DISCUSSION DRAFT

Version 0.0.0 – July 2009

Special Publication No. 10?
??? Product Specification

Prepared for consideration by IHO SNPWG

Contents

1. Overview

1.1. Pilotage Information Product Specification Metadata

Title:	SNPWG Pilotage Information Product Specification
Version:	0.0.0
Date:	
Language:	English
Classification:	Unclassified
Contact:	SNPWG Chair, International Hydrographic Bureau
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URL:	www.iho-ohi.net
Identifier:	SNPWG PIPS
Maintenance:	Changes to this product specification are coordinated by the Standardization of Nautical Publications Working Group (SNPWG) of the IHO and shall be made available via the IHO web site.

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1.2. Terms, Definitions and Abbreviations

1.2.1. Terms and Definitions

The terms and definitions in S-100 V. 0.0.3 § 1-3 and Annex 1 apply to this document. The following additional terms are used.

Cardinality The number of values of an attribute of an object.

Pair-wise correspondence Let $a_1 \ldots a_m$ be the sequence of values of attribute A of an instance of object class O and $b_1 \ldots b_n$ the sequence of values of attribute B of the same instance, each in the same order that the values occur in the data set. (Null values are permitted.) Attributes A and B have pair-wise correspondence when: (i) m = n; (ii) the encoding guide or product specification defines a relationship, or assigns special significance, for pairs (a_i, b_j) if and only if $i = j$. Informally, the attributes are pair-wise correspondent if and only each value is associated with its opposite number for the other attribute. For example, each value of attribute “day-of-the-week” may be associated with a value of attribute “office-hours”, signifying that the office in question is open during those hours on that day of the week.

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1.2.2. Abbreviations

The abbreviations defined in S-100 V. 0.0.3 § 0-2 are used in this document. The following abbreviations are also used:

CPSCWG	Chart Standardisation and Paper Chart Working Group
DIPWG	Digital Information Portrayal Working Group
DQWG	Data Quality Working group
ECDIS	Electronic Chart Display Information Systems
ENC	Electronic Navigation Charts
SNPWG	Standardisation of Nautical Publications Working Group

1.3. Informal Description

Title: Pilotage Information

Abstract: Pilotage Information (PI) is a product produced on the authority of a government authorized Hydrographic Office. Its primary function is to relay information about pilot services within an Electronic Chart Display and Information System (ECDIS). In the ECDIS, PI and ENC fully communicate pilotage information. The PI contains an extraction of real world information necessary to safely execute pilotage within the area of coverage.

Content: A conformant data set may contain features associated with the information on pilotage. The specific content is defined by the PI Feature Catalogue and the PI Application Schema.

Spatial Extent:

Description: Areas where pilotage information for marine navigation is applicable.
East Bounding Longitude: 180
West Bounding Longitude: -180
North Bounding Latitude: 90
South Bounding Latitude -90

Specific Purpose: This document describes data that establish requirements and procedures for requesting and acquiring recommended or mandatory pilot services. Pilot services provide information within areas where constraints urge the use of pilot and normally consist of location information where, when and how pilot services can be obtained. Pilot services may provide information about physical restriction, piracy or traffic volume within the navigation area, or information about requirements imposed by vessel characteristics, cargo as well as other location specific conditions.

2. Specification Scopes

NOTE: TSMAD in the discussion at last meeting discovered that it is not fully understood what is intended to be done with scope. So for this case, it will be a high-level explanation of the basic paradigms used.

Scope ID: Root scope
Level: 001
Level name: Pilotage scope
Extent: Global, marine areas only

Scope ID: NonGeospatial Scope
Level: 002
Level name: NonGeospatial Scope
Extent: Global, areas where pilot service is available

Scope ID: Geospatial Scope
Level: 002
Level name: Geospatial Scope
Extent: Global, areas where pilot service is available

Scope ID: Scale Dependent
Level: 003
Level name: Scale Dependent Scope
Extent: Global, marine areas only

Scope ID: Scale Independent
Level: 003
Level name: Scale Independent Scope
Extent: Global, marine areas only

Note: for the following scope ID; Scale Dependent and Scale Independent see S-101 Electronic Navigational Chart Product Specification.

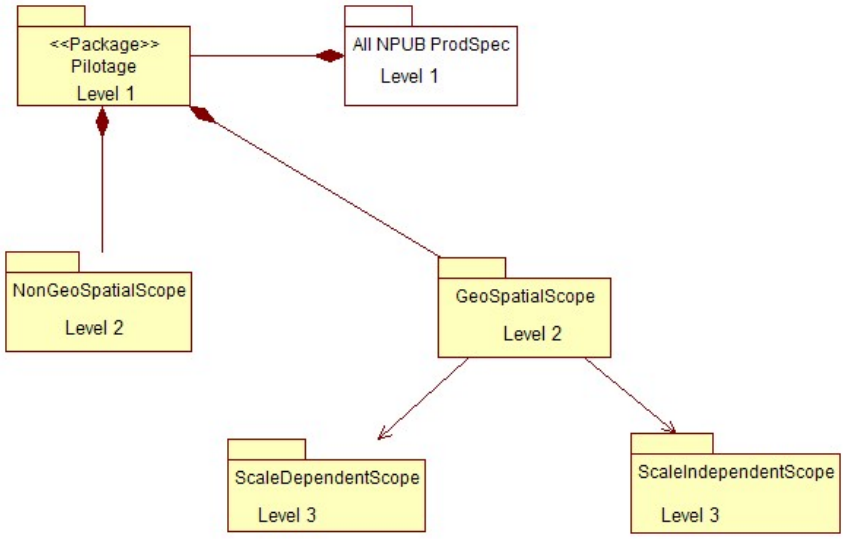

Figure 1. Specification scopes

This specification is about Pilotage Information in particular. Pilotage Information products make use of a geographical query function with ECDIS to identify which pilot services are located within given areas. These areas are covered by a pilot service area which gives the details about the services offered by pilots.

3. Data Product Identification

A data set that conforms to this product specification will be identifiable by the discovery metadata that supports it.

Title:	Pilotage Information
Alternative Title:	PI
Abstract:	When an S-10x PI is produced it must be in accordance with the rules defined in the PI product specification. S-10x details specifications intended to enable Hydrographic Offices to produce a consistent PI, and manufacturers to use that data efficiently in an ECDIS to satisfy IMO Performance Standards for ECDIS.
Topic Category:	Transportation
Geographic Description:	Areas where pilotage information for marine navigation is applicable.
Spatial Resolution:	Display Scale
Purpose:	The data shall be collected for the purpose of displaying pilotage information to a user. And explain why use of such service is required or recommended.
Language:	English, with additional languages optional.
Classification:	Unclassified
Spatial Representation Type:	Vector
Point of Contact:	Producing Hydrographic Office
Use Limitations:	Not to be used without ENC

4. Data Content and Structure

An S-10X (Pilotage) product is an object-based product. This section contains the product application schema expressed in UML and an associated feature catalogue. The feature catalogue provides a full description of each object type including its attributes, attribute values and relationships in the data product.

Blue text in this section and Annexes A-C indicates changes or additions to the SNPWG or S-100/S-57 object model.

4.1. Application Schema

The UML diagrams for the application schema for this specification are given below. The feature catalogue is in Section 4.2 and Annexes A-C.

