatible with the IHO identifier for nautical data, and with ISO 19987 for supply chain data.

Acquiring GLN’s: through a global company called GS1 and is cost-effective (not-for-profit); contact your national GS1 office or select a GS1 office abroad (prices vary per GS1 office)

Assigning GLN’s to locations works the same as for ships: if the location changes ownership or in size, the number remains the same. Only thing that is different: if a location is split up in two, the principle is to keep the GLN for the largest location, and assign a new one for the additional location.

#### Name

Definition: the individual name of a feature

Format: text; possibly combined with name of terminal name for better human recognition

#### Geographic(al) latitude and longitude

Definition: A general term, applying alike to astronomical and geodetic latitudes and longitudes

Remark:

* For wharfs the berth’s extent is between its two extremities measured in a straight line, indicated by A and B, orientation is not important. The line represents the fender line, being the position of the ship’s side when alongside.
* For Multi Buoy Mooring (MBM) berths: surface (=polygon). The berth’s extent is between the positions of the mooring buoys (this should also allow for the length of mooring lines)
* For anchor berths: point, surface (=circle)

Afbeelding met water, Luchtfotografie, lucht, Vogelperspectief

Door AI gegenereerde inhoud is mogelijk onjuist.Afbeelding met Luchtfotografie, lucht, buitenshuis, water

Door AI gegenereerde inhoud is mogelijk onjuist.

Berth Berth pocket

#### Berth-Types

* Anchor Berth - A designated area of water where a vessel, sea plane, etc., may anchor
* Fender or Breasting Dolphin - A post or group of posts driven into the seabed or riverbed, used to assist in berthing of vessels by taking up some berthing loads; keep vessels from pressing against the pier structure; or to protect structures from possible impact by ships
* Mole: A form of breakwater alongside which vessels may lie on the sheltered side only; in some cases it may lie entirely within an artificial harbour, permitting vessels to lie along both sides
* Multi Buoy Mooring (MBM) Berth: A designated facility where a vessel may moor, usually by a combination of the mooring buoys and the ship’s anchors
* Open Face Wharf: A wharf supported on piles or other structures which allow free circulation of water under the wharf. CHECK
* Pier (Jetty): A long, narrow structure extending into the water to afford a berthing place for vessels, to serve as a promenade, etc.
* Pontoon: Floating strucutre, usually rectangular in shape which serves as landing, pierhead or bridge support
* Quay: A wharf approximately parallel to the shoreline and accommodating ships on one side only, the other side being attached to the shore. It is usually of solid construction, as contrasted with the open pile construction usually used for piers
* Ramp: (1) A sloping structure which may include rails that can either be used, as a landing place, at variable water levels, for small vessels, landing ships, or a ferry boat, or for hauling a cradle carrying a vessel. (2) An accumulation of snow that forms an inclined plane between land or land ice elements and sea ice or ice shelf. Also called drift ice foot.
* Slipway: The prepared and usually reinforced inclined surface on which keel- and bilge-blocks are laid for supporting a vessel under construction
* Solid Face Wharf: A wharf consisting of a solid wall of concrete, masonry, wood etc., such that the water cannot circulate freely under the wharf. The type of construction affects ship-handling; for example, a solid face wharf may give shelter from tidal streams, but under certain circumstances a cushion of water may build up between such a wharf and a ship attempting to berth at it, causing difficulties in ship handling.
* Tie-Up Wall: A section of wall designated for tying-up vessels awaiting transit. Bollards and mooring devices are available for both large and small ships

## 4.7 Nautical data technical standards

#### Link to the technical standards

Technical standards are based on JSON, given the initially limited number of ports and based on push data only.

GeoJSON is not used for multiple reasons. For nautical data, data can be organized hierarchically. For example, a terminal contains berths. This structure allows all related details to be retrieved in a single API response. The Nautical API is also designed for administrative databases that are not geo-based, where such hierarchies are common. GeoJSON, by contrast, does not support hierarchical data. It uses separate tables (layers) for different entities, linking them through identifiers (e.g., a berth stores the terminal’s ID). Retrieving related details requires multiple API calls—first to obtain an entity, then to look up its related entities. This makes JSON more suitable for systems that work naturally with hierarchies, while GeoJSON is optimized for geographic systems, which typically operate on layered data structures.

Authentication for the API can be implemented using either an API Subscription Key or OAuth 2.0. For nautical data, which is typically low in sensitivity, an API Subscription Key provides sufficient protection and is easy to manage.

Answer to the query to the API results in a full data set; one receives one big data file. This eliminates the need for more sophisticated queries and authentications.

All names in the API have been harmonized with the IHO Registry. However, long field names need to be avoided to avoid larger response, but should also not be too short to allow intuitive recognition with the original definition.

Therefore, e.g., “interoperability identifier” has been shortened to “id” – this is clear for each developer and often used in API’s, and yet aligned with the definition.

The same applies for “geographic latitude and longitude” – which is a long field name too, and one can see that latitude and longitude is present in the API, so the name was shortened to “geographicalCoordinate”

#### Terminal-API response

{

"id": "8719331161350",

"name": "Rotterdam World Gateway",

"geographicalCoordinate": {

"latitude": 51.95076,

"longitude": 3.984636

},

"portFacilityNumber": "NLRTM-0467",

"terminalType": "ContainerTerminal"  
}

#### Berth-API response

{  
 "id": "8719331164764",

"name": "DS QUAY",

"berthType": "Quay",

"unloCode": "NLRTM",

"geographicalCoordinates": [

{

"latitude": 51.947823,

"longitude": 3.986751

},

{

"latitude": 51.956442,

"longitude": 3.995982

}]  
}

# 5 Operational data

## 5.1 Operational data in the business process

#### Berth planning arrival – ETA Berth

General

The Estimated Time of Arrival Berth (ETA Berth) is sent by the Ship manager to the Berth planner.

It is based on distance to go and speed over ground. The Ship manager is contracted by the Ship charterer or Ship operator and is responsible for informing all parties ashore on behalf of the Vessel. Normally the update frequency increases (“narrowing down”) when the vessel gets close to its destination. ETA Berth may also be part of the Administrative data, as notification or declaration to authorities.

Tramp shipping

Normally in tramp shipping vessels do not sail on a regular schedule. In line with the communication procedure in the charter party the Ship manager sends an ETA Berth to the Berth planner. If there are more parcels on board, the Ship manager will send an ETA Berth to each Berth planner (e.g. in a parcel tanker)

Liner shipping

Normally liner shipping operates with a proforma schedule. However, the proforma schedule is in practice an indication of the rotation of the vessel. The exact dates and times are often not realised and may change due to prevailing conditions (e.g. canal transits, tidal restrictions and national holidays of ports called)

In liner shipping a vessel may also call at multiple terminals (e.g. feeders). In that case, the Ship manager will send an ETA Berth to each Berth planner.

