**GUIDE**

**for**

**NAUTICAL DATA ©**

Version 1.4

CONCEPT

**Afbeelding met tekst, Lettertype, Graphics, grafische vormgeving

Automatisch gegenereerde beschrijving****Afbeelding met Lettertype, logo, tekst, Graphics

Automatisch gegenereerde beschrijving**Afbeelding met tekst, Lettertype, logo, Graphics

Automatisch gegenereerde beschrijvingAfbeelding met tekst, Lettertype, logo, Graphics

Automatisch gegenereerde beschrijvingAfbeelding met tekst, logo, symbool, embleem

Automatisch gegenereerde beschrijving****

# Document revision history

|  |  |  |
| --- | --- | --- |
| 1.0 | 20/04/22 | Content of Port Information Manual 3.02, aligned with chapters of IMO BLU Code and aligned with IHO standards |
| 1.1 | 17/05/22 | Review of IHO NIPWG processed for definitions |
| 1.2 | 10/06/22 | Review of IHO NIPWG processed for units of measurement |
| 1.3 | 31/01/23 | Review for submission to IMO FAL 46/INF.3 |
| 1.4 | 21/08/23 | Based on Guide for Nautical Data 1.3  Based on IMO BLU Code, IMO Resolution A.862(20) (bulk)  Based on OCIMF MTIS (tanker)  Based on Port Memo (container)  Focus on “nautical information necessary for safe navigation” as per SOLAS  Aligned with IMO FAL “Guidelines For Harmonized Communication And Electronic Exchange Of Operational Data For Port Calls”  Validated with IHO standards through IHO NIPWG |
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Table of contents

[Document revision history 2](#_Toc143934010)

[1 Preamble 5](#_Toc143934011)

[2 Abbreviations 6](#_Toc143934012)

[3 Nautical data as part of the port call process 7](#_Toc143934013)

[4 Standards - General 11](#_Toc143934014)

[5 Standards - Terminals 13](#_Toc143934015)

[Terminal Identifier 13](#_Toc143934016)

[Terminal Identifier 13](#_Toc143934017)

[Terminal Identifier – Global Location Number 13](#_Toc143934018)

[Terminal Identifier – Port Facility Number 13](#_Toc143934019)

[Terminal Identifier – UN Location Code 13](#_Toc143934020)

[Terminal Identifier – SMDG Code 14](#_Toc143934021)

[Terminal Latitude/Longitude 14](#_Toc143934022)

[Terminal Name 14](#_Toc143934023)

[Terminal Types 14](#_Toc143934024)

[6 Standards - Berths 16](#_Toc143934025)

[Berth 16](#_Toc143934026)

[Berth Identifier 16](#_Toc143934027)

[Berth Identifier – Global Location Number 16](#_Toc143934028)

[Berth Latitude/Longitude 16](#_Toc143934029)

[Berth Name 17](#_Toc143934030)

[Berth Types 17](#_Toc143934031)

[7 Standards – Berth Positions 19](#_Toc143934032)

[Berth Position 19](#_Toc143934033)

[Berth Position Codes 19](#_Toc143934034)

[Berth Position Latitude/Longitude 19](#_Toc143934035)

[Berth Position Name 20](#_Toc143934036)

[8 Standards – Depths, UKC, Draughts for berth approaches and berths 21](#_Toc143934037)

[General 21](#_Toc143934038)

[Sea Floor 21](#_Toc143934039)

[Nature of Bottom 21](#_Toc143934040)

[Nature of Seabed 21](#_Toc143934041)

[Observed Depth 21](#_Toc143934042)

[Margin To Cater For Uncertainties of Observed Depth Accuracy 22](#_Toc143934043)

[Sounding 22](#_Toc143934044)

[Maintainted Depth 22](#_Toc143934045)

[Overdredge 22](#_Toc143934046)

[Height of Tide 22](#_Toc143934047)

[Draft (or Draught) 22](#_Toc143934048)

[Underkeel Clearance 23](#_Toc143934049)

[Water Density 23](#_Toc143934050)

[Maximum Draught 23](#_Toc143934051)

[Maximum Permitted Draught 24](#_Toc143934052)

[Maximal Permitted Length 24](#_Toc143934053)

[Maximal Permitted Beam 24](#_Toc143934054)

[Route Info Air Draft Max 24](#_Toc143934055)

[9 Standards – Depths, UKC, Draughts for berth approaches 25](#_Toc143934056)

[Controlling depth 25](#_Toc143934057)

[Dynamic Draught 25](#_Toc143934058)

[Margin to Cater for Uncertainties of Dynamic Draught Accuracy 25](#_Toc143934059)

[Dynamic Under Keel Clearance (UKC) 25](#_Toc143934060)

[10 Standards – Depths, UKC, Draughts for berths 26](#_Toc143934061)

[Berth Pocket 27](#_Toc143934062)

[Minimum Berth Depth 27](#_Toc143934063)

[Static Draught 27](#_Toc143934064)

[Margin to Cater for Uncertainties of Static Draught Accuracy 27](#_Toc143934065)

[Static Under Keel Clearance (UKC) 27](#_Toc143934066)

# 1 Preamble

1.1 These guidelines are intended to provide guidance to the implementation of an electronic and automate exchange of nautical data between port and hydrographic offices / services.

1.2 These guidelines will make reference to the IHO standards and other specifications where relevant, but will not specify any specific protocol or information exchange standard.