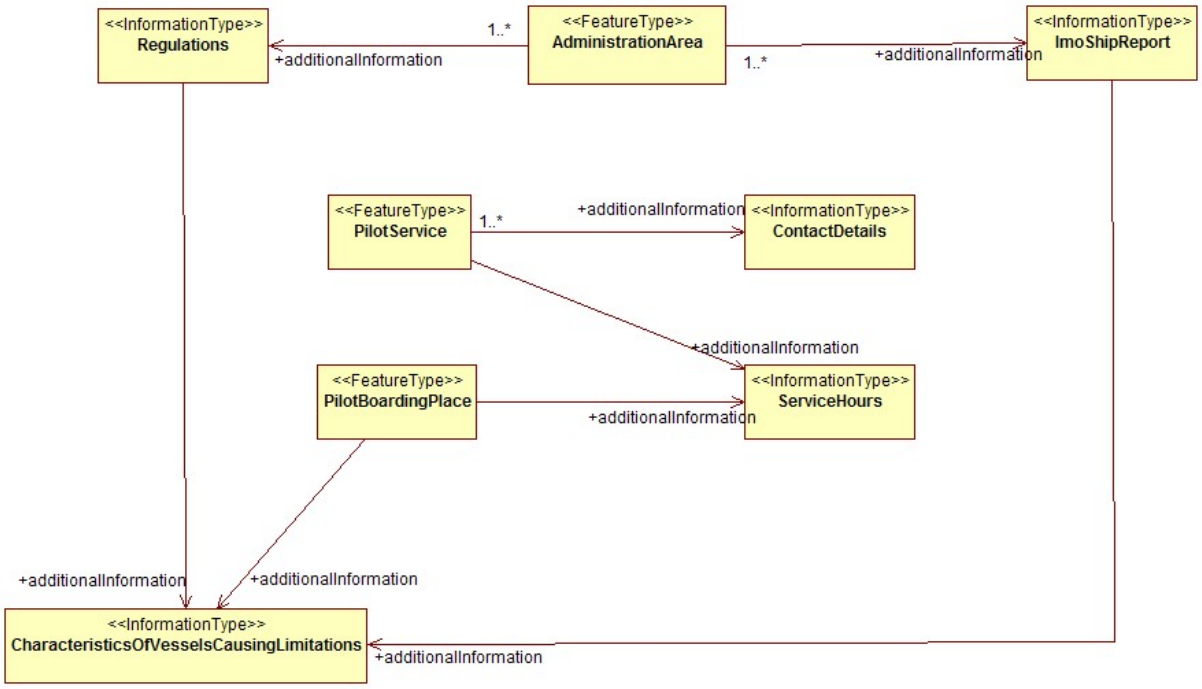

Figure 2 Pilotage Application schema, Version 0.1

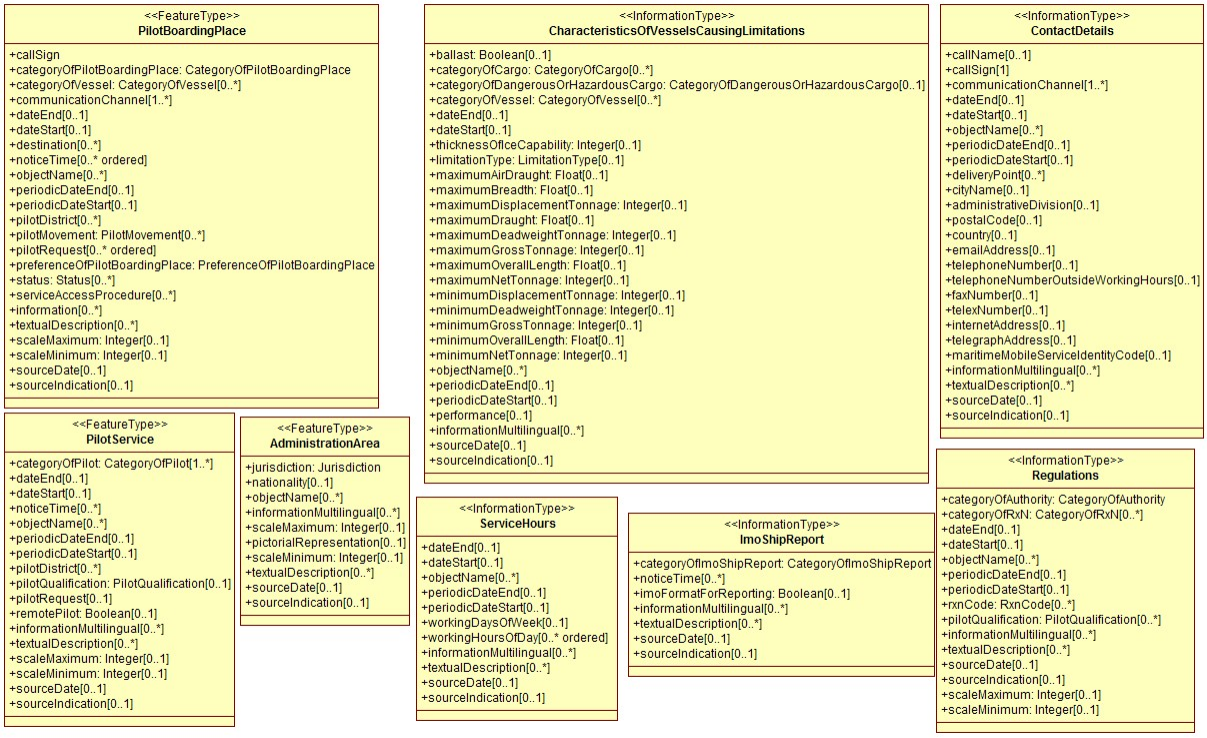

Figure 3: Objects and attributes

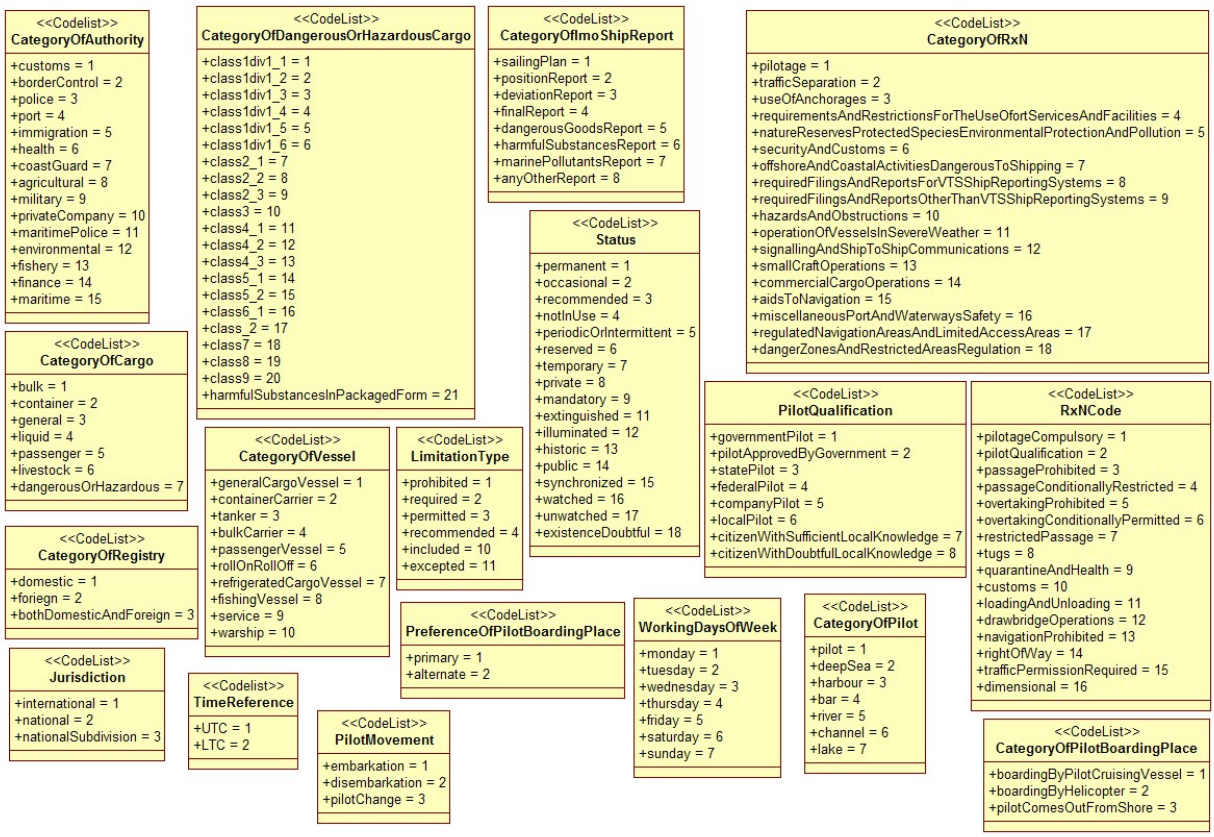

Figure 4: Enumerations

Role Name	Name	Description	Multiplicity	Data Type	Remarks
Class	AdministrationArea	A defined (and possibly named) administrative area	-	-	
Attribute	jurisdiction	The jurisdiction applicable to an administrative area.	1	Jurisdiction	
Attribute	nationality	The attribute “nationality” indicates the nationality of the specific object.	0..1	text	
Attribute	objectName	The individual name of an object	0..*	text	
Attribute	informationMultilingual	Textual information about the object.	0..*	complex	
Attribute	scaleMaximum	The maximum scale at which the object may be used e.g. for ECDIS presentation. The modulus of the scale is indicated, that is 1:25 000 is encoded as 25000.	0..1	integer	
Attribute	pictorialRepresentation	Indicates whether a pictorial representation of the object is available. The string encodes the file name of an external graphic file (pixel/vector).	0..1	text	
Attribute	scaleMinimum	The minimum scale at which the object may be used e.g. for ECDIS presentation. The modulus of the scale is indicated, that is 1:25 000 is encoded as 25000.	0..1	integer	
Attribute	textualDescription	The file name of an external text file that contains the text	0..*	text	
Attribute	sourceDate	The production date of the source, e.g. the date of measurement.	0..1	date	
Attribute	sourceIndication	Information about the source of the object.	0..1	?	
Association	additionalInformation	Additional information is available	0..*	Regulations	
Association	additionalInformation	Additional information is available	0..*	ImoShipReport	

Role Name	Name	Description	Multiplicity	Data Type	Remarks
Class	PilotBoardingPlace	The meeting place to which the pilot comes out.	-	-	
Attribute	callSign	The designated call-sign of a radio station	1	text	
Attribute	categoryOfPilotBoardingPlace	?	1	CategoryOfPilotBoardingPlace	
Attribute	categoryOfVessel	?	0..*	CategoryOfVessel	
Attribute	communicationChannel	A channel number assigned to a specific radio frequency, frequencies or frequency band.	1..*	text	

Role Name	Name	Description	Multiplicity	Data Type	Remarks
Attribute	dateEnd	The attribute “date end” indicates the latest date on which an object (e.g. a buoy) will be present.	0..1	date	
Attribute	dateStart	The attribute “date, start” indicates the earliest date on which an object (e.g. a buoy) will be present.	0..1	date	
Attribute	destination	The place or general direction to which a vessel is going or directed	0..*	text	
Attribute	noticeTime	Span of time, prior to the time the service is needed, for preparations to be made to fulfil the requirement.	0..*	complex	
Attribute	objectName	The individual name of an object	0..*	text	
Attribute	periodicDateEnd	The end of the active period for a seasonal object (e.g. a buoy). See also “date end”.	0..1	date	
Attribute	periodicDateStart	The start of the active period for a seasonal object (e.g. a buoy). See also “date start”.	0..1	date	
Attribute	pilotDistrict	The name assigned to the area within which a particular pilotage service operates.	0..*	text	
Attribute	pilotMovement	The embarkation or disembarkation activity of a pilot. This attribute specifies whether pilots embark and/or leave the vessel	0..*	PilotMovement	
Attribute	pilotRequest	Description of the pilot request procedure	0..1	text	
Attribute	pilotVessel	Description of the pilot vessel. The pilot vessel is a small vessel used by a pilot to go to or from a vessel employing the pilot's services,	0..1	text	