#### Berth planning arrival – RTA Berth

General

The Requested Time of Arrival Berth (RTA Berth) is sent by the Berth planner to the Ship manager.

It is based on ETA Berth. The RTA berth is a request of the Berth planner to the Ship manager to come alongside at a particular berthing position at a particular time and is based on the planning of multiple vessels at the berths of the terminal.

Today RTA Berth is often called “ETB”, Estimated Time Berth, assuming it’s an arrival. Regardless the fact it’s not based on distance to go and speed over ground, many parties still call it “estimated”.

Tramp shipping

The Berth planner normally makes the berth planning of the terminal. The terminal is not a party to the charter party. However, the charterer is mostly linked to the terminal through the terminal service contract, so demurrage could be on the account of the terminal. Therefore the Berth planner might prioritize a vessel which causes less demurrage costs versus another vessel – being the reason why berth planning can be considered as sensitive information. In tramp shipping the RTA berth is often called a “nomination”. Normal practise is “first come first serve”.

Liner shipping

If the terminal is only serving one customer, the planning is normally not sensitive. However, if the terminal is serving more customers (i.e. “multi-user terminal”), or even a customer who owns the terminal, that customer might be given preference over another customer – making the information sensitive. Normal practise is “first come first serve”.

#### Berth planning arrival – PTA Berth

General

The Planned Time of Arrival Berth (PTA Berth) is sent by the Ship manager to the Berth planner.

It is based on accepting the RTA berth of the Berth planner.

Tramp shipping

The vessel might receive multiple RTA’s of several Berth planners. The vessel accepts the RTA Berth of one Berth planner. That choice can depend on commercial and safety considerations, e.g. which parcel is needed most at which terminal or a quick port rotation. Also restrictions in the port rotation (e.g. due to draught) may have an impact.

Liner shipping

The vessel might receive multiple RTA’s of several Berth planners. The vessel selects the right rotation which results in the shortest and safest port stay.

ETA Berth

From Ship manager to Berth Planner

PTA Berth

From Ship manager to Berth planner

RTA Berth

From Berth planner to Ship manager

#### Port planning arrival – PTA Berth

The Planned Time of Arrival Berth (PTA Berth) is sent from the Ship manager to the Port planner, (as it’s the agreed time between Ship manager and Berth planner).

#### Port planning arrival – RTA Pilot Boarding Place (RTA PBP)

The Requested Time of Arrival Pilot Boarding Place (RTA PBP) is sent by the Port planner to the Ship manager. It is based on the PTA Berth. The RTA PBP is a request of the Port planner to the Ship manager to arrive at a particular Pilot Boarding Place at a particular time. The Port planner provides a RTA PBP taking into account:

1. Sailing time between pilot boarding place and berth
2. Clearances of other authorities (customs, immigration, port health)
3. Maximum sizes of the vessel (length, beam, draught, air-draught)
4. Maximum conditions for the vessel (tide, wind, visibility, swell)
5. Berth availability (from Berth planner)
6. Fairway availability (from Port planner)
7. Availability of the nautical services (from Nautical service providers)

Conditions 1) to 6) are all necessary to ensure it makes sense to start planning in the first place.

Condition 7) is an interaction between the Port planner and Nautical service providers.

If the RTA pilot boarding place is not aligned with the PTA Berth, it is important to explain whether this is due to an act of God or due to lack of nautical services – as this might stop or shorten discussions regarding who’s picking up the bill for delays (Ship Charterer or Ship Operator).

#### Port planning arrival – PTA Pilot Boarding Place (PTA PBP)

The PTA PBP is sent by the Ship manager to the Port planner. It is based on accepting the RTA PBP of the Port planner. Communication between the Ship manager and the Port planner is normally local, through e.g., the Port Community System.

PTA Pilot Boarding Place

From Ship manager to Port planner

PTA Berth

From Ship manager to Port planner

RTA Pilot Boarding Place

From Port Planner to Ship manager

#### Berth arrival – ATA Berth

The Actual Time of Arrival Berth (ATA Berth) is often discussed: is it first line, last line, etc. In line with the International Regulations for Preventing Collisions at Sea (1972), rule 3(i): *The word “underway” means that a vessel is not at anchor, or made fast to the shore, or aground.* Therefore, the definition of ATA Berth is First Line Secured.

If berths are equipped with automated mooring systems, it would be the first pad which is secured to the vessel. Most important is that all stakeholders within the port community are defining it the same way.

#### Cargo service planning – ETC Cargo service

The Estimated Time of Completion Cargo service (ETC Cargo servce), e.g., the terminal, is sent by the Cargo service provider to the Ship manager. The service is completed when the vessel can safely depart, i.e. at what time the first line can be released.

#### Vessel service planning – ETC Vessel service

The Estimated Time of Completion Vessel service (ETC Vessel service), e.g., bunker barge, is sent by the Vessel service provider to the Ship manager. The service is completed when the vessel can safely depart, i.e. at what time the first line can be released.

ETC Cargo service

From Cargo service provider to Ship manager

ETD Berth

From Ship manager to Port planner

ETC Ship service

From Ship service provider to Ship manager

#### Port planning departure – ETD Berth

General

The Estimated Time of Departure Berth (ETD Berth) is sent by the Ship manager to the Port planner. It is based on the Estimated Time of Completion (ETC’s) of all Cargo and Vessel services.

Nautical services can be ordered based on the ETC, as then the first line can be released. As the release of lines is normally less than 10 minutes, basically ETC and ETD are the same.

However, for larger vessels, especially container ships over 300 meter with large gangways, one need to include 15 -30 minutes extra (e.g., order for nautical services 12.00, ETD 12.15)

Tramp shipping

The ETD Berth is normally not sensitive.

Liner shipping

The ETD Berth is normally not sensitive.

#### Port planning departure – RTD Berth

General

The Requested Time of Departure Berth (RTD Berth) is sent by the Port planner to the Ship manager. It is based on ETD Berth. The RTD Berth is a request of the Port planner to the Ship manager to depart from the berth. The Port planner provides a RTD Berth taking into account:

1. Clearances of other authorities (customs, immigration, port health)
2. Maximum sizes of the vessel (length, beam, draught, air-draught)
3. Maximum conditions for the vessel (tide, wind, visibility, swell)
4. Berth availability (from Berth planner)
5. Fairway availability (from Port planner)
6. Availability of the nautical services (from tugs, pilots, linemen)

Conditions 1) to 5) are all necessary to ensure it makes sense to start planning in the first place.

Condition 6) is an interaction between the Port planner and Nautical service providers.

#### Port planning departure – PTD Berth

The Planned Time of Departure Berth (PTD Berth) is sent by the Ship manager to the Port planner. It is based on accepting the RTD Berth. Communication between the Ship manager and the Port planner is normally local, through e.g., the Port Community System.