1.3 These guidelines will help to demonstrate that Hydrographic Offices, Ports and Terminals are working together to discharge their collective responsibilities for SOLAS as per 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”.

1.4 These guidelines will help ports and terminals to demonstrate that they are a “safe port” in the context of the Charter Party: “A port will not be safe unless, in the relevant period of time, the particular vessel can reach it, use it and return from it without, in the absence of some abnormal occurrence, being exposed to danger which cannot be avoided by good navigation and seamanship”.

1.5 The content of these guidelines is based on existing publications and databases of all trades:

* All segments: Guide for Nautical Data 1.3
* Bulk segment: IMO BLU Code, IMO Resolution A.862(20)
* Tanker segment: OCIMF Marine Terminal Information System
* Container segment: Port Memo’s
* IMO FAL Guidelines For Harmonized Communication And Electronic Exchange Of Operational Data For Port Calls

The content of these guidelines and databases has been filtered on data elements related to nautical information necessary for safe navigation as laid down in SOLAS.

1.6 The IHO has supported the search for best matching standards, thus ensuring harmonization between hydrographic offices and the industry.

1.7 The chapters have been organized in such a way that these standards can be validated frequently; the validation dates are shown in the Document Revision history.

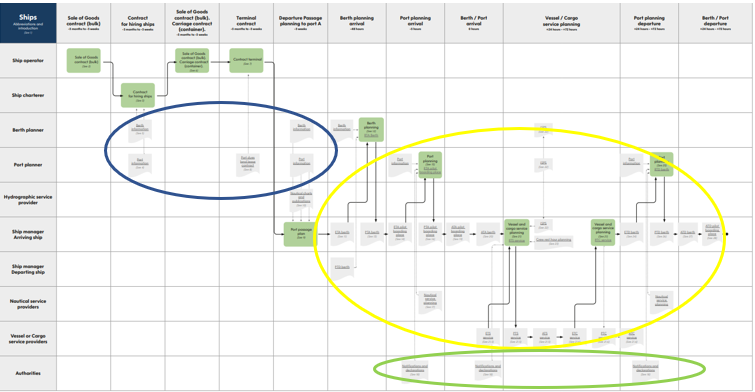
# 2 Abbreviations

|  |  |
| --- | --- |
|  |  |
| BIMCO | The world’s largest direct-membership organisation for shipowners, charterers, shipbrokers and agents |
| ECDIS | Electronic Chart Display Information System |
| ENC | Electronic Navigational Chart |
| FAL | Convention Facilitation of International Maritime Traffic |
| HD ENC | High Density ENC |
| HO | Hydrographic Office |
| IAPH | International Association of Ports and Harbours |
| ICS | International Chamber of Shipping |
| IHMA | International Harbour Masters Association |
| IHO | International Hydrographic Organization |
| IMO | International Maritime Organization |
| ITPCO | International Taskforce Port Call Optimization |
| MTIS | Marine Terminal Information System |
| OCIMF | Oil Companies International Marine Forum |
| RENC | Regional Electronic Navigational Chart Coordination Center |
| UKC | Under Keel Clearance |
| UKHO | United Kingdom Hydrographic Office |
| VAR | Value Added Resellers |

# 3 Nautical data as part of the port call process

3.1 The port call process is based on high-level business process of port calls, which is based on IMO regulations, BIMCO contracts, and 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 (GIA) to Support Low Carbon Shipping. It has been used as such in the “Guidelines for setting up a Maritime Single Window”, IMO FAL 46/5/1.

The port call process and an explanatory appendix can be downloaded from [www.portcalloptimization.org](http://www.portcalloptimization.org)



3.2 The data to be exchanged as part of the port call process includes the following:

3.2.1 Nautical data - blue

Data that is provided by Hydrographic Offices in Navigational Charts, Nautical Publications or coast pilots, and tide tables. Additionally, nautical data is used in the maritime industry for chartering and planning purposes.

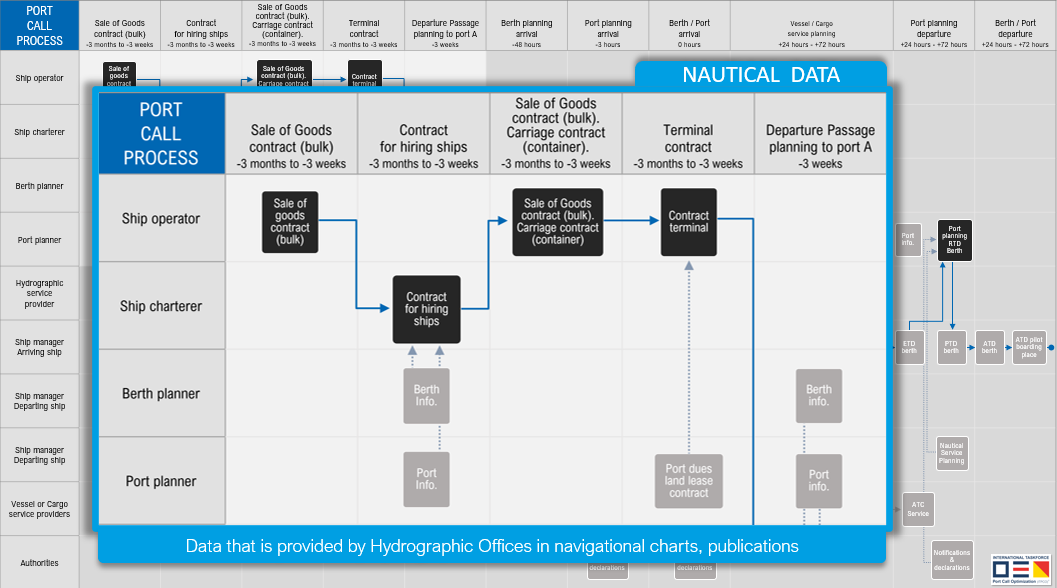
3.2.2 Administrative data - green

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

3.2.3 Operational data - yellow

Data that is submitted to non-authority parties as part of planning or execution of certain operations. Refer to IMO FAL Guidelines For Harmonized Communication And Electronic Exchange Of Operational Data For Port Calls published by IMO