Role Name	Name	Description	Multiplicity	Data Type	Remarks
Attribute	preferenceOfPilotBoardingPlace	This attribute allows for boarding places to be designated as primary or alternate boarding places.	1	PreferenceOfPilotBoardingPlace	
Attribute	status	?	0..*	Status	
Attribute	serviceAccessProcedure	A description of the procedure to access the marine service	0..*	text	
Attribute	informationMultilingual	Textual information about the object.	0..*	complex	
Attribute	scaleMaximum	The maximum scale at which the object may be used e.g. for ECDIS presentation. The modulus of the scale is indicated, that is 1:25 000 is encoded as 25000	0..1	integer	
Attribute	scaleMinimum	The minimum scale at which the object may be used e.g. for ECDIS presentation. The modulus of the scale is indicated, that is 1:25 000 is encoded as 25000.	0..1	integer	
Attribute	textualDescription	The file name of an external text file that contains the text	0..*	text	
Attribute	sourceDate	The production date of the source, e.g. the date of measurement.	0..1	date	
Attribute	sourceIndication	Information about the source of the object.	0..1	?	
Association	additionalInformation	Additional information is available	0..*	ServiceHours	
Association	additionalInformation	Additional information is available	0..*	CharacteristicsOfVesselsCausingLimitations	

Role Name	Name	Description	Multiplicity	Data Type	Remarks

Role Name	Name	Description	Multiplicity	Data Type	Remarks
Class	PilotService	The area where pilotage services are available. Pilotage is a service provided by a person who directs the movements of a vessel through pilot waters, usually a person who has demonstrated extensive knowledge of channels, aids to navigation, dangers to navigation, etc., in a particular area and is licensed for that area.	-	-	
Attribute	categoryOfPilot	?	1..*	CategoryOfPilot	
Attribute	dateEnd	The attribute “date end” indicates the latest date on which an object (e.g. a buoy) will be present.	0..1	date	
Attribute	dateStart	The attribute “date, start” indicates the earliest date on which an object (e.g. a buoy) will be present.	0..1	date	
Attribute	noticeTime	Span of time, prior to the time the service is needed, for preparations to be made to fulfil the requirement.	0..*	complex	
Attribute	objectName	The individual name of an object	0..*	text	
Attribute	periodicDateEnd	The end of the active period for a seasonal object (e.g. a buoy). See also “date end”.	0..1	date	
Attribute	periodicDateStart	The start of the active period for a seasonal object (e.g. a buoy). See also “date start”.	0..1	date	
Attribute	pilotDistrict	The name assigned to the area within which a particular pilotage service operates.	0..*	text	
Attribute	pilotQualification	?	0..1	pilotQualification	
Attribute	pilotRequest	Description of the pilot request procedure	0..1	text	
Attribute	remotePilot	Whether remote pilotage is available.	0..1	boolean	
Attribute	informationMultilingual	Textual information about the object.	0..*	complex	
Attribute	scaleMaximum	The maximum scale at which the object may be used e.g. for ECDIS presentation. The modulus of the scale is indicated, that is 1:25 000 is encoded as 25000	0..1	integer	
Attribute	scaleMinimum	The minimum scale at which the object may be used e.g. for ECDIS presentation. The modulus of the scale is indicated, that is 1:25 000 is encoded as 25000.	0..1	integer	
Attribute	textualDescription	The file name of an external text file that contains the text	0..*	text	
Attribute	sourceDate	The production date of the source, e.g. the date of measurement.	0..1	date	
Attribute	sourceIndication	Information about the source of the object.	0..1	?	
Association	additionalInformation	Additional information is available	0..*	ServiceHours	
Association	additionalInformation	Additional information is available	0..*	ContactDetails	

Role Name	Name	Description	Multiplicity	Data Type	Remarks
Class	CharacteristicsOfVesselsCausingLimitations	Characteristics of vessels (by construction, cargo or performance), which limit the passage of vessels, or the use by vessels, of an area or facility	-	-	
Attribute	ballast	?	0..1	boolean	
Attribute	categoryOfCargo	?	0..*	CategoryOfCargo	
Attribute	categoryOfVessel	?	0..*	CategoryOfVessel	
Attribute	dateEnd	The attribute “date end” indicates the latest date on which an object (e.g. a buoy) will be present.	0..1	date	
Attribute	dateStart	The attribute “date, start” indicates the earliest date on which an object (e.g. a buoy) will be present.	0..1	date	
Attribute	thicknessOfIceCapability	The thickness of ice that the ship can safely transit.	0..1	integer	
Attribute	limitationType	This attribute describes the interpretation of a “chalim” information object in the context of the object(s) with which it is associated.	0..1	LimitationType	
Attribute	maximumAirDraught	The maximum allowed height of the highest point of a vessel above the water-line.	0..1	real	
Attribute	maximumBreadth	The maximum allowed breadth (beam) of a vessel.	0..1	real	
Attribute	maximumDisplacementTonnage	The maximum allowed displacement tonnage of a vessel.	0..1	integer	
Attribute	maximumDraught	The maximum allowed vertical distance, at any section of a vessel from the surface of the water to the bottom of the keel.	0..1	real	
Attribute	maximumDeadweightTonnage	The maximum allowed deadweight tonnage of a vessel.	0..1	integer	
Attribute	maximumGrossTonnage	The maximum allowed gross tonnage of a vessel.	0..1	integer	
Attribute	maximumOverallLength	The maximum allowed overall length of a vessel	0..1	real	
Attribute	maximumNetTonnage	The maximum allowed net tonnage of a vessel.	0..1	integer	

Role Name	Name	Description	Multiplicity	Data Type	Remarks
Attribute	minimumDisplacementTonnage	The minimum allowed displacement tonnage of a vessel.	0..1	integer	
Attribute	minimumDeadweightTonnage	The minimum allowed deadweight tonnage of a vessel.	0..1	integer	
Attribute	minimumGrossTonnage	The minimum allowed gross tonnage of a vessel.	0..1	integer	
Attribute	minimumOverallLength	The minimum allowed overall length of a vessel.	0..1	real	
Attribute	minimumNetTonnage	The minimum allowed net tonnage of a vessel.	0..1	integer	
Attribute	objectName	The individual name of an object	0..*	text	
Attribute	periodicDateEnd	The end of the active period for a seasonal object (e.g. a buoy). See also “date end”.	0..1	date	
Attribute	periodicDateStart	The start of the active period for a seasonal object (e.g. a buoy). See also “date start”.	0..1	date	
Attribute	performance	A description of the required handling characteristics of a vessel including hull design, main and auxiliary machinery, cargo handling equipment, navigation equipment and manoeuvring behaviour.	0..1	text	
Attribute	informationMultilingual	Textual information about the object.	0..*	complex	
Attribute	sourceDate	The production date of the source, e.g. the date of measurement.	0..1	date	
Attribute	sourceIndication	Information about the source of the object.	0..1	?	

Role Name	Name	Description	Multiplicity	Data Type	Remarks
Class	ContactDetails	Information on how to reach a person or organisation by postal, internet, telephone, telex and radio systems.	-	-	
Attribute	callName	The designated call name of a station, e.g. radio station, radar station, pilot. This is the name used when calling a radio station by radio i.e. "Singapore Pilots".	0..1	text	
Attribute	callSign	The designated call-sign of a radio station	1	text	
Attribute	communicationChannel	A channel number assigned to a specific radio frequency, frequencies or frequency band.	1..*	text	
Attribute	dateEnd	The attribute “date end” indicates the latest date on which an object (e.g. a buoy) will be present.	0..1	date	

Role Name	Name	Description	Multiplicity	Data Type	Remarks
Attribute	dateStart	The attribute “date, start” indicates the earliest date on which an object (e.g. a buoy) will be present.	0..1	date	
Attribute	objectName	The individual name of an object	0..*	text	
Attribute	periodicDateEnd	The end of the active period for a seasonal object (e.g. a buoy). See also “date end”.	0..1	date	
Attribute	periodicDateStart	The start of the active period for a seasonal object (e.g. a buoy). See also “date start”.	0..1	date	
Attribute	deliveryPoint	Details of where post can be delivered such as the apartment, name and/or number of a street, building or PO Box	0..*	text	
Attribute	cityName	The name of a town or city	0..1	text	
Attribute	administrativeDivision	Administrative division is a generic term for an administrative region within a country at a level below that of the sovereign state.	0..1	text	
Attribute	postalCode	Known in various countries as a postcode, or ZIP code, the postal code is a series of letters and/or digits that identifies each postal delivery area	0..1	text	
Attribute	country	The name of a nation	0..1	text	
Attribute	emailAddress	An address assigned to an organisation or person to send or receive electronic mail. Example: steven.smith@domain.com	0..1	text	
Attribute	telephoneNumber	A number assigned to a telephone	0..1	text	
Attribute	telephoneNumberOutsideWorkingHours	A number assigned to a service for use outside working hours	0..1	text	
Attribute	faxNumber	A number assigned to a fax machine.	0..1	text	
Attribute	telexNumber	Numbers assigned to a telex machine as a unique identifier	0..1	text	
Attribute	internetAddress	An Internet address (for example, http://www.hmco.com/trade/), usually consisting of the access protocol (http), the domain name (www.hmco.com), and optionally the path to a file or resource residing on that server (trade).	0..1	text	
Attribute	telegraphAddress	The telegraphic address assigned to an organisation	0..1	text	

Role Name	Name	Description	Multiplicity	Data Type	Remarks
Attribute	maritimeMobileServiceIdentityCode	The Maritime Mobile Service Identity (MMSI) Code is formed of a series of nine digits which are transmitted over the radio path in order to uniquely identify ship stations, ship earth stations, coast stations, coast earth stations, and group calls. These identities are formed in such a way that the identity or part thereof can be used by telephone and telex subscribers connected to the general telecommunications network principally to call ships automatically	0..1		
Attribute	informationMultilingual	Textual information about the object.	0..*	complex	
	textualDescription	The file name of an external text file that contains the text	0..*	text	
Attribute	sourceDate	The production date of the source, e.g. the date of measurement.	0..1	date	
Attribute	sourceIndication	Information about the source of the object.	0..1	?	