PTD

Berth

From Ship manager to Port planner

RTD

Berth

From Port planner to Ship manager

ETD

Berth

From Ship manager to Port planner

#### Port planning departure – ATD Berth

The Actual Time of Departure Berth is often discussed: is it commence unmooring, last line, etc. In line with the International Regulations for Preventing Collisions at Sea (1972), rule 3(i): *The word “underway” means that a vessel is not at anchor, or made fast to the shore, or aground.* Therefore, the definition of ATA Berth is Last Line Released.

If berths are equipped with automated mooring systems, it would be the last pad which is released from the vessel. Most important is that all stakeholders within the port community are defining it the same way.

## 5.2 Operational data from regulatory and legal point of view

#### Declarations and notifications to Port Authorities

Estimated Time of Arrival and Departure is always part of notifications and declarations to Port Authorities.

#### IMO MEPC.323(74)

*Invitation to Member States to encourage voluntary cooperation between the port and shipping sectors to contribute to reducing GHG emissions from ships. Noting that the Initial Strategy calls for the encouragement of port developments and activities globally to facilitate reduction of GHG emissions from shipping, including provision of ship and shoreside / onshore power supply from renewable sources, infrastructure to support supply of alternative low-carbon and zero-carbon fuels, and to further optimize the logistic chain and its planning, including ports.*

#### Maritime Labour Convention

On all vessels (of signatories of the convention) the master has to comply with the Maritime Labour Convention, taking care of wages, food, outfitting of cabins, but most important to the port call process: the rest hours of the crew.

Therefore it is important for the vessel to understand the ETC of each service and the PTD Berth and PTA Pilot Boarding Place to avoid unnecessary waiting hours of the crew. In turn, it benefits the service provider if the crew is standing by on completion.

#### Legal options to organize data sharing between Port and Berth planner

General

In most ports, the Port planner is often a public organization, and the Berth planner is often a private organization. Sharing data between Port planner and Berth planner is in most ports normally not organized and often a challenge. The following options have been identified to overcome this challenge.

Option 1 – National Port Act

Both nautical and operational data sharing agreements can be organized nationally and/or locally. Nationally is easier for the port, as they can refer in their local port regulations to the national port act, and enforce it with the national mandate.

Both options have been implemented in ports, and examples are provided in the annexes.

Option 2 – Covenant Berth planner and Port planner

Locally is more difficult for the port, as they have to agree with the terminals one by one to sign a covenant or have sufficient authority to design a new port regulation.

Option 3 – Port regulation

If the Covenant between Berth planner and Port planner works out well, one can consider turning the Covenant into a port regulation, making it applicable for all Berth planners.

Option 3 - Port Marine Safety Code

Used in UK ports. It has no legal standing; it’s voluntary. However, if something happens, the first check in court is if the port was following an approved code of practice. Today the Code is for ports only. The Code is currently being reviewed to extend the Code to terminals.

Option 4 - Land Lease Contract

In ports where the Port Authority is also the landlord, it may be a part of the Land Lease Contract. However, this contract is per terminal, and to change this it needs bilateral agreements for all terminals.

#### Voyage Charter Party clauses

After loading the cargo in the load port under common law, and in most other jurisdictions, and under most charter parties, the master has an obligation to proceed on the voyage to the discharge port with due despatch, i.e., without reasonable delay, without deviating and with the charter speed as agreed in the charter party. Clear wording in charter parties, bills of lading and other contracts of carriage is needed to protect owners from claims for breach of the due despatch obligation. As a result, the Ship operator cannot optimize speed based on the PTA Pilot Boarding Place.

New contracts with so called “Virtual Arrival” or “Just In Time” clauses have tried to address this. However, the uptake of such clauses has been limited according to BIMCO, parties hesitate to charter vessels with a new clause due to the lack of jurisprudence, and possible disputes may lead to lengthy and costly court cases with an uncertain outcome. On top of this, the financial benefit of bunker savings are insignificant when compared to the financial risks related to the cargo. Therefore, it’s important to align with the contractual arrangement.

The Ship operator simply complies with whatever port regulations are in effect. No different than say, when a port is closed due to weather, acting upon the directions of the port. The majority of the Charter Parties have a clause stating that Owners are responsible to comply with the port regulations and restrictions. The Port Authority can include in their port regulations a requirement not to arrive early in the Waiting Area (WA), and allow the vessel to reduce speed in the Port passage Planning Area (PPA) by securing it’s place in the berth and port planning. For full transparency with commercial interests it must be clear when the ship was seen by the Berth and Port planner as an “arrived ship” (after entering the PPA) and when the ship would have arrived based on charter speed (Notified Time of Arrival). This transparency avoids discussions between commercial parties regarding, e.g., demurrage.

## 5.3 Operational data scope

#### Selection of data elements

The data elements that have been selected, are all necessary as a minimum to realize a reliable Planned Time of Arrival Pilot Boarding Place and Planned Time of Departure Berth. These two time stamps are fundamental for the vessel to plan speeds and rest hours.

These two time stamps are also important for nearby ports. since a delay in a nearby port can affect the next port.

#### Selection of data elements – communication in and outside port limits

* Planned Time of Arrival Pilot Boarding Place from arrival port
* Planned Time of Departure Berth from departure port

The exchange with parties outside the port limits require international standards for electronic exchange – see appendix

Per port more data may be exchanged, as long as the port meets the minimum criteria; same as for equipment on board of SOLAS vessels.

For Planned Time of Arrival Pilot Boarding Place it is crucial to specify which Pilot Boarding Place, as the intermediate distance between the different Pilot Boarding Places can be big, and with limited speed the sailing time between them can make a big difference in arrival time. A name will suffice at Pilot Boarding Places cannot be sold and change names.

For Planned Time of Departure Berth it’s not crucial to specify which berth, as there’s limited impact on the arrival time in the next port, so a name will suffice for now. In future the unique number needs to be used for more compatibility with other data (e.g., port passage plans, in-port berth to berth movements, etc.)

#### Selection of data elements – communication inside port limits

Berth planning Arrival

1. ETA Berth
2. RTA Berth
3. PTA Berth

Port planning arrival

1. RTA Pilot Boarding Place
2. PTA Pilot Boarding Place

Berth / Port arrival

1. ATA Pilot Boarding Place
2. ATA Berth

Vessel / Cargo service planning

1. ETC Terminal
2. ETC Bunkers

Port planning departure

1. ETD Berth
2. RTD Berth
3. PTD Berth

Berth/Port departure

1. ATD Berth

The exchange with parties inside the port limits do not require international standards for electronic exchange. However, mutual understanding of the definitions is key.