3.3 Nautical data in the business process

From the business process one can identify that nautical data is used for multiple purposes:

3.3.1 For Chartering and planning

The risk of a port or berth being unsafe is very often primarily for the Charterer. Based on a series of court judgements under common law, a widely accepted legal definition of a(n) (un)safe port under common law is the following: “A port will not be safe unless, in the relevant period of time, the particular vessel can reach it, use it and return from it without, in the absence of some abnormal occurrence, being exposed to danger which cannot be avoided by good navigation and seamanship”.

The Charterer uses shore based databases and applications to select ships and make a ship-berth compatibility check. Therefore having robust, globally unique identifiers for both the ship and the berth are crucial in this part of the process.

These databases and applications may collect their 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. The standards used are often trade specific (e.g., the bulk segment uses different standards than the tanker segment).

3.3.2 For Navigation

A Master is responsible for making a voyage plan from berth to berth as per IMO Resolution A.893(21): “detailed planning of the whole voyage or passage 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 (HO’s) or other relevant government institution. Only these publications fulfill the SOLAS carriage requirements.

A special form of an ENC is the High Density bathymetry (HD ENC); a special ENC with more bathymetric content compared to ENC, not (yet) available to the Master, but used by e.g., local pilots.

These Nautical Charts and Publications are kept up to date by the “Contracting Government” as per 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”.

Most HO’s collect their data from Port Authorities, depending on when new data becomes available. HO’s of the IHO Nautical Information Provision Working Group experience a lack of data availability and consistency by Port Authorities, resulting in HO’s being unwilling to publish port infrastructure data in their charts and publications as they cannot guarantee the correctness of the data. Port Authorities in their turn face difficulties gathering data from all data owners in the port, as the Port Authority is not the data owner of all port data. E.g., terminals may be the data owner of the soundings of the berthing pocket. In addition, Port Authorities do not always have the mandate nor the resources to organize the collection and dissemination of nautical data. Terminals again in their turn feel reluctant to provide data about the berth approach, as it’s normally the responsibility of the Port Authority.

Most HO’s act in accordance with the IHO recommendation to distribute ENC’s through a controlled process of validation and distribution through RENC’s and VAR’s. Taking into the account the external dependency of the onboard update mechanism, today the time between actual measurement or sounding and chart update on board may typically be about 4 weeks.

3.3.3 For Chartering, Planning and Navigation

As data for Chartering and Navigation is collected from different parties, at different times and with different standards, it is inevitable that the same ship is hired, planned and navigated based on different data sets.

Therefore efforts should be made that Port Authorities, Terminals. the Maritime Industry and HO’s start using the same standards, and consequently a minimum set of nautical data for safe navigation becomes available for both chartering and navigating the same ship berth to berth.

As data for exact planning of maximum sizes and draughts depends on exact data of both berth positions and depths at these positions, efforts should be made that berth positions and High Density ENC data are made available.

# 4 Standards - General

4.1 As shipping operates from port to port worldwide, the standards need to be accepted and respected by all ports globally (i.e. the standards need to be port agnostic).

4.2 As ports facilitate all types of trades (tanker, bulk, container, ro-ro, cruise etc.) the standards need to be accepted and respected by all trades (e.g. not only by container or tanker sector, i.e. the standards need to be trade agnostic).

4.3 As ports are all different from one another, the standards should be flexible enough to be implemented at each port.

4.4 As shipping operates from port to port globally, the standards should be sufficiently rigid to facilitate port to port navigation.

4.5 As shipping is the most important component in the global supply chain, the connection to the global supply chain is very important.

4.6 As data owners face a lot of administrative burden to update parties in different formats, and the navigational safety, environment and security are best served by real time updates, efforts should be made for maximum compatibility between navigational, administrative and operational data.

4.7 For this reason the definitions of IMO Compendium will be harmonized with those in IHO S-131 for locations.

4.8 As most trades are facing ship-berth compatibility issues, and are also part of the supply chain, efforts should be made for a robust data compatibility check between maximum sizes of both the ship and the berth by using the existing globally unique ship identification number (the IMO ship number) and by using the existing globally unique berth location identification number (Global Location Number, ISO/IEC 6523).

4.9 As most Hydrographic Offices collect their data in a different way and from different sources than the maritime industry, nautical charts and publications on board the ship often show different data than shore based data bases and applications. Efforts should be made to exchange the same data with the same standards with both parties to ensure that chartering, planning and navigation processes, as described in the port call process, are all executed using the same standards.