Role Name	Name	Description	Multiplicity	Data Type	Remarks
Class	ImoShipReport	This describes how a ship should report to a maritime authority, including when to report, what to report and whether the format conforms to the IMO standard.	-	-	
Attribute	categoryOfImoShipReport	?	0..1	CategoryOfImoShipReport	
Attribute	noticeTime	Span of time, prior to the time the service is needed, for preparations to be made to fulfil the requirement	0..*	complex	
Attribute	imoFormatForReporting	?	0..*	boolean	
Attribute	informationMultilingual	Textual information about the object.	0..*	complex	
Attribute	textualDescription	The file name of an external text file that contains the text	0..*	text	
Attribute	sourceDate	The production date of the source, e.g. the date of measurement.	0..1	date	

Role Name	Name	Description	Multiplicity	Data Type	Remarks
Attribute	sourceIndication	Information about the source of the object.	0..1	?	
Association	additionalInformation	Additional information is available	0..*	CharacteristicsOfVesselsCausingLimitations	

Role Name	Name	Description	Multiplicity	Data Type	Remarks
Class	Regulations	Regulations for a related area or facility.	-	-	
Attribute	categoryOfAuthority	?	1	CategoryOfAuthority	
Attribute	categoryOfRxN	The broad category or semantic group to which the information, regulation, restriction, or recommendation pertains. These broad categories may correspond to subdivision titles in sailing directions.	0..*	CategoryOfRxN	
Attribute	dateEnd	The attribute “date end” indicates the latest date on which an object (e.g. a buoy) will be present.	0..1	date	
Attribute	dateStart	The attribute “date, start” indicates the earliest date on which an object (e.g. a buoy) will be present.	0..1	date	
Attribute	objectName	The individual name of an object	0..*	text	
Attribute	periodicDateEnd	The end of the active period for a seasonal object (e.g. a buoy). See also “date end”.	0..1	date	
Attribute	periodicDateStart	The start of the active period for a seasonal object (e.g. a buoy). See also “date start”.	0..1	date	
Attribute	rxnCode	This attribute encodes the most common types of regulations (recommendations, restrictions).	0..*	RxNCode	
Attribute	pilotQualification	?	0..*	pilotQualification	
Attribute	informationMultilingual	Textual information about the object.	0..*	complex	

Role Name	Name	Description	Multiplicity	Data Type	Remarks
Attribute	scaleMaximum	The maximum scale at which the object may be used e.g. for ECDIS presentation. The modulus of the scale is indicated, that is 1:25 000 is encoded as 25000.	0..1	integer	
Attribute	scaleMinimum		0..1	integer	
Attribute	textualDescription	The file name of an external text file that contains the text	0..*	text	
Attribute	sourceDate	The production date of the source, e.g. the date of measurement.	0..1	date	
Attribute	sourceIndication	Information about the source of the object.	0..1	?	
Association	additionalInformation	Additional information is available	0..*	CharacteristicsOfVesselsCausingLimitations	

Role Name	Name	Description	Multiplicity	Data Type	Remarks
Class	ServiceHours	The time when a service is available and known exceptions.	-	-	
Attribute	dateEnd	The attribute “date end” indicates the latest date on which an object (e.g. a buoy) will be present.	0..1	date	
Attribute	dateStart	The attribute “date, start” indicates the earliest date on which an object (e.g. a buoy) will be present.	0..1	date	
Attribute	objectName	The individual name of an object	0..*	text	
Attribute	periodicDateEnd	The end of the active period for a seasonal object (e.g. a buoy). See also “date end”.	0..1	date	
Attribute	periodicDateStart	The start of the active period for a seasonal object (e.g. a buoy). See also “date start”.	0..1	date	
Attribute	workingDaysOfWeek	The working days of the week	0..1	complex	
Attribute	workingHoursOfDay	The working hours of the day for the port or service.	0..*	complex	
Attribute	informationMultilingual	Textual information about the object.	0..*	complex	
Attribute	textualDescription	The file name of an external text file that contains the text	0..*	text	
Attribute	sourceDate	The production date of the source, e.g. the date of measurement.	0..1	date	
Attribute	sourceIndication	Information about the source of the object.	0..1	?	

Role Name	Name	Description	Remarks
Enumeration	CategoryOfAuthority	?	See feature catalogue
Literal	-	-	

Role Name	Name	Description	Remarks
Enumeration	CategoryOfCargo	?	See feature catalogue
Literal	-	-	

Role Name	Name	Description	Remarks
Enumeration	categoryOfDangerousOrHazardousCargo	?	See feature catalogue
Literal	-	-	

…

Role Name	Name	Description	Remarks
Enumeration	Jurisdiction	The jurisdiction applicable to an administrative area	See feature catalogue
Literal	-	-	

4.2. Feature Catalogue

Name: Pilotage Information Feature Catalogue
Scope: Catalogue containing objects associated with pilotage information.
Field of application: Marine navigation
Version Number: 0.1
Version Date: 23 June 2009
Producer: International Hydrographic Organisation

4.2.1. Summary of Types

Register Dict.	Index	Alpha code	Name	Version Date
HYDRO	Feature	ADMARE	Administration Area	2000-11-01
HYDRO	Feature	PILBOP	Pilot Boarding Place	2000-11-01
NPUB	Feature	PLTSRV	Pilot Service	2009-06-19
NPUB	Information	CHALIM	Characteristics of Vessels Which Cause Limitations	2009-06-19
NPUB	Information	CONDET	Contact Details	2009-06-19
NPUB	Information	SHPREP	IMO Ship Report	2009-06-19
NPUB	Information	REGLTS	Regulations	2009-06-19
NPUB	Information	SRVHRS	Service Hours	2009-06-19
NPUB	Attribute	ADMDIV	Administrative division	2009-06-19
NPUB	Attribute	BALLAST	Ballast	2009-06-19
NPUB	Attribute	CALNAM	Call Name	2009-06-19
HYDRO	Attribute	CALSGN	Call Sign	2000-11-01
NPUB	Attribute	CATAUT	Category of Authority	2009-06-19
NPUB	Attribute	CATCGO	Category of Cargo	2009-06-19
NPUB	Attribute	CATDHC	Category of dangerous or hazardous cargo or ballast	2009-06-19
NPUB	Attribute	CATREP	Category of IMO Ship Report	2009-06-19
NPUB	Attribute	CATPLT	Category of Pilot	2000-06-19
HYDRO	Attribute	CATPIL	Category of Pilot Boarding Place	2000-11-01
NPUB	Attribute	CATPBP	Category of Pilot Boarding Place	2009-06-19
NPUB	Attribute	CATRXN	Category of Regulation / Restriction / Recommendation	2009-06-19
NPUB	Attribute	CATVSL	Category of Vessel	2009-06-19
NPUB	Attribute	CATRGY	Category of Vessel Registry	2009-06-19
NPUB	Attribute	CITYNM	City Name	2009-06-19
HYDRO	Attribute	COMCHA	Communication Channel	2000-11-01
NPUB	Attribute	CONTRY	Country	2009-06-19
HYDRO	Attribute	DATEND	Date end	2000-11-01
HYDRO	Attribute	DATSTA	Date start	2000-11-01
NPUB	Attribute	DYOFWK	Day of the week	2009-06-19
NPUB	Attribute	DYWKRN	Day of the week range	2009-06-19
NPUB	Attribute	DELPNT	Delivery Point	2009-06-19
NPUB	Attribute	DSTNTN	Destination	2009-06-19
NPUB	Attribute	EMAILS	Email Address	2009-06-19
NPUB	Attribute	NUMFAX	Fax number	2009-06-19
HYDRO	Attribute	INFORM	Information	2000-11-01