#### Benefits

The concept of port call optimization focuses on a seamless connection between berth and port planning. The benefits are different per party:

Ship operator, Ship charterer, and Ship manager:

* Reduced fuel consumption
* Reduced lubrication oil consumption
* Less accidents in anchorages
* Less hull fouling
* Less risk of piracy in affected areas
* Early notice of a PTA Pilot Boarding Place and PTD Berth allows to plan e.g., maintenance, bunkers or crew change without taking the ship off-hire and may even allow rescheduling with the next charterer resulting in less idle time
* Better certainty allows the freight traders/ship brokers to market the ship off tighter dates and cold potentially allow the laycan to be narrowed.
* Improved compliance to Maritime Labor Convention (MLC) due to improved rest hour planning

Port planner:

* Optimized port processes
* Better capacity planning of fairways
* Increased safety and reduced risk of collisions
* Reduced emissions in the port area

Berth planner:

* Better capacity planning of berths
* Better capacity planning of resources

Nautical service providers:

* Better capacity planning
* Better planning of maintenance

Vessel or Cargo service providers:

* Better capacity planning
* Better planning of maintenance

Not related to the port call process, but to the entire supply chain:

* Better supply chain visibility
* Improved predictability of cargo whereabouts
* Optimized stock management
* Better planning of type and timing of hinterland modalities

By sharing this data through an API, all parties have access to the same data at the same time, so everyone is singing from the same hymn sheet.

#### Compliance

* Compliant with IMO MEPC.304(72)
* Compliant with MLC

## 5.4 Operational data exchange

#### General

Fundamental is the coordination between berth and port planning, including services which are related to a proper planning of arrival and departure. For this reason many more parties are involved to organize and share operational data, versus nautical data, and therefore more complex to optimize.

Most ports face difficulties gathering data from all data owners in the port, as the port is not the data owner of e.g., the berth planning of the terminal. Terminals often do not like the berth planning to be published, as this planning may be commercially sensitive data. However, terminals do not mind if the berth planning is shared with operational people inside the port e.g., pilots, tugs and harbour master, who make the berth planning possible.

The berth planning must be shared with operational people as early as possible in order to help the planning of the port passage accordingly, including the nautical services.

#### Ease of data sharing – outside the port

Ports need a common method to exchange operational data to connect one to many and decrease the administrative burden and the risk of human error.

An Application Programming Interface (API) may be used to get the most up-to-date data from the best available source as and share it when needed in operations, meaning the reliability of the data used goes up.

The API can collect the data from:

* Port Community System (PCS)
* Port Management Information System (PMIS)
* Maritime Single Window (if used as PCS)

#### Ease of data sharing – inside the port

A centralized information platform is essential to enable coordinated decision making; allowing all parties to look at the same times is fundamental. For large ports, where several services may be needed, and where ships may call in multiple terminals, it is obvious that the coordination process can become very complex.. For small ports, this

process is simpler and may not need any special support systems.

The electronic exchange of data between parties, however, has benefits for all ports, including the following:

* A reduction of telephone calls
* An acknowledgement that the information was received can be returned automatically.
* Avoids dependency on email systems and associated problems, e.g. when operators are on leave, when mail is caught by spam filters, or if mails are overlooked etc.
* All involved are on the same page and are not working with outdated information

Therefore, for the in-port coordination process for both smaller and larger ports, a software support platform may be useful.

Larger ports may have a port platform, called Port Community System (PCS) (examples Port of Algeciras, Gothenburg, Rotterdam).

Smaller ports may not have a PCS, and may also have limited IT resources. Options are:

1. Connect to a Maritime Single Window and use it as a PCS (e.g., USA, Norway, Finland)
2. Connect to a common commercial contact as PCS (example in which port ASK ORNULF)
3. Connect to the PCS of the national authority (e.g., South Africa)

To explain the difference between a Port Community System (PCS) and Maritime Single Window (MSW):

* A MSW is business to government data. Run by administration or authority on a national level. It collects all mandatory FAL data based on national law what a ship has to report.
* A PCS operated by private operators. It looks similar to a MSW and has the same functionality. It can be used as a front end for MSW, so mandatory reporting can be done through the PCS. The PCS is typically used within the port, and normally used as a commercial platform for logistics and port operations. A PCS can integrate a Port Management Information System (PMIS) and Terminal Operating System (TOS) and can be connected to VTS.

The functionality of the platform for sharing Operational data should:

* Provide a suitable interface to the port and berth planners to make relevant data available to them and to alert operators when actions are required. The interface may be implemented as a human-oriented web interface or calling an API in the port or terminal management systems to transfer data
* Provide data protection to ensure that sensitive data is not made available, e.g. to competing terminals or service providers. This may, e.g. require protection of information related to cargo loading and discharge

#### Data compatibility

Have unique voyage number for berth to berth voyages is an action item which has not been completed yet.

#### 

#### Data quality – accuracy

Time stamps have different meanings from one terminal to the other, or even from one terminal operator to the other. Therefore, having the same understanding of the meaning of a time is already a big step forward in the data quality.

#### Data quality – frequency

Today, in most ports, the Ship manager calls the Berth planner by telephone to request updates – which is data user asking data owner for updates (pull data) and therefore always running behind facts (if not automated, e.g.,, a query every 5 minutes). If the Berth planner sends digital updates to the Ship manager, meaning data owner sending data to data user (push data), data is always up to date.

#### Data owner willingness – general

Parties like to share data if this results in optimizing their own planning of assets and/or resources, or the maintenance of their assets (cranes, tugs, tenders).

However, they don’t like to share data if:

* The benefits are not sufficient enough in relation to the cost to overcome the technical issues
* They have to enter data twice
* The data is commercially sensitive

The first and second issue are technical: how to connect the berth planning system to the port planning system.

The third issue is commercial: which data is sensitive to share with whom and at what time. This can be addressed by ensuring that data is only shared with those services that have an impact on their planning.

#### Data owner willingness – Berth planner container terminals

Technical

Container terminals are normally more digitized with a so called “Terminal Operating System”(TOS). One of the many functionalities of a TOS is the Berth planning tool. Such TOS is easier to connect with an API to the PCS than e.g., an Excel document. However, the latter is also doable.

Commercial

Container terminals may want to sell berth planning data to freight forwarders, or use the berth planning data to exchange for data of the freight forwarders. However, after passing of the pilot boarding place, the ship is already close to her berth and then the data is not commercially sensitive anymore.

#### Data owner willingness – Berth planner bulk and tank terminals

Technical

Bulk and tank terminals are normally not yet equipped with a TOS, and the majority uses manual planning systems. However, this industry is catching up rapidly, and future berth planning applications may be even more advanced than container terminal systems.

Commercial

Bulk and tank terminals may find this data sensitive because it may have an impact on the pricing of commodities or the relation to demurrage. However, after passing of the pilot boarding place, the ship is already close to her berth and then the data is not commercially sensitive anymore.