4.10 Links to IHO 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)
* IHO Data Dictionary 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)
* IHO S-4: International Chart no. 1 – Check with IHO
* IHO S-32: <http://iho-ohi.net/S32/engView.php>
* IHO S-131: ??? – Check with IHO

# 5 Standards - Terminals

## Terminal Identifier

IHO Concept Register: 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

## Terminal Identifier

IHO S-131: Terminal::terminalIdentifier

Definition: The unique identifier for a given terminal

## Terminal Identifier – Global Location Number

IHO S-131: Terminal::globalLocationNumber

Definition: A globally unique, standardized identifier for parties and locations in business processes or supply chains

Format: ISO/IEC 6523; 13 digits in text format

Remark: for all terminals. Ideally assigned by the port authority so the number remains the same after change of ownership, aligned with IMO vessel number practices

## Terminal Identifier – Port Facility Number

IHO S-131: Terminal::port FaciltiyNumber

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

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

Remark: only for terminals with ISPS; code will change after change of ownership - check

## Terminal Identifier – UN Location Code

IHO S-131::Terminal::uNLocationCode – Already in Port Facility Number and SMDG Code

Used to encode the UN Location Code

Format: UN/LOCODE

Remark: for all terminals, however does not specify a specific terminal - check

## Terminal Identifier – SMDG Code

IHO S-131: Terminal::sMDGCode

A code from the SMDG (ShipMessage DesignGroup) Terminal Code List

Format: UN/LOCODE + SMDG Code (Alphanumeric between 3 and 6 characters)

Remark: only for terminals handling container and/or ro-ro; code will change after change of ownership

## Terminal Latitude/Longitude

IHO S-131::Terminal::Geometry

Definition: Terminal feature contains a Geometry object, which can hold the coordinates (latitude and longitude) for a point, or surface area

Format for information exchange: degrees and decimal minutes; datum WGS84

Format for data exchange: decimal degrees to a defined precision (minus to indicate South and West); datum WGS84

Remark: for all terminals; for points a centre of gravity is chosen

## Terminal Name

IHO S-131::Terminal::featureName

Definition: Terminal feature has attribute featureName to describe name of the Terminal

Format: text

Remark: for all terminals. Name will change after change of ownership

## Terminal Types

IHO S-131::Terminal::featureType IHO Check – copy from terminal name?

#### Container Terminal

IHO ConceptRegister: containerTerminal

A terminal with facilities to load/unload or store shipping containers

#### Bulk Terminal

IHO ConceptRegister: bulkTerminal

A terminal for the handling of bulk materials such as iron ore, coal, etc.

#### Ro Ro Terminal

IHO ConceptRegister: roRoTerminall

A terminal for roll-on roll-off ferrieswith facilities to load/unload or store shipping containers