Register Dict.	Index	Alpha code	Name	Version Date
HYDRO	Attribute	INFOML	Information, multilingual	2009-06-19
HTDRO	Attribute	LANGGE	Language	2009-06-19
NPUB	Attribute	ADRNET	Internet Address	2009-06-19
HYDRO	Attribute	JRSDTN	Jurisdiction	2000-11-01
NPUB	Attribute	LIMTYP	Limitation Type	2009-06-19
NPUB	Attribute	GMLLCN	Location Name	2009-06-19
NPUB	Attribute	MMSICO	Maritime Mobile Service Identity (MMSI) Code	2009-06-19
NPUB	Attribute	MAXAIR	Maximum Air Draught	2009-06-19
NPUB	Attribute	MAXBRD	Maximum Breadth (Beam)	2009-06-19
NPUB	Attribute	MAXDPL	Maximum Displacement Tonnage	2009-06-19
NPUB	Attribute	MAXDRF	Maximum Draught	2009-06-19
NPUB	Attribute	MAXDWT	Maximum Deadweight Tonnage	2009-06-19
NPUB	Attribute	MAXGTN	Maximum Gross Tonnage	2009-06-19
NPUB	Attribute	MAXLOA	Maximum Overall Length	2009-06-19
NPUB	Attribute	MAXNTN	Maximum Net Tonnage	2009-06-19
NPUB	Attribute	MINDPL	Minimum Displacement Tonnage	2009-06-19
NPUB	Attribute	MINDWT	Minimum Deadweight Tonnage	2009-06-19
NPUB	Attribute	MINGTN	Minimum Gross Tonnage	2009-06-19
NPUB	Attribute	MINLOA	Minimum Overall Length	2009-06-19
NPUB	Attribute	MINNTN	Minimum Net Tonnage	2009-06-19
HYDRO	Attribute	NATION	Nationality	2000-11-01
NPUB	Attribute	NTCTIM	Notice Time	2009-06-19
NPUB	Attribute	NTCHRS	Notice Time in Hours	2009-06-19
NPUB	Attribute	NTCTXT	Notice Time Text	2009-06-19
HYDRO	Attribute	OBJNAM	Object Name	2000-11-01
NPUB	Attribute	PRFMNC	Performance	2009-06-19
NPUB	Attribute	PRFPIL	Preference of Pilot Boarding Place	2009-06-19
HYDRO	Attribute	PEREND	Periodic Date End	2000-11-01
HYDRO	Attribute	PERSTA	Periodic Date Start	2000-11-01
HYDRO	Attribute	PICREP	Pictorial Representation	2000-11-01
HYDRO	Attribute	PILDST	Pilot District	2000-11-01
NPUB	Attribute	PLTMOV	Pilot Movement	2000-11-01
NPUB	Attribute	PLTQFC	Pilot Qualification	2009-06-19
NPUB	Attribute	PLTRQS	Pilot Request	2009-06-19
NPUB	Attribute	PLTVSL	Pilot Vessel	2009-06-19
NPUB	Attribute	POSCOD	Postal Code	2009-06-19
NPUB	Attribute	RXNCOD	Regulation / restriction / recommendation code	2009-06-19
NPUB	Attribute	RMTPLT	Remote Pilot	2009-06-19
HYDRO	Attribute	SCAMAX	Scale maximum	2000-11-01
HYDRO	Attribute	SCAMIN	Scale minimum	2000-11-01
HYDRO	Attribute	SORDAT	Source Date	2000-11-01
HYDRO	Attribute	SORIND	Source Indication	2000-11-01
HYDRO	Attribute	STATUS	Status	2000-11-01
NPUB	Attribute	SVAPRC	Service Access Procedure	2009-06-19
NPUB	Attribute	ADRTLG	Telegraph Address	2009-06-19
NPUB	Attribute	NUMTEL	Telephone Number	2009-06-19
NPUB	Attribute	NMTLOW	Telephone Number Outside Working Hours	2009-06-19
HYDRO	Attribute	TXTDSC	Textual Description	2000-11-01

Register Dict.	Index	Alpha code	Name	Version Date
NPUB	Attribute	ICECAP	Thickness of Ice Capability	2009-06-19
NPUB	Attribute	TIMENW	Time of End of Work	2009-06-19
NPUB	Attribute	TIMSTW	Time of Start of Work	2009-06-19
NPUB	Attribute	TIMREF	Time Reference	2009-06-19
NPUB	Attribute	WKDYWK	Working Days of Week	2009-06-19
NPUB	Attribute	WKHRDY	Working Hours of Day	2009-06-19

4.2.2. Definition Sources

IMDG	International Maritime Dangerous Goods (IMDG) Code
IMO A.851(20)	General Principles For Ship Reporting Systems And Ship Reporting Requirements, Including Guidelines For Reporting Incidents Involving Dangerous Goods, Harmful Substances And/Or Marine Pollutants. IMO Resolution A 851(20) adopted 27 November 1997
INT 1	Symbols, Abbreviations, Terms used on Charts. IHO
ISO 639-1	Codes for the representation of names of languages - Part 1: Alpha-2 code. International Standards Organisation, 2002. URL: http://www.infoterm.info/standardization/iso_639_1_2002.php retrieved 13 July 2009.
ISO 639-2	Codes for the representation of names of languages - Part 2: Alpha-3 code. International Standards Organisation, 1998. URL: http://www.loc.gov/standards/iso639-2/ retrieved 13 July 2009
ISO 3166-1	Codes for the representation of names countries and their subdivisions - Part 1: Country codes. International Standards Organisation.
M-3	Resolutions of the International Hydrographic Organisation. IHO Publication M-3, July 2007.
M-4	Regulations of the IHO for international charts and chart specifications of the IHO. IHO Publication M-4, Edition 3.006, April 2009.
MARPOL 73/78	International Convention for the Prevention of Pollution from Ships, modified by Protocol of 1978. http://www.imo.org/
S-52 A.2	Colour and Symbol specifications for ECDIS, IHO S-52, App. 2, ed. 4.3, 2008, IHO.

4.3. Feature Types

4.3.1. Meta Feature Types

Meta features contain information about other features within a data set. Information defined by meta features override the default metadata values defined by the data set descriptive records. All meta objects are defined in the S-101 Feature Catalogue. S-10? follows the S-101 definitions.

4.3.2. Geographic Feature Types

Geographic feature types form the principle content of navigation chart products (see S-101.)

Pilotage information, in contrast, principally consists of information object types and their attributes. The ratio of info types to geo types in pilotage is 8:3. This is an important distinction.

At this time the best understood S-100 application for digital pilotage information is ECDIS, which is primarily a geographic navigation tool. Hence, S-10? is designed to organize pilotage information around

geo feature types, for the sake of the ECDIS user interface. The pilotage info types provide information and instructions in relation to three primary geographic feature classes:

- national or regional administrative jurisdictions,
- pilot service areas, and
- pilot boarding places.

A hierarchical relationship between these three geo classes is required: The administrative area which has authority over one or more pilot service areas must spatially contain the affected pilot service areas. Similarly, pilot service areas must contain the pilot boarding places they manage. Artificial associations between admin areas, pilot services, and pilot boarding places are not specified or needed. These relationships are spatially enforced.

In order to achieve the additional benefits of incorporating pilotage sailing directions in ECDIS, producers of geographic products will have to apply the same diligence in design of these 3 geographic features as producers of the nautical information must apply in preparation of the digital sailing directions data.

4.3.3. Theme Feature Types

Theme features are a special kind of collection object. They do not define a feature itself but group other features together. The reasons for the grouping are mostly thematic, other reasons are possible. Each feature object may belong to more than one theme. Themes are therefore not mutually exclusive. Since the kind of association from a theme object to its members (and vice versa) is not variable, the encoding of this type of association is different from the other feature associations. No themes are specifically defined in S-10? in this version. Developers should be mindful that the object classes used in S-10? may participate in a variety of themes for other purposes.

4.3.4. Aggregated Feature Types

Feature with a use type of aggregated can have multiple associations to other feature types. No aggregations are specified in S-10?, but features utilized here may participate in aggregations in other specifications.

4.4. Time Varying Features

ENC may contain temporal geographic features such as tides. S-101 provides detail on temporal geographic features. The geographic features used in S-10? may change over time, but they are not temporal geographic features.

An important distinction: although the geo objects used in pilotage are static features, the information objects associated to them are rich in time-varying content. Please refer to Information Types, below.

4.5. Information Types

Information types are identifiable pieces of information in a cell that can be shared between other features. They have attributes like all feature types but have no geometry of their own. Information types may reference other information types and may reference feature types, as is the case in S-10?.

4.5.1. Conditional Information and Sequences of Instructions

Pilotage and most other nautical information topics are characterized by highly conditional information (e.g., “pilot boards at location X, except in poor weather pilot may board at location Y or Z”) and step-wise sequences of instructions. In S-10?, diligence has been given to supporting the encoding of interrelated, conditional statement, sequences of instructions, and time-varying information. However, it must be understood that there are limits in the ability of encoded, discrete data to communicate conditional

information such as pilotage instructions to the mariner. There are many situations in pilotage content where the most effective solution is to present the information textually.

4.6. Feature integrity

4.6.1. Feature level CRC values

S-10? follows the specifications for CRC data quality assurance defined in S-101.

4.7. Attributes

4.7.1. Complex Attributes

S-10? follows the S-100 definitions of complex attributes. Complex attributes are used extensively in S-10? to distinguish and classify:

- Temporal variables, e.g. notice time and the conditions surrounding notice time
- Language localization for named objects, places, and text content.

4.7.2. Numeric Attribute Values

S-10? follows S-100.

4.7.3. Text Attribute Values

S-10? follows S-100.

4.7.4. Text Formatting and Portrayal

Effective communication of pilotage information found in sailing directions requires an ability to format and layout text content that is beyond the guidelines found in S-100 at this time.

Note also that the rules specified in S-52 for portrayal of text and graphics are inadequate for a new generation of ECDIS intended to serve as an integrated system for navigation charting and nautical information found in sailing directions and other publications. S-10? Version ?? cannot entirely resolve this issue. This version provides a means to classify the information with integrity, but will require an improved level of cooperation between the HSSC working groups to define an effective solution for text formatting and portrayal.

4.7.5. Mandatory Attribute Values

S-10? follows S-100.

All mandatory attributes are identified in the feature catalogue.

4.7.6. Unknown Mandatory Attribute Values

S-10? follows S-100.

4.8. Associations

S-10? specifies associations between information objects and between information objects and geographic objects. No associations between geographic types is required in S-10?.

4.9. Roles

S-10? follows S-100.

4.10. Cells

The contents of this section are to be determined.

4.11. Unique Universal Identifier

Each feature and information type must have a unique universal identifier (UUID). The UUID may be used to identify multiple instances of the same feature. For example, the same feature may appear in different display scales, or a feature may be split by the cell structure. in these circumstances each instance of this feature may have the same identifier. UUIDs must not be reused even when a feature has been deleted.

4.12. Scale Independent and Scale Dependent

S-10? geo features generally follow the S-101 specifications for scale dependency. Certain attributes of features in S-10? and its information types can be text-intensive; portrayal of this content requires appropriate design augmenting existing standards to serve integrated text and nautical information applications. The figure below shows the content of cells in the various scopes.