#### Data owner willingness – Nautical service providers

Technical

When nautical service providers operate independently of the Port planner, it is more difficult to exchange data. It all depends on the technical specifications of their resource planning systems.

Commercial

When nautical service providers are in competition with one another (e.g., tug operators), then it’s important to ensure the data is only used by the Port planner.

#### 

#### Data user – Ship operator – General

Most ships need approval from their Ship operator to reduce speed, as this decision may have commercial implications. Once granted, the speed instructions are usually communicated to the vessel through existing channels like email or telephone. In the end it’s the ship’s Master who’s end responsible for safe navigation, and needs to concur with the suggested speed instruction. If a ship reduces speed based on a direct connection with the port, it may create confusion if the shoreside organization is unaware of this change. This lack of coordination can disrupt the timing of related services such as bunkering and provisioning, but also crew changes. They all need to be coordinated and completed prior to the departure of the vessel.

Apart from this, many ships are not equipped with systems such as a connection to the Electronic Chart Display Information System (ECDIS), which can integrate updated port planning data and automatically calculate the required Speed To Maintain. The widespread adoption of such equipment on ships is unlikely in the near future.

#### Data user – Ship operator – Container segment

Speed decisions in the large container lines are normally taken by a fleet center or marine planner. These fleet centers typically oversee multiple ports within their region, resulting in container lines having several fleet centers distributed across their sailing areas.

Fleet centers make decisions for both their own fleet, and for chartered vessels. For chartered vessels speed instructions may be subject to the area they sail in (e.g., areas affected by piracy or war). Most fleet centers are overseeing a number of ports in their region. Therefore, most container lines have multiple fleet centers divided over their sailing area.

Most fleet centers are connected to their terminals, and may run different cycles:

* A four-week cycle for a rough schedule planning, including ocean crossing.
* A two-week cycle for detailed planning based on the berth planning of terminals.
* A daily cycle, for finalizing related services such as bunkers and provisions etc.

The responsibility for giving speed instructions to vessels varies:

* Some fleet centers give speed instructions from berth to berth, based on input from the port
* Some fleet centers provide speed instructions only for long passages (ocean passages), and the local agent gives speed instructions during the short passages (port approach), especially if the local agency is managed by the container line itself.

Most fleet centers are not yet integrated with ports for more detailed planning based on port availability, which includes factors like fairway access, pilots, tugs and Acts of God like severe weather conditions. Fleet centers also face difficulties to connect to data from 3rd party terminals, and also experience a lack of coordination between Berth planners and Port planners.

#### Data user – Ship operator – bulk and tanker segment

Big advantage for the Ship operator is that it’s not necessary to run the ship up to near the sea buoy to become an “arrived” ship for the purpose of laytime calculations despite port closure and/or lack of designated port anchorage availability and/or the presence of a lot of traffic. This is a big step forward for safety and rest hours of the Master and crew.

#### Data user – Ship charterer – bulk and tanker segment

Traders have an increasing interest in green shipping given all the regulations that start to involve them in this in a more direct way. However, the priority is the margin between buying and selling cargo, and the related costs to ship the cargo, remains there. Their concern is the timely delivery of cargo and avoiding costs (e.g., demurrage), so not losing their place in the planning of the berth and/or port is key. Other concerns are weather sensitive cargoes, storage, transport logistics, etc..

## 5.5 Operational data implementation recommendations

#### 

#### General

While the guide provides a general framework, it acknowledges that every port has unique characteristics and may require customized adaptations. Recommendations are based on feedback of ports with hands on experience.

#### Implementation step by step - General

1. Understanding internal port operations is the first step; come together as port community all together: Ship operators, Ship managers, Berth and Port planners, Nautical service providers. Make it a customer driven approach.
2. Create together one report that specifies how to reduce the idle time of berths and ships, and make better use of capacity nautical services
3. Agree to speak the same international language regarding time stamps; but flexibility is key
4. Agree to identify, based on these Time stamps, the first 2 largest bottlenecks
5. Agree on how to organize data sharing formally, ensuring transparency, trust and true collaboration
6. Agree on how to organize data sharing technically
7. Agree on berth planning is leading (customer approach)
8. Agree on translating berth planning into port planning (sailing times)
9. Sequencing vessel arrival and departures 12 hours in advance will be final milestone to enable Just In Time Arrivals to Waiting Area and Berth

#### Implementation step by step – Container segment

1. Start with large vessels first: they normally visit one berth only and is easier to tackle than feeder ships which have a more dynamic planning and may call at more berths
2. Start connecting to ports nearby which have the largest impact on berth planning

#### Implementation step by step – Bulk and Tanker segment

1. Implementation by parties without mistrust between owner and charterer and/or by voyage charter vessels
2. Implementation with laden vessels, as the vessel is under charters orders and has no tank or hold cleaning and/or inspections
3. Implementation by vessel with one cargo for one terminal – vessels with calls to multiple terminals normally don’t need to wait anyway

#### Introduction of international standards in a local port community

For ports that have PCS:s or are at the launching stage of a similar system, a bridge to achieving information sharing could be a mapping or translation between different standards. Albeit not being ideal the leverage for the port on a terminal or service provider may not be strong enough to implement both a change of standards AND receive their data. Indeed such an infrastructure could be a wise strategy to start with before building software interface and platforms. Simply providing the operational data between the operational people. This gives local forerunners in the port community the incentive to optimize on the operational data provided. Just building the API is also much cheaper than building software and UI in a platform, even if the Port Integration platform is a bit more complex when translating between systems.

#### Measuring effect

Measuring effect should be done through a common Key Performance Indicator (KPI’s) which is the same for all parties – versus individual KPI’s.

Making it customer focus, with the key KPI of the terminal (idle time berth) and of the shipping line (idle time ship) as a starting point.

#### Port planning versus capacity of Nautical service providers

The organization may be different per port:

* Port planner planning all nautical services or
* Port planner oversees the safe use of the public water ways, and all nautical services have their own planning
* Port planner oversees the safe use of the public water ways and plans a part of the nautical services, the other part has its own planning

Regardless the organization it makes sense if all nautical services need to be at the same ship at the same time, that also their capacity requirements are aligned, ensuring that there is sufficient capacity of each nautical service. However, in many ports the capacity requirements are not regulated in the same regulation or by the same authority:

* Pilot may have a national capacity requirement
* Linemen may have a local capacity requirement
* Tugs may have no capacity requirement, or e.g., a concession

Alignment between these requirements is important: this can result in overall inefficiencies where pilot and linesmen may be available, but e.g., tugs are not.

Taking the berth planning as a starting point, a general suggested capacity requirement could be, to facilitate 95% of the berth planning.