#### Ferry Terminal

IHO ConceptRegister: ferryTerminal

A terminal for passenger and vehicle ferries

#### Tanker Terminal

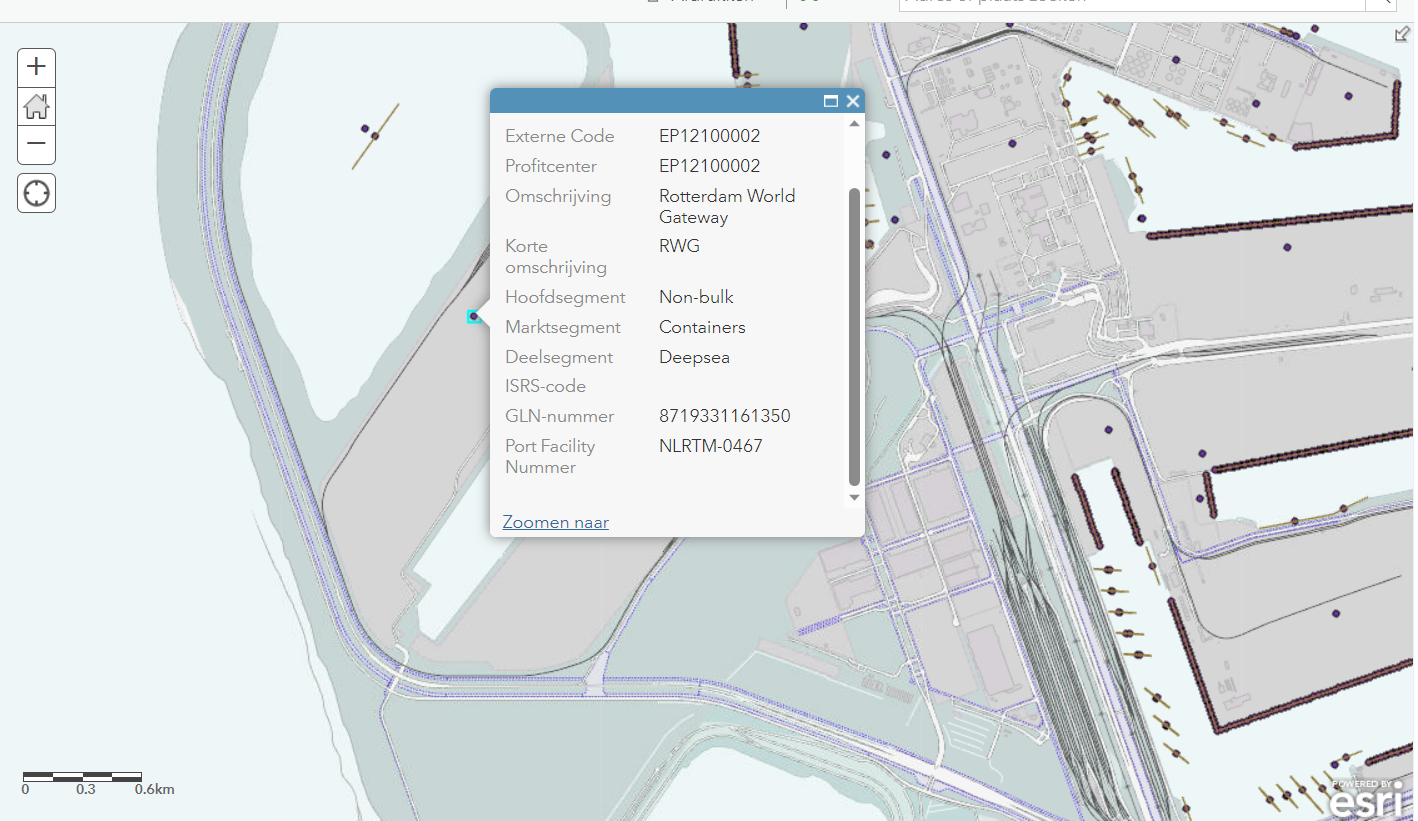
IHO ConceptRegister: tankerTerminal

A terminal for the bulk handling of liquid cargoes

#### Passenger Terminal

IHO ConceptRegister: passengerTerminal

A terminal for the loading and unloading of passengers



# 6 Standards - Berths

## Berth

IHO Concept Register: berth

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

## Berth Identifier

IHO S-131::Berth::berthIdentifier IHO Check – copy from terminal?

Definition: The unique identifier for a given berth

## Berth Identifier – Global Location Number

IHO S-131: Berth::globalLocationNumber IHO Check – copy from terminal?

Definition: A globally unique, standardized identifier for parties and locations in business processes or supply chains

Format: ISO/IEC 6523; 13 digits in text format

Remark: for all terminals, already used in the supply chain industry, ISO/IEC 6523. Ideally assigned by the port authority so the number remains the same after change of ownership, aligned with IMO vessel number practices

## Berth Latitude/Longitude

IHO S-131::Berth::Geometry IHO Check – copy from terminal?

Definition: Berth feature contains a Geometry object, which can hold the coordinates (latitude and longitude) for a point, surface (=polygon) or curve (=line).

Format for information exchange: degrees and decimal minutes; datum WGS84

Format for data exchange: decimal degrees to a defined precision (minus to indicate South and West); datum WGS84

Remark:

* Fender Berth: curve (=line). 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.
* Multi Buoy Mooring (MBM) Berth: surface (=polygon). The berth’s extent is between the positions of the mooring buoys (this should also allow for the length of mooring lines)
* Anchor Berth: check with IHO

## Berth Name

IHO S-131::Berth::featureName IHO Check – copy from terminal?

Definition: Berth feature has attribute featureName to describe name of the Berth

Format: text.

Remark: for all berths. Name will change after change of ownership. Possibly combined with name of terminal name for better human recognition

## Berth Types

IHO S-131::Berth::featureType IHO Check – copy from terminal?

#### Fender Berth

IHO S-131:: No definition yet – IHO Check: IHMA proposal in progress?

Definition: A designated physical location of berth infrastructure where a vessel may moor, defined by the fender line, which is the position of the vessel when moore

#### Mooring (MBM) Berth

IHO S-131:: No definition yet – IHO Check: IHMA proposal in progress?

Definition: A designated facility where a vessel may moor, usually by a combination of the mooring buoys and the ship’s anchors