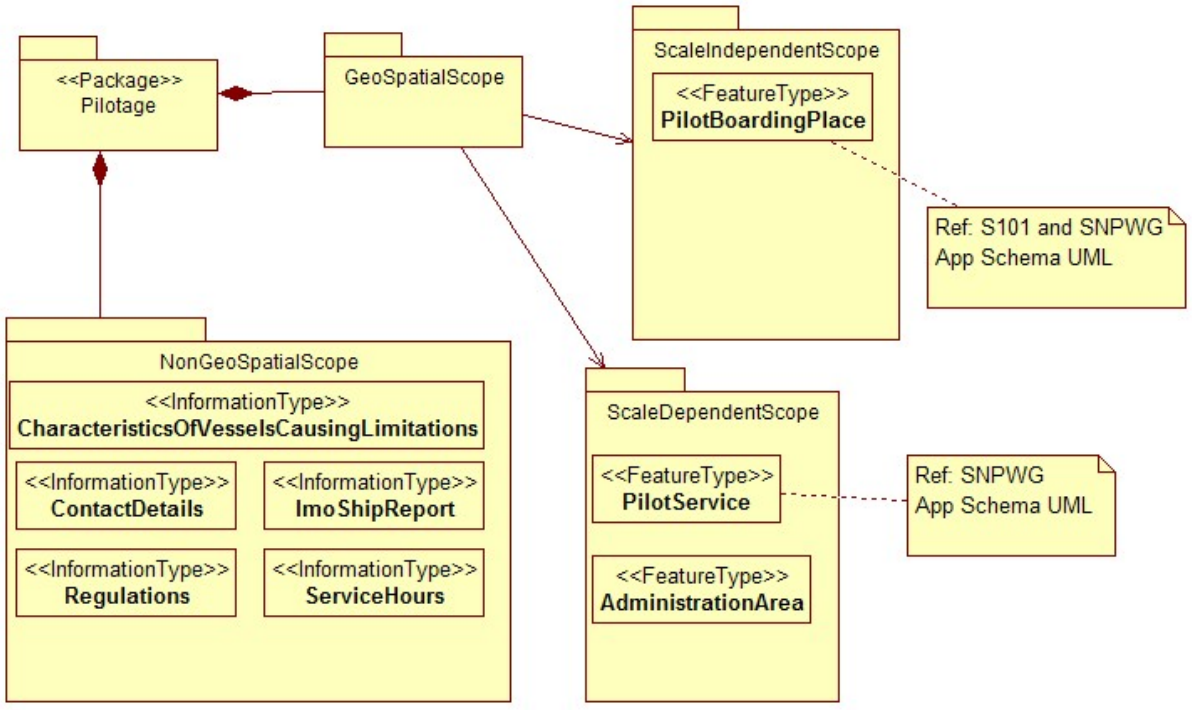

Figure 5. Relationships of scale dependent, scale independent, and pilotage packages to scopes

5. Coordinate Reference Systems

Spatial Reference System WGS84

6. Data Quality

IHO Data Quality Working Group (DQWG) should be consulted. HSSC should be asked to amend the terms of reference of the DQWG to include nautical publications information quality.

7. Data Capture and Classification

Data source Hydrographic Office; Pilot organisation; Port Authorities
Production Process TBD

The data capture and classification guide does not cover each and every concept that can be expressed using the objects, attributes, and roles in the feature catalogue, since the descriptions in the feature catalogue suffice for the simpler concepts. The data capture and classification guide covers only the more difficult concepts or combinations. Section 7.1 below contains a sample.

7.1. Regulations

Regulations applicable to an area are encoded as one or more information object REGLTS (Regulations) associated with an ADMARE (Administration Area) object covering the area. Optionally, the text of the regulation may be contained in the REGLTS/INFOML attribute or in a file named in the REGLTS/TXTDSC attribute.

Geo Object: Administration Area (ADMARE)
Attributes:
JRSDTN = 3 (national sub-division)
NATION = ISO 3166 code
OBJNAM = Name of area

Information Object: Regulations (REGLTS)
Attributes:
CATRXN = 1 (pilotage)
RXNCOD = select appropriate code from values list for RXNCOD
PLTQFC = appropriate code from value list; use this attribute if regulation requires that pilot have one of the listed license types)
INFOML = text of the regulation
TXTDSC = file name of file containing regulation text

7.1.1. Regulations applying only to selected vessels

Regulations applying only to selected vessels are encoded by attaching a CHALIM (CharacteristicsOfVesselCausingLimitations) object to the REGLTS object by means of an information association from the REGLTS object to the CHALIM object. The attribute LimitationType (LIMTYP) is used to describe the nature of the limitation. If none of the listed values of LIMTYP apply, this attribute must be null. The attributes describing the vessel characteristics must be used to encode the characteristic upon which the limitation depends. For example, to encode a regulation that applies only to vessels exceeding a draft of 12.0 metres, use LIMTYP=10 and MAXDRF=12.0.

Note that the specification of CHALIM uses logical disjunction for combinations of the attributes describing vessel characteristic, i.e., if a CHALIM object has MAXDRF=10.0 and MAXBRD=5.0 (and LIMTYP=10), the regulation with which this CHALIM is associated applies to vessels that have EITHER draft of 10.0 metres or more, OR beam 5.0 metres or more, OR both.

DATSTA/DATEND and PERSTA/PEREND may be used to specify the dates or period respectively during which the limitation applies.

Note also that CHALIM may not be able to express all combinations of limitations that might exist. In this case use INFOML or TXTDSC to describe the limitation in words.

Information Object: CharacteristicsOfVesselCausingLimitations (CHALIM)
Attributes:
LIMTYP = select appropriate value from values list

CATCGO	CATDHC	CATVES	ICECAP	MAXAIR	MAXBRD
MAXDPL	MAXDWT	MAXGTN	MAXLOA	MAXNTN	MINDPL
MINDWT	MINGTN	MINNTN			
DATSTA	DATEND	PERSTA	PEREND		

8. Data Product Format

Data product formats are to be determined.

9. Data Product Delivery

Data product delivery is to be determined.

10. Data Maintenance

Maintenance and update frequency	As needed
Data source	TBD
Production process	TBD

11. Portrayal

Portrayal library citation	Colour and Symbol specifications for ECDIS, IHO S-52, App. 2, ed. 4.3, 2008. (to be updated for S-100 and nautical publications).

Portrayal rules for nautical publications information remain to be determined. IHO Digital Information Portrayal Working Group (DIPWG) must be consulted

Selected extracts from S-52 Ed. 4.3 sections 3.1.5 and 3.4 (repeated with insignificant changes in Draft S-52 Ed. 6, Winter 2009. sections 3.1.5 and 3.4):

> *From S. 3.1.5:*
> *Lines and symbols and text should be large enough that they can be easily interpreted at the operational viewing distance. This will be about 70 cm for route planning, but experience to date indicates that the viewing distance for important features during route monitoring may be several metres.*
> *Human factors experts quote a minimum requirement that symbols and characters subtend 20 arc minutes at the observers eye (for example, a symbol viewed from 70cm for route planning should be about 4mm in size, 1.5 times the size of a normal chart symbol. Two times chart size is a good general rule.) Symbols and characters important for route monitoring may have to be significantly bigger.*
>
> *For clear representation, symbols require a minimum number of screen units (pixels), depending on their complexity. A simple chart symbol should extend about 12 pixels (that is about 4mm for an IHO standard screen.)*

The minimum sizes for all symbols should be as shown in the Presentation Library.
In addition, the symbols should always be drawn with at least the same number of pixels as are required to draw the symbol at the size defined in the Library for the minimum resolution and minimum chart display area (270x270 mm). *That is, the minimum height in pixels of a symbol is: (symbol height in mm) divided by 0.312 mm (where 0.312 mm is the "pixel size" for the minimum size chart display in S-52 section 8 - Display Resolution).* When the display scale is enlarged by zooming in, it should be possible to hold symbol size constant. The same applies to text. Symbol and text size should never be decreased when zooming out.

The text on the ECDIS should be readable from 1 metre. Sans serif, non-italic fonts should be used. The computer ø should not be used.

Because several appropriate commercial fonts are available, the Presentation Library does not specify alphanumerics, except for soundings. The manufacturer should make his own arrangements for the use of a font. A plain, clearly readable font such as Univers should be used. In most fonts, pica 8 is too small too read. IEC 60945 specifies that character size in mm be not less than 3.5 x the viewing distance in metres. Hence "readable from 1 metre" requires that characters be not less than 3.5 mm in size.

From S. 3.4:
Text as part of the route monitoring display
Text information should be used on the route monitoring display only when unavoidable, since it has to be written large to be readable and so causes clutter.
Details of displaying text are given in 3.1.5 and in the Presentation Library.

Text windows, explanatory diagrams etc. superimposed on the route monitoring display
The 270mm by 270mm minimum area of chart presentation for route monitoring should normally be used for chart and navigation information alone.
Any windows containing text, diagrams, etc superimposed on the route monitoring display should be temporary, and should not obscure important chart or navigational information. Such windows should use only the "User Interface" colours from the Presentation Library. It should be possible for the mariner to relocate a window in a less important part of the display, such as on land, or behind the ship.