Acts of God as a reason for not facilitating berth planning should be taking into account, as these conditions are beyond the control of Nautical service providers, e.g.:

* Storms: above a pre-defined wind speed limit there are more tugboats needed given the average capacity of bow and/or stern thrusters. Also pilots need much more time if a the significant wave height is increasing
* Period after end of any blockage, e.g., end of a storm or visibility arrangement, till all waiting lists have been cleared
* Any unforeseen calamities
* Any foreseen blockages, e.g., special transport or construction
* During any peak demands – e.g., if the number of orders for nautical services exceeds a certain threshold of x per hour

Avoiding knock on effects

The delay of one vessel may cause a knock-on effect on other vessels. It compounds a delay if they use the same tugboat or other services. The choice for such a scheme is based on:

* Nowadays, if a tugboat has been ordered, it is in many ports contractually impossible to sail away from the ship, even if it is clear that the ship will not leave for the time being
* This not only influences the total availability of tugs at that moment, but also on other ships if the tug in question subsequently arrives too late for assistance.
* The tugboat company needs authorization from the local port authority to indicate to its customers that in certain situations canceling an order is justified
* The impact of the domino effect on the planning of tugs is of course on the day itself significant, but may also still impact the planning days later due to maintenance, rest hours etc.

#### Persons with hands on expertise

Enquiries should be directed to [Scherpenzeel.ehmc@harbourmaster.org](mailto:Scherpenzeel.ehmc@harbourmaster.org)

## 5.6 Operational data non-technical standards

### Link to the non-technical standards

<https://www.imo.org/en/OurWork/Facilitation/Pages/IMOCompendium.aspx>

#### IMO Compendium contains the IMO Reference Model and the IMO Data sets. The data sets contain a list of all data elements, their definitions and which data sets they used in. The IMO Reference model describes the relation between the data elements.

### Definitions – Date and time of Arrival – planned (PTA) Pilot Boarding Place (PBP)

#### Planned Time of Arrival (PTA)

IMO0235

Date and time of arrival – planned

Definition: The date and time the ship plans to arrive at a specific location, PTA.

#### Pilot Boarding Place (PBP) name

IMO0231

Definition: The name, number or description used to identify a Pilot boarding place. A Pilot boarding place is the location offshore where a pilot may board a vessel in preparation to piloting it through local waters.

#### Ship IMO number

IMO 0140

Definition: The ship identification number shown on its IMO ship’s certificate

#### Ship reporting system entry point, coded

IMO 0340

Definition: A code representing the point where the ship enters the system

#### Ship stay reference number

IMO 0153

Definition: Reference number assigned by a port authority to the stay of a ship in the port

### Definitions – Date and time of departure - planned (PTD) Berth

#### Planned Time of Departure (PTD)

IMO0237

Date and time of departure - planned

Definition: The date and time the ship plans to depart from a specific location, PTD.

#### Berth name

IMO0232

Definition: A name used to identify a berth. A berth is defined as a place, generally named or numbered, where a vessel may moor or anchor.

#### Ship IMO number

IMO 0140

Definition: The ship identification number shown on its IMO ship’s certificate

#### Ship reporting system entry point, coded

IMO 0340

Definition: A code representing the point where the ship enters the system

#### Ship stay reference number

IMO 0153

Definition: Reference number assigned by a port authority to the stay of a ship in the port

## 5.7 Operational data technical standards

#### Link to the technical standards

Authentication for the API can be implemented using either an API Subscription Key or OAuth 2.0. For operational data, which can be more sensitive than nautical data, it is recommended to implement OAuth 2.0.

Operational data API is compatible with the standard for the supply chain, ISO 19987.

All names in the API have been harmonized with the IMO Compendium. However, long field names need to be avoided to avoid larger response, but should also not be too short to allow intuitive recognition with the original definition.

Therefore, e.g., “date and time of arrival – planned” has been shortened to “dateTimeArrivalPlanned”, indicating that it contains date and time, and it concerns an Planned Arrival time – in line with the definition.

#### Port Arrival API response

{

"shipIMONumber": "9123456",

"shipStayReferenceNumber": "abc123",

"shipReportingSystemEntryPoint": "NLRTM",

"dateTimeArrivalPlanned" {

"pilotBoardingPlaceName": "MC",

"pta": 2025-10-17T07:20:50.52Z

}

}

#### Port Departure API response

{

"shipIMONumber": "9123456",

"shipStayReferenceNumber": "abc123",

"shipReportingSystemEntryPoint": "NLRTM",

"dateTimeDeparturePlanned" {

"berthName": "DS QUAY",

"ptd": 2025-10-21T17:20:50.52Z

}

}

# 6 How to become part of the network of ports

## 6.1 Data

Organize your data as described in chapters 4 and 5 and appendix 1A and 2A

## 6.2 API

Format your data as per Open API Definition in chapters 4.7 and 5.7.

## 6.3 API test

Traders

Charterers

Port data bases

Listed as PCO Network Port

API testbed

API

## 6.4 Platform

MadeSmart has offered to host a website with an API test bed for nautical and operational data from 01/04/26 till 01/04/31, based on a limited number of ports and the current scope of data.

The platform will

The next coming 5 years we need to see whether it’s feasible to move this platform to e.g., IMO, since both nautical and operational data meet all the objectives of safe and sustainable berth to berth navigation.

# Appendix 1 – Standards for actors

#### Link to the standards

Guidelines For Harmonized Communication And Electronic Exchange of Operational Data For Port Calls – IMO FAL5/Circ. 52

#### General

The logical parties involved are defined in a way recognizing that any party can be represented by different organizations or persons and that one-person or organization can represent several parties.

#### Ship operator

Party that decides how the ship is employed and where a vessel is to call. Depending on the commercial operation conditions, for example, but not limited to: charterer, ship owner, cargo owner / trader, ship manager, carrier, parties representing / acting on behalf of before mentioned parties

#### Ship charterer

Person or company who hires a ship from a shipowner for a period of time

#### Berth planner

Party that plans the berth call. Depending on the organisation of the port, for example, but not limited to: terminal operator, berth operator, port authority, VTS

#### Port planner

Party that plans the port call. Depending on the organisation of the port, for example, but not limited to: port authority, harbour master, terminal operator, VTS, pilots, coast guard

#### Hydrographic service provider

Party that undertakes to arrange for the collection and compilation of hydrographic data and the publication, dissemination and keeping up to date of all nautical information necessary for safe navigation. For example, but not limited to: national hydrographic office, regional charting agency

#### Ship manager

Party responsible for the day to day management, operation and maintenance of the ship. For example, but not limited to: shore side ship manager, or other party that acts on behalf of shore side ship manager, for example but not limited to: port captain, Captain of the vessel or ship agent which handles for example, authorities’ reporting requirements or some of the other information requested by any of the parties

#### Nautical service providers

Party that provides nautical services to the ship. For example, but not limited to: pilots, tugs, linesmen, boatmen, VTS

#### Vessel services

Services related to the vessel, For example but not limited to: bunkers, lube oil, potable water, provisions, stores, waste per IMO/MARPOL class, repairs, vetting, flag survey, periodic maintenance

#### Cargo services

Services related to the cargo, for example but not limited to: cargo handling, cargo survey, lashing

#### Authorities

Party that receives information related to the port call, provides clearance to the ship’s arrival and departure. For example, but not limited to: harbour master, customs, immigration, port health, port VTS, coastguard

# Appendix 2 – Standards for areas and passages

#### Without Just In Time practice

#### Sea Passage

The portion of the voyage that takes place in open waters, beyond waiting areas at both ends.