#### Anchor Berth

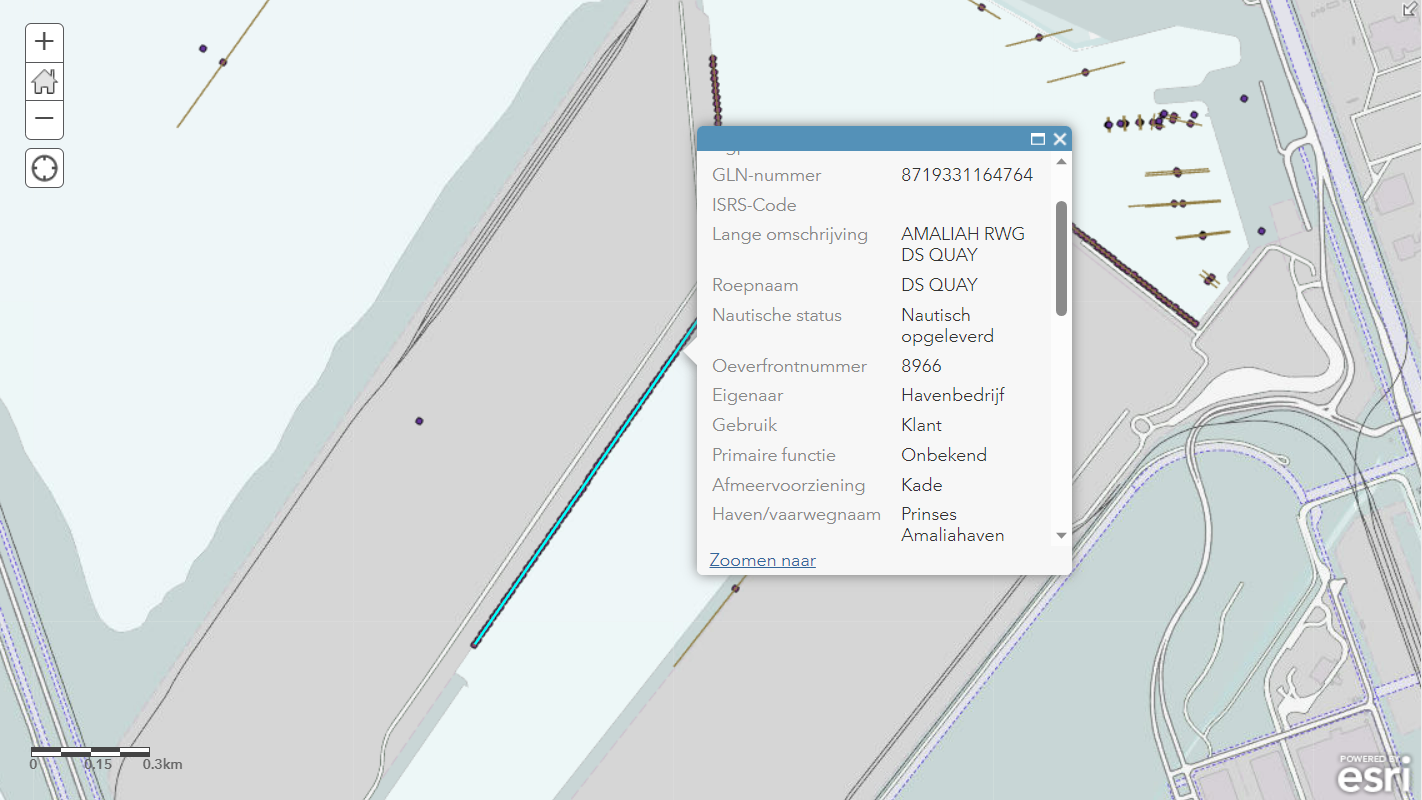
IHO ConceptRegister: anchorBerth

Definition: A designated area of water where a vessel, sea plane, etc., may anchor

#### Fender berth types

IHO S-4: 321.1, 321.2, 324.3

* Quay, Wharf
* Pier, Jetty
* Promenade pier
* Pontoon



# 7 Standards – Berth Positions

## Berth Position

IHO Concept Register: berthPosition

Definition: A specific position within a berth where a vessel may be moored or anchored

## Berth Position Codes

IHO S-131::Berth Position::berthPositionIdentifier IHO Check – copy from terminal?

Definition: The unique identifier for a given berth position

IHO S-131: BerthPosition::globalLocationNumber Check – copy from terminal?

Definition: A globally unique, standardized identifier for parties and locations in business processes or supply chains

Format: ISO/IEC 6523; 13 digits in text format plus extension (for the Berth Position name or number) separated with a dash

Remark: for all terminals, already used in the supply chain industry, ISO/IEC 6523. Ideally assigned by the port authority so the number remains the same after change of ownership, aligned with IMO vessel number practices

## Berth Position Latitude/Longitude

IHO S-131::Berth::Geometry Check – copy from terminal?

Definition: Berth Position feature contains a Geometry object, which can hold the coordinates (latitude and longitude) for a point

Format for information exchange: degrees and decimal minutes; datum WGS84

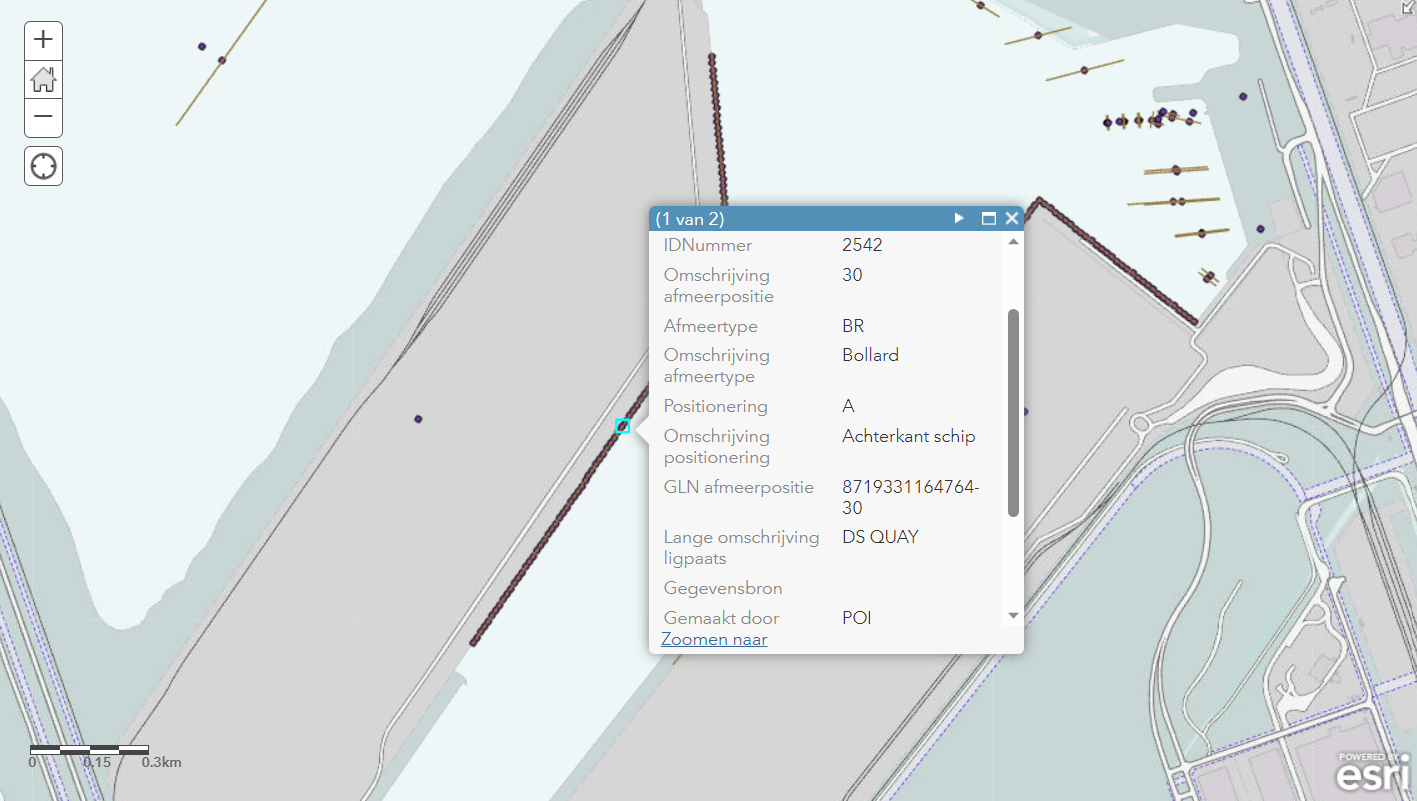
Format for data exchange: decimal degrees to a defined precision (minus to indicate South and West), datum WGS84