Separate text panel on the same screen as the route monitoring display
A Mariner's Information Panel, consisting mainly of text (alphanumerics), might include:
- ECDIS alarms and indications, e.g. “crossing safety contour",
- navigation information, e.g. time, position, course to make good, etc.,
- chart information, e.g. contour selected for own-ship safety contour,
- supplementary chart information, e.g. tide tables, sailing directions,
- interface dialogue, e.g. "change to night colour table".
- etc.
Sea experience has shown that the text panel on the route monitoring display may have a prominence out of proportion to its significance to safety of navigation. This is particularly damaging to ECDIS performance at night, when the strictly dimmed chart display, which carries nearly all of the information of importance to navigation, may be overwhelmed by the light emitted from large, bold or bright characters on the text display, some conveying relatively unimportant information.
The text panel should be outside the 270 by 270 mm minimum area designated for the route monitoring chart display by the IMO PS. The colours, symbols and luminance of this user interface panel should not degrade the SENC information on the chart display.
At night it is essential that any interface panel or other information added by the manufacturer to the screen carrying the chart display should never generate more light than the chart display itself. Great care is taken to reduce the light emitted by the chart in order to preserve the mariners night vision, and it is dangerous to ship safety if added non-chart information defeats that purpose.
It is particularly important to limit the information shown using the conspicuous colour token "UINFD", which is reserved for important information. Even a small panel of text in this colour can produce more light on the bridge than the entire route monitoring chart display.

Text shown on a separate auxiliary screen
A separate screen may be provided for text display, either instead of or in addition to a panel on the main screen used for the route monitoring display. The presentation on this auxiliary screen need not follow these specifications in detail, but should conform in general, to avoid confusion, and should meet the same bridge lighting constraints.
All information displays should be designed in accordance with ergonomic principles.

12. Additional Information

TBD.

13. Metadata

Name	Cardinality	Value	Type	Remarks
DataSetDiscoveryMetadata	-		-	-
metadataFileIdentifier	1		CharacterString	
metadataPointOfContact	1		CI_ResponsibleParty	
metadataDateStamp	1		Date	
metadataLanguage	1	English	CharacterString	All data sets conforming to S-101 PS must use English language
fileName	1		CharacterString	Dataset file name
filePath			CharacterString	Full path from the exchange set root directory
abstract	1		CharacterString	Short description of the area covered by dataset harbour or port name, between two named locations etc.
dataProtection	1	{1} to {2}	CharacterString	1. Encrypted 2. Unprotected
purpose	1	{1} to ?	CharacterString	
specificUsage	1	{1} to ?	CharacterString	1. Port Entry and Departure [Others TBD.]
editionNumber	1		CharacterString	TBD
updateNumber	1		CharacterString	TBD
updateApplicationDate	0..1		Date	TBD
issueDate	1		Date	TBD
productSpecification	1		S-10? ProductSpecification	This must be encoded as S-10?
producingAgency	1		CI_ResponsibleParty	
displayScale	1	?	double	TBD
horizontalDatum	1		CharacterString	
dataType	1		S-100_DataFormat	
otherDataTypeDescription	0..1		CharacterString	
boundingBox	1		EX_GeographicBoundingBox	
boundingPolygon	1		EX_BoundingPolygon	
comment	0..1		CharacterString	
cyclicRedundancyCheck	1		CharacterString NonNegativeInteger	
layerId	1..*		Double	Identifies the relationship to other layers that are required to view the complete data set.

Annex A. Named Types

Geo Object Class: Administration Area (Named)

Alpha code: **ADMARE**

Camel case: **AdministrationArea**

Abstract type: False

Definition: A defined (and possibly named) administrative area.

References: INT 1: not specified; M-4: not specified;

Remarks: No remarks.

Spatial Objects: Area (GM_Polygon)

Distinction: land region; contiguous zone; continental shelf area; exclusive economic zone; fishery zone; territorial sea area;

Attribute	Camel case	Alpha code	Cardinality	Sequential
Jurisdiction	jurisdiction	JRSDTN	1	
Nationality	nationality	NATION	0..1	
Object Name	objectName	OBJNAM	0..*	False
Information, multilingual	informationMultilingual	INFOML	0..*	False
Scale maximum	scaleMaximum	SCAMAX	0..1	
Pictorial representation	pictorialRepresentation	PICREP	0..1	
Scale minimum	scaleMinimum	SCAMIN	0..1	
Textual description	textualDescription	TXTDSC	0..*	False
Source date	sourceDate	SORDAT	0..1	
Source indication	sourceIndication	SORIND	0..1	

Information feature	Camel case	Alpha code	Cardinality
Regulations	Regulations	REGLTS	0..*
IMO ship report	ImoShipReport	SHPREP	0..*

Geo Object Class: Pilot boarding place Alpha code: **PILBOP**

Camel case: **PilotBoardingPlace** Abstract type: False

Definition: The meeting place to which the pilot comes out. (IHO Chart Specs, M-4)

References: INT 1: IT 1.1-4; M-3: ? M-4: 491.1 2;

Remarks: No remarks.

Spatial Objects: Point (GM_Point); Area (GM_Polygon)

Distinction: No distinctions.

Attribute	Camel case	Alpha code	Cardinality	Sequential
Call Sign	callSign	CALSGN	1	
Category of pilot boarding place	categoryOfPilotBoardingPlace	CATPIL	1	
Category of vessel	categoryOfVessel	CATVSL	0..*	False
Communication Channel	communicationChannel	COMCHA	1..*	False
Date, end	dateEnd	DATEND	0..1	
Date, start	dateStart	DATSTA	0..1	
Destination	destination	DSTNTN	0..*	False
Notice Time	noticeTime	NTCTIM	0..*	True
Object Name	objectName	OBJNAM	0..*	False
Periodic date end	periodicDateEnd	PEREND	0..1	
Periodic date start	periodicDateStart	PERSTA	0..1	
Pilot district	pilotDistrict	PILDST	0..*	False
Pilot movement	pilotMovement	PLTMOV	0..*	False
Pilot request	pilotRequest	PLTRQS	0,,*	True
Pilot vessel	pilotVessel	PLTVSL	0..1	
Preference of pilot boarding place	preferenceOfPilotBoardingPlace	PRFPIL	1	
Status	status	STATUS	0..*	False
Service access procedure	serviceAccessProcedure	SVAPRC	0..*	False
Information, multilingual	informationMultilingual	INFOML	0..*	False
Scale max	scaleMaximum	SCAMAX	0..1	
Scale minimum	scaleMinimum	SCAMIN	0..1	
Textual description	textualDescription	TXTDSC	0..*	
Source date	sourceDate	SORDAT	0..1	
Source indication	sourceIndication	SORIND	0..1	

Information feature	Camel case	Alpha code	Cardinality
Service hours	ServiceHours	SRVHRS	0..*
Characteristics of vessels which cause limitations	CharacteristicsOfVesselsCausingLimitations	CHALIM	0..*

Geo Object Class: Pilot service

Alpha code: **PLTSRV**

Camel case: **PilotService**

Abstract type: False

Definition: The area where pilotage services are available. Pilotage is a service provided by a person who directs the movements of a vessel through pilot waters, usually a person who has demonstrated extensive knowledge of channels, aids to navigation, dangers to navigation, etc., in a particular area and is licensed for that area. (adapted from IHO Dictionary, S-32, 5th Edition, 3843)

References: INT 1: not specified; M-3: Chapter C Section C 2.8; M-4: not specified;

Remarks: The name of this object may be the same as the Pilot District of the associated PILBOPs.

Spatial Objects: Area (GM_Polygon)

Distinction: No distinctions.

Attribute	Camel case	Alpha code	Cardinality	Sequential
Category of pilot	categoryOfPilot	CATPLT	1..*	False
Date end	dateEnd	DATEND	0..1	
Date start	dateStart	DATSTA	0..1	
Notice Time	noticeTime	NTCTIM	0..*	False
Object Name	objectName	OBJNAM	0..*	False
Periodic date end	periodicDateEnd	PEREND	0..1	
Periodic date start	periodicDateStart	PERSTA	0..1	
Pilot district	pilotDistrict	PILDST	0..*	False
Pilot qualification	pilotQualification	PLTQFC	0..1	
Pilot request	pilotRequest	PLTRQS	0..1	
Remote pilot	remotePilot	RMTPLT	0..1	
Information, multilingual	informationMultilingual	INFOML	0..*	False
Scale max	scaleMaximum	SCAMAX	0..1	
Scale minimum	scaleMinimum	SCAMIN	0..1	
Textual description	textualDescription	TXTDSC	0..*	False
Source date	sourceDate	SORDAT	0..1	
Source indication	sourceIndication	SORIND	0..1	

Information feature	Camel case	Alpha code	Cardinality
Contact details	ContactDetails	CONDET	0..*
Service hours	ServiceHours	SRVHRS	0..*

Information Object Class: Characteristics of vessels which cause limitations Alpha code: **CHALIM**

Camel Case: **CharacteristicsOfVesselsCausingLimitations** Abstract type: False

Definition: Characteristics of vessels (by construction, cargo or performance), which limit the passage of vessels, or the use by vessels, of an area or facility.

References: INT 1: unspecified; M-3: Chapter C, Section C 3.3 M-4: unspecified;

Remarks: This object is used to describe the characteristics of vessels, which limit the passage of a vessel, or the use of a facility by a vessel, because the vessel is:
• carrying ballast water.
• matches one of the values in the ship type, cargo type or dangerous or hazardous cargo type attributes;
• or does not match the performance requirements;
• or exceeds one of the “max” attributes;
• or is less than one of the “min” attributes.
As an example of how this information object could be used, ship dimensions or type of cargo could be used in combination with a related geographic object, in which regulations (e.g. length limit or type of cargo restrictions) apply.

Distinction: No distinctions.