#### Waiting Area (WA)

Locations or berths as designated by the relevant Port Authority for the purpose of becoming an “Arrived Ship” for tendering Notice of Readiness. The area maybe outside the legal, fiscal, or administrative area of the port, but it must be clear that ships are ordered to wait in this area for their turn.

#### Port Passage

Passage in a port between waiting area and berth.

#### Berth

A place, generally named or numbered, where a vessel may moor or anchor.

#### With Just In Time practice

#### Port Passage Planning Area (PPA)

Part of the Sea Passage as designated by the relevant Port Authority for the purpose of becoming an “Arrived Ship” for tendering Notice of Readiness while the ship is still underway. The area maybe outside the legal, fiscal, or administrative area of the port, but it must be clear that ships can sail with optimized speed without jeopardizing their place in the planning of the Port Passage and/or Berth.

#### Notified Arrival Time (NAT)

Means for the purpose of calculating demurrage and pricing of commodities that vessel’s time of arrival at the Waiting Area was established via a defined distance and speed between Port passage Planning Area and Waiting Area entry points.

Berth

Port Passage

Waiting Area

Sea Passage

Without Just In Time practice

Berth

Port Passage

Waiting Area

Port passage Planning Area

Sea Passage

With Just In Time practice

# Appendix 3 – Calculations for arrived ship

#### General

For the Ship operator and Ship charter transparency about the calculation of demurrage is important. Most of them don’t trust each other, and a calculation by a neutral non-commercial organization is key.

Also for products which are priced based on arrival the calculation is important: it’s clear when a ship crosses which geofence, resulting in exact timing and therefore exact pricing.

#### Waiting Area

The coordinates of the Waiting Area need to be explained (e.g., being the limits of anchor areas), as each party may want to argue that the Waiting Area should be closer to the port or further away from the port – depending on their commercial interest. The Waiting Area is too close to the Pilot Boarding Place to realize bunker savings by speed optimization.

#### 

#### Port-passage Planning Area

The Port passage Planning Area must have sufficient distance to the Pilot Boarding Place to realize bunker savings by speed optimization. The distance can be different per port, whatever is customary for the specific port. The port should have the flexibility to change the range as the port’s requirements may change due to e.g., strikes, and then the port may want to slow down ships earlier.

#### Notified Arrival Time (NAT)

This time can be used by the owner and charterer to agree on demurrage etc., and can avoid conflicts between them.

The NAT should include year, month, date, and hours and time zone.

Tidal and weather impacts are not included, applying the concept of “law of averages of averages”: sometimes you lose some, sometimes you win. The emphasis is being on a stream-lined implementation of Just In Time and Notified Arrival Time concepts without the need to verify complex voyage speeds.

It must be clear to the vessel that the Notified Arrival time can be used for Notice Of Readiness tendering purposed if required and if approved by the owners and operators.

#### Distance to calculate NAT

The distance used to calculate NAT is the distance between the PPA and the WA in nautical miles.

Therefore it’s important to publish both areas so the distance cannot be disputed.

#### Speed to calculate NAT

The speed to calculate NAT can be different per port.

In the Port of Newcastle, they keep track of the speed for a seven day period. However, most ports are located in areas where the intermediate distance between ports can be shorter.

An Artificial Intelligence solution can solve the problem, however the outcome of this AI may be disputed and requires a 3rd party to validate.

Another option is to take a snap shot of the vessel when passing the PPA, and take the speed of that moment to calculate the NAT.

A very simple and accepted solution is to get the charter speed through the agent from the vessel, before the ship reaches the PPA. In the Port of Gothenburg they’ve experienced this solution as being the best one for their port. On top of this, voyage optimization could have been triggered outside the PPA. Therefore, vessels could have already lowered their speed and then they would be penalised. By not taking the charter speed one could end up with clauses about the speed of the vessel at PPA, adding another layer of complexity which will be a barrier for decision making. As Owners and Charterers have opposite positions on how the charter party is viewed in this scenarios the likelihood of false charter party speed submission will be low.

# Appendix 4 – Calculations for emission savings

#### General

Calculations of emissions all depend on the availability of the operational fuel table of the vessel. Even 2 sister vessels may have different equipment on board and therefore different fuel consumptions. Fuel saving techniques such as shaft generators, waste heat recovery systems, may only be in operation above a minimum speed, and may be different again between 2 sister vessels.

#### Sea Passage

During Sea Passage, the vessel may have emission savings by routeing of the vessel, making best use of currents and winds – this is a large potential.

#### Waiting Area

In the Waiting Area, the vessel may have emission savings by reducing the time in the Waiting Area by arriving later – this is a large potential.

#### Port passage Planning Area

In the Port passage Planning Area the vessel may have emission savings by optimizing speed based on berth and port planning – this is a large potential.

#### Port Passage

In the Port Passage, the vessel may have emission savings by not sailing full ahead from Waiting Area to Berth – however due to the small distances and relative low speeds, this is a small potential.

#### Berth

At Berth, the vessel may have emission savings by limiting the time at Berth – however due to the small fuel consumption and the limited amount of time, this is a small potential.

Port Passage

Berth

Waiting Area

Sea Passage / Port passage Planning Area

# Appendix 5– Examples for Notices of Intended Use

“While the XXXX has made all reasonable efforts to ensure the data supplied is accurate, it should be appreciated that the data may not always be complete, up to date or positioned to modern surveying standards and therefore no warranty can be given as to its accuracy. The mariner must be the final judge of the reliance they place on the information given, bearing in mind their particular circumstances, the needs of safe and prudent navigation, local pilotage guidance and the judicious use of available navigational aids.”

# Appendix 6 – Examples for data sharing formalization

#### Example 1A – national port act

The Authority may, with the approval of the Minister, by notice in the xxxxe, make rules for the control and management of ports and the approaches thereto and for the maintenance of safety, security and good order in ports, in particular regarding the manner in which control of a port must be exercised and the grounds of the information which has to be furnished to the Authority by port users in relation to their activities within ports

#### Example 1B - local port regulation referring to the national port act

The port rules then refer to the national port act:

Port Rules: 164. Information to be furnished by port users Despite the provisions of these rules, the Authority may request information from users of the port in relation to any of their activities within port limits and that information must be furnished to the Authority when requested.