## Berth Position Name

IHO S-131::BerthPosition::featureName Check – copy from terminal?

Definition: Berth Position feature has attribute featureName to describe name of the Berth Position

Format: text



# 8 Standards – Depths, UKC, Draughts for berth approaches and berths

## General

For the publication of depths by local Port Authorities the same Chart Datum should be used as in the Nautical Charts and Publications as published by the Hydrographic Office

## Sea Floor

IHO ConceptRegister: seafloor

Definition: The bottom of the ocean and seas where there is a generally smooth gentle gradient. Also referred to as sea bed (sometimes seabed or sea-bed), and sea bottom

## Nature of Bottom

IHO ConceptRegister: natureOfBottom IHO Check: Nature of Sea Floor?

The feature of the bottom including the material of which it is composed and its physical characteristics. Also called character (or characteristics) of the bottom, or quality of the bottom

## Nature of Seabed

IHO S-4: 423-427 IHO Check: Nature of Sea Floor?

* Sand
* Mud
* Clay
* Silt
* Stones
* Gravel
* Pebbles
* Cobbles
* Rock, Rocky

## Observed Depth

IHO ConceptRegister: observedDepth

Definition: The vertical distance from the sea surface to the sea floor, at any state of the tide, based on S-44 measurements

## Margin To Cater For Uncertainties of Observed Depth Accuracy

IHO ConceptRegister: marginToCaterForUncertaintiesOfObservedDepth Accuracy

Definition: Margin to cater for uncertainties of the charted water depth. This margin considers uncertainties of tidal height in tidal areas, or height with respect to the surface of still water in non-tidal areas, comprising tidal height during transit and maneuvering accuracy, sounding or dredging execution accuracy, and siltation of soundings

Format: decimal meters

## Sounding

IHO Data Dictionary Register: 594 IHO Check: based on S-44 measurements, like Observed Depth?

Measured or charted depths of water (maybe a drying height) or the measurement of such depth, which has bee reduced to a vertical datum

## Maintainted Depth

IHO ConceptRegister: maintainedDepth

The depth at which a channel is kept by human influence, usually by dredging

## Overdredge

Nautical Publication 100 (NP100) Mariners Handbook IHO Check: no definition?

An additional depth margin provided by a dredging operation to ensure that the depth at a specific location is never less than the pre-determined maintained depth over the interval between programmed dredging operations

## Height of Tide

IHO ConceptRegister: heightOfTide

The vertical distance from the chart datum to the level of the water at any time

## Draft (or Draught)

IHO ConceptRegister: draftOrDraught

Definition: The vertical distance, at any section of a vessel from the surface of the water to the bottom of the keel. When measured at or near the bow, it is referred to as draft forwards and when measured at or near the stern as draft aft. The mean draft is the mean of the drafts forward and aft. These drafts are more specifically described as displacement drafts as opposed to navigation drafts which are measured to the lowest appendage to the hull as opposed to the keel

Format: decimal metres to a defined water density measured in kg/m3

## Underkeel Clearance

IHO ConceptRegister: underkeelClearance

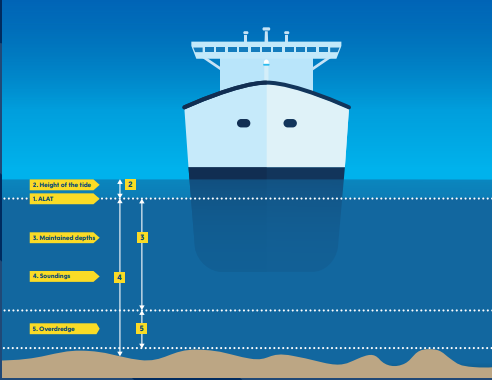
Definition: The distance (usually a required minimum distance) between the lowest point of a ship’s hull and the sea bed

Format: decimal meters

## Water Density

IHO: Not defined in ConceptRegister, Data Dictionary Register, S-4, S-32

Equivalent to specific gravity and expressed the ration, at atmospheric pressure, of the weight of a given volume of sea water to that of an equal volume of distilled water at 4 degrees Celsius