#### Example 2 – covenant between port authority and terminal

Parties

1. Port xxx, with its registered office in xxxx at xxxx, (hereinafter: Port) and as such legally represented by the Chief Operating Officer;
2. Harbour Master of the port, employed by the port of xxx, established in xxxx with address at xxxxx, (hereinafter: the Harbour Master );
3. XXXX Terminal, statutorily established in xxxx with address at XXXX, and as such legally represented by her <function xxxx > <name xxxxx > hereinafter: the Terminal )

The port, the Harbour Master and the Terminal, hereinafter jointly referred to as: Parties and each individually as: Party,

Whereas:

1. Safety within the Port and Industrial Complex is of great importance to the companies established in the port and to the reputation of the port as a whole;
2. Parties have the ambition to structurally increase the level of safety, each based on their individual responsibility;
3. The port is responsible for, among other things, strengthening the competitive position of the port and attracting port-related business activities;
4. The Harbour Master is responsible for, among other things, the safe and smooth flow and handling of shipping traffic and for guiding shipping in the port;
5. The parties recognize that berth planning is the basis for port planning;
6. Parties in various consultation forms and working groups have discussed the possibilities of improving berth planning and port planning;
7. Parties need to record in writing in this covenant the agreements regarding data sharing with regard to berth planning within the port (hereinafter: Covenant );
8. Signing this Agreement does not change the powers, responsibilities and authority relationships for the Parties as they arise from legislation and regulations,

Agree as follows:

1 Objective and organizational form of the collaboration

* 1. The objective of the Parties is to improve berth and port planning by coordinating port and berth data.

To achieve this objective, the Parties agree as follows:

* 1. It is necessary that the Terminal Manager reports the following to the shipping agent via the Port Community System prior to the arrival of a specific seagoing vessel at a berth of the Terminal:

1. The precise location where that seagoing vessel is to moor;
2. From what time the berth is available for that seagoing vessel, or in other words, what time the first rope can be tied up;
3. On which side the seagoing vessel should moor at the berth (SB, BB, No Preference)

The shipping agent will then pass this information on to the Harbour Master.

* 1. It is necessary that the Terminal Manager reports the following to the shipping agent via the Port Community System before the departure of a seagoing vessel from a berth of the Terminal:

1. The time at which the cargo handling operations by the Terminal in respect of that seagoing vessel are stopped so that the seagoing vessel can safely depart, i.e. at what time the first hawser can be cast off;

The shipping agent will then pass this information on to the Harbour Master.

* 1. Changes to the reported data and changes of 30 minutes or more in the previously reported time stamps will be immediately communicated to the ship's agent by the Terminal Manager via the Port Community System. The ship's agent will then pass this information on to the Harbour Master.
  2. Changes in the Port Planning that impact the arrival or departure time of a seagoing vessel from the Terminal berth will be shared by the Harbour Master with the Terminal Manager via the Port Community System and the ship's agent. This means that changes of more than 30 minutes will be communicated immediately.
  3. The data made available to each other by the Parties in the context of the objective will be used exclusively for the objective and will be considered and treated as confidential data to ensure that the privacy and commercial interests of the Parties are protected. In concrete terms, this means that the port will not share expected arrival dates and times with parties that do not directly participate in the nautical process before the ship has reached the pilot station .
  4. It is expressly prohibited to use the received data for other commercial purposes, including but not limited to sale and licensing, or any other use not directly related to improving port planning.

2 Division of roles and responsibilities

2.1 The Terminal is the data holder of the berth planning.

2.2 The Harbour Master is the data holder of the port planning.

2.3 Shipping agent: the local representative of the ship; is authorised by the Harbour Master to make the legally required notifications on behalf of the ship he/she represents as prescribed in the Shipping Reporting Formalities and Data Processing Decree.

2.4 Port Community System: the public platform designated by the Harbour Master as a reporting address.

3 Governance

3.1 During the term of the Covenant, an evaluation will be carried out annually around May by the signatories or their alternates.

4 Entry into force, amendment and termination

4.1 This Agreement provides substance to the improvement of berth planning and port planning.

4.2 The Agreement shall enter into force at the time the Agreement has been validly signed by all Parties and shall be concluded for a period of five years.

4.3 Parties acknowledge a collective responsibility with regard to the continuity of sharing of berth planning and port planning.

4.4 Each Party undertakes to enter into discussions with the other Parties at least 3 months prior to the termination of its (further) data contribution. If these discussions do not result in a data contribution arrangement that is satisfactory to all Parties, the Parties each have the right to terminate the Agreement for the part that concerns them. The separate parts are (1) the berth planning and (2) the port planning.

4.5 This Agreement may only be amended in writing with the consent of all Parties.

4.6 Parties will make further agreements on further (public) communication regarding amendment or termination of the Covenant by one or more parties. Parties will strive for uniform communication in this regard.

4.7 The Parties shall also impose the obligations stated in this Agreement, to the extent applicable to them, on personnel and third parties involved by them in the implementation of the Agreement.

4.8 The Parties shall not be permitted to assign their rights and obligations under this Agreement to a third party without the prior written consent of the other Parties. Such consent shall not be withheld without reasonable grounds.

5 Confidentiality

5.1 Communication to third parties about the cooperation referred to in this Agreement (including any termination thereof) will only take place in consultation with all Parties. Communication to third parties includes, among other things: issuing press releases, listings on websites, publications in trade journals and other forms of information provision.

6 Applicable law

6.1 This Agreement is governed by XXXX law.

7 Definitions

* 1. In this Agreement, the following terms shall have the meanings indicated:
* Berth planning: the planning for the use of the Terminal's berths, which is drawn up by the Terminal.
* Port planning: the planning of the use of the waterways in the port from a pilot station or similar location to the berth and vice versa, which is drawn up by the Harbour Master.

# Appendix 7 – Examples for industry versus IMO standards

#### General

Some industry standards may be industry specific, e.g., only used in tanker operations, and not in passenger vessel operations.

Some industry standards may be port specific, e.g., with the local language, or specific practices in the port.

This Appendix explains a few of these industry standards and how they relate to IMO standards.

#### RTA Berth

One of the most used time stamps is ETB: Estimated Time Berth. Normally ETB is used as Estimated Time of Arrival – not for Departure. Which Berth is also not specified. Also “Scheduled Time of Berth (tanker segment) or “Estimated Time of Loading”(bulk segment) are used.

#### PTA Berth

ETA Berth is often used. Its original purpose (an Estimated Time of Arrival from the Captain based on distance to go and speed over ground) has no relation to the confirmation of the berth planning – but in many ports and shipping segments ETA Berth is used for many different meanings.

#### PTD Berth

Scheduled Unberthing Time

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