## Maximum Draught

IHO ConceptRegister: maximumDraught

Definition: The maximum vessel draught in meters, used as basis for the calculation

Format: decimal metres to a defined water density measured in kg/m3

## Maximum Permitted Draught

IHO ConceptRegister: maximumPermittedDraught

Definition: The maximum draught of a vessel permitted along a route, in a channel or dock, at a berth, or over a submerged feature

Format: decimal metres to a defined water density measured in kg/m3

Remark: Check with IHO how to include with or without tide

## Maximal Permitted Length

IHO ConceptRegister: maximalPermittedLength

The maximal permitted length of a vessel or convoy according to the particular article / clause of the applicable law/regulation

## Maximal Permitted Beam

IHO ConceptRegister: maximalPermittedBeam

The maximal permitted beam (width of ship’s hull) of a vessel or convoy according to the particular article / clause of the applicable law/regulation

## Route Info Air Draft Max

IHO ConceptRegister: routeInfoAirDraftMax

Definition: Maximum vessel air draft for which the route information is applicable

# 9 Standards – Depths, UKC, Draughts for berth approaches

## Controlling depth

IHO ConceptRegister: controllingDepth

The least depth in the approach or channel to an area, such as a port or anchorage, governing the maximum draft of vessels that can enter

Format: decimal metres

Remark: controlling depth is described in S-4, for use on nautical charts. As such it would normally be given related to a given Chart Datum , and considered as any depth indication on the nautical chart

Remark: check with IHO how to include navigation to berth

## Dynamic Draught

IHO ConceptRegister: dynamicDraught

Definition: The vertical distance from the bottom of the keel to the water line when the vessel is making way or subject to sea and swell influences.

Format: decimal metres to a defined water density measured in kg/m3

## Margin to Cater for Uncertainties of Dynamic Draught Accuracy

IHO ConceptRegister: marginToCaterForUncertaintiesOfDynamicDraughtAccuracy– approval process

Definition: Margin to cater for uncertainties in a vessel’s reported dynamic draught, or draught reading

Format: decimal metres

## Dynamic Under Keel Clearance (UKC)

IHO ConceptRegister: dynamicUnderKeelClearance – approval process

Definition: The UKC when a vessel has a dynamic draught – being processed

Format: decimal metres

# 10 Standards – Depths, UKC, Draughts for berths

## Berth Pocket

IHO ConceptRegiser: berthPocket

Definition: A body of water at a berth or anchor berth, of adequate dimensions to allow a vessel to make fast to the shore, mooring buoy, berthing dolphins or to anchor

Remark: Check with IHO: berthing dolphins not aligned with OCIMF, to be mooring dolphins

## Minimum Berth Depth

IHO ConceptRegister: minimumBerthDepth

Definition: The least depth of the body of water at the berth or in a berth pocket adjacent to the berth

Format: decimal metres

## Static Draught

IHO ConcreptRegister: staticDraught

Definition: The vertical distance from the bottom of the keel to the water line when the vessel is not making way or subject to sea and swell influences

Format: decimal metres to a defined water density measured in kg/m3

## Margin to Cater for Uncertainties of Static Draught Accuracy

IHO ConceptRegister: marginToCaterForUncertaintiesOfStaticDraughtAccuracy approval process

Definition: Margin to cater for uncertainties in a vessel’s reported static draught, or draught reading

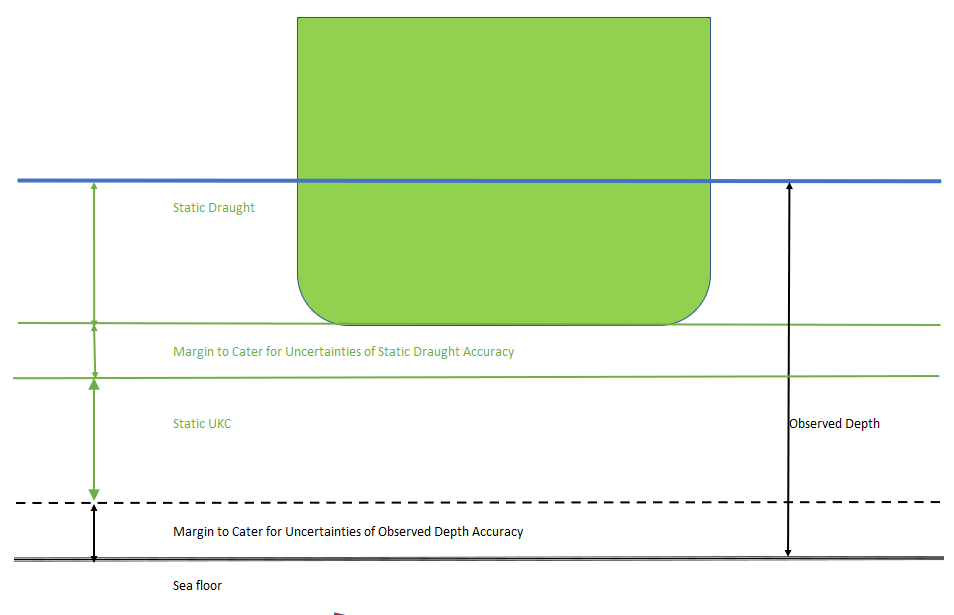
Format: decimal metres

## Static Under Keel Clearance (UKC)

IHO ConceptRegister: staticUnderKeelClearance approval process

Definition: The UKC when a vessel has a static draught

Format: decimal meteres



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