Attribute	**Camel case**	**Alpha code**	**Cardinality**	**Sequential**
Ballast	ballast	BALAST	0..1	
Category of cargo	categoryOfCargo	CATCGO	0..*	False
Category of dangerous or hazardous cargo or ballast	categoryOfDangerousOrHazardousCargo	CATDHC	0..1	
Category of vessel	categoryOfVessel	CATVSL	0..*	False
Date end	dateEnd	DATEND	0..1	
Date start	dateStart	DATSTA	0..1	
Thickness of ice capability	thicknessOfIceCapability	ICECAP	0..1	
Limitation type	limitationType	LIMTYP	0..1	
Maximum air draught	maximumAirDraught	MAXAIR	0..1	
Maximum breadth (beam)	maximumBreadth	MAXBRD	0..1	
Maximum displacement tonnage	maximumDisplacementTonnage	MAXDPL	0..1	
Maximum draught	maximumDraught	MAXDRF	0..1	
Maximum deadweight tonnage	maximumDeadweightTonnage	MAXDWT	0..1	
Maximum gross tonnage	maximumGrossTonnage	MAXGTN	0..1	
Maximum overall length	maximumOverallLength	MAXLOA	0..1	
Maximum net tonnage	maximumNetTonnage	MAXNTN	0..1	

Minimum displacement tonnage	minimumDisplacementTonnage	MINDPL	0..1	
Minimum deadweight tonnage	minimumDeadweightTonnage	MINDWT	0..1	
Minimum gross tonnage	minimumGrossTonnage	MINGTN	0..1	
Minimum overall length	minimumOverallLength	MINLOA	0..1	
Minimum net tonnage	minimumNetTonnage	MINNTN	0..1	
Object Name	objectName	OBJNAM	0..*	False
Periodic date end	periodicDateEnd	PEREND	0..1	
Periodic date start	periodicDateStart	PERSTA	0..1	
Performance	performance	PRFMNC	0..1	
Information, multilingual	informationMultilingual	INFOML	0..*	False
Source date	sourceDate	SORDAT	0..1	
Source indication	sourceIndication	SORIND	0..1	

Information feature	**Camel case**	**Alpha code**	**Cardinality**
Regulations	Regulations	REGLTS	0..*
IMO Ship Report	ImoShipReport	SHPREP	0..*

Information Object Class: Contact Details Alpha code: **CONDET**

Camel Case: **ContactDetails** Abstract type: False

Definition: Information on how to reach a person or organisation by postal, internet, telephone, telex and radio systems.

References: M-3: unspecified;

Remarks: No remarks.

Distinction: No distinctions.

Attribute	**Camel case**	**Alpha code**	**Cardinality**	**Sequential**
Call name	callName	CALNAM	0..1	
Call sign	callSign	CALSGN	1	
Communication channel	communicationChannel	COMCHA	1..*	False
Date end	dateEnd	DATEND	0..1	
Date start	dateStart	DATSTA	0..1	
Object Name	objectName	OBJNAM	0..*	False
Periodic date end	periodicDateEnd	PEREND	0..1	
Periodic date start	periodicDateStart	PERSTA	0..1	
Delivery point	deliveryPoint	DELPNT	0..*	False
City name	cityName	CITYNM	0..1	
Administrative division	administrativeDivision	ADMDIV	0..1	
Postal code	postalCode	POSCOD	0..1	
Country	country	CONTRY	0..1	
Email address	emailAddress	EMAILS	0..1	
Telephone number	telephoneNumber	NUMTEL	0..1	
Telephone number outside working hours	telephoneNumberOutsideWorkingHours	NMTLOW	0..1	
Fax number	faxNumber	NUMFAX	0..1	
Telex number	telexNumber	NUMTLX	0..1	
Internet address	internetAddress	ADRNET	0..1	
Telegraph address	telegraphAddress	ADRTLG	0..1	
Maritime Mobile Service Identity (MMSI) Code	maritimeMobileServiceIdentityCode	MMSICO	0..1	
Information, multilingual	informationMultilingual	INFOML	0..*	False
Textual description	textualDescription	TXTDSC	0..*	False
Source date	sourceDate	SORDAT	0..1	
Source indication	sourceIndication	SORIND	0..1	

Information Object Class: IMO Ship report — Alpha code: **SHPREP**

Camel Case: **ImoShipReport** — Abstract type: False

Definition: This describes how a ship should report to a maritime authority, including when to report, what to report and whether the format conforms to the IMO standard.

References: IMO Resolution A 851(20) adopted 27 November 1997

Remarks: TXTDSC and NTXTDS are used to describe non-standard ship reports. The Associated Information Object chalim indicates characteristics of vessels which use this report.

Attribute	Camel case	Alpha code	Cardinality	Sequential
Category of IMO ship report	categoryOfImoShipReport	CATREP	1	
Notice Time	noticeTime	NTCTIM	0..*	False
IMO format for reporting	imoFormatForReporting	IMOREP	0..1	
Information, multilingual	informationMultilingual	INFOML	0..*	False
Textual description	textualDescription	TXTDSC	0..*	False
Source date	sourceDate	SORDAT	0..1	
Source indication	sourceIndication	SORIND	0..1	

Information feature	Camel case	Alpha code	Cardinality
Characteristics of vessels which cause limitations	CharacteristicsOfVesselsCausingLimitations	CHALIM	0..*

Information Object Class: Regulations

Alpha code: **REGLTS**

Camel Case: **Regulations**

Abstract type: False

Definition: Regulations for a related area or facility.

References: INT 1: M-3: Chapter C 2.2.1, C 2.7, C 2.8, C 3.19, C 3.21 M-4:

Remarks: No remarks.

Distinctions: natinf; rcmdts; resdes;

Attribute	Camel case	Alpha code	Cardinality	Sequential
Category of authority	categoryOfAuthority	CATAUT	1	
Category of Regulation / Restriction / Recommendation	categoryOfRxN	CATRXN	0..*	False
Date, end	dateEnd	DATEND	0..1	
Date, start	dateStart	DATSTA	0..1	
Object Name	objectName	OBJNAM	0..*	False
Periodic date end	periodicDateEnd	PEREND	0..1	
Periodic date start	periodicDateStart	PERSTA	0..1	
Regulation / restriction / recommendation code	rxnCode	RXNCOD	0..*	False
Pilot qualification	pilotQualification	PLTQFC	0..*	False
Information, multilingual	informationMultilingual	INFOML	0..*	False
Scale max	scaleMaximum	SCAMAN	0..1	
Scale minimum	scaleMinimum	SCAMIN	0..1	
Textual description	textualDescription	TXTDSC	0..*	False
Source date	sourceDate	SORDAT	0..1	
Source indication	sourceIndication	SORIND	0..1	

Information feature	Camel case	Alpha code	Cardinality
Characteristics of vessels which cause limitations	CharacteristicsOfVesselsCausingLimitations	CHALIM	0..*

Information Object Class: Service hours

Alpha code: **SRVHRS**

Camel Case: **ServiceHours**

Abstract type: False

Definition: The time when a service is available and known exceptions.

References: M-3:

Remarks: No remarks.

Attribute	**Camel case**	**Alpha code**	**Cardinality**	**Sequential**
Date, end	dateEnd	DATEND	0..1	
Date, start	dateStart	DATSTA	0..1	
Object Name	objectName	OBJNAM	0..*	False
Periodic date end	periodicDateEnd	PEREND	0..1	
Periodic date start	periodicDateStart	PERSTA	0..1	
Working days of week	workingDaysOfWeek	WKDYWK	0..1	
Working hours of day	workingHoursOfDay	WKHRDY	0..*	True
Information, multilingual	informationMultilingual	INFOML	0..*	False
Textual description	textualDescription	TXTDSC	0..*	False
Source date	sourceDate	SORDAT	0..1	
Source indication	sourceIndication	SORIND	0..1	

Annex B. Property Types

Attribute: Administrative division
Attribute type: Simple
Camel case: administrativeDivision

Alpha code: ADMDIV

Data Type: text

Definition: Administrative division is a generic term for an administrative region within a country at a level below that of the sovereign state.

Remarks: admdiv is used in the context of contact details.
Distinction: ADMARE

Attribute: Ballast
Alpha code: BALAST
Attribute type: Simple
Camel case: ballast
Data Type: Boolean

Definition: True: Vessel is predominantly empty of cargo and stabilised with the use of ballast water
False: Vessel is carrying cargo and is not ballasted.

Remarks: No remarks.

Attribute: Call name | Alpha code: CALNAM
Attribute type: Simple
Camel case: callName | Data Type: text

Definition: The designated call name of a station, e.g. radio station, radar station, pilot. This is the name used when calling a radio station by radio i.e. "Singapore Pilots".
Distinction: CALSGN - The designated call-sign of a radio station i.e. "WWVB" for Fort Collins, Colorado.

References: INT 1: not specified; M-3: M-4: not specified;

Remarks: No remarks.

Attribute: Call sign
Attribute type: Simple
Camel case: callSign

Alpha code: CALSGN

Data Type: text

Definition: The designated call-sign of a radio station.

References: INT 1: not specified; M-4: not specified;

Remarks: No remarks.

Attribute: Category of authority
Attribute type: Simple
Camel case: categoryOfAuthority

Alpha code: CATAUT

Data Type: Enumeration

Definition: ?

Values:

Code	Name	Definition
1	customs	The agency or establishment for collecting duties, tolls. (Merriam-Websters online Dictionary 23rd February 2006, amended).
2	border control	The administration to prevent or detect and prosecute violations of rules and regulations at international boundaries (adapted from Merriam-Websters online Dictionary 23rd February 2006).
3	police	The department of government, or civil force, charged with maintaining public order. (Adapted from OED)
4	port	Person or corporation, owners of, or entrusted with or invested with the power of managing a port. May be called a Harbour Board, Port Trust, Port Commission, Harbour Commission, Marine Department (NP 100 8th Edition 14 Oct 2004)
5	immigration	The authority controlling people entering a country.
6	health	The authority with responsibility for checking the validity of the health declaration of a vessel and for declaring free pratique.
7	coast guard	Organisation keeping watch on shipping and coastal waters according to governmental law; normally the authority with responsibility for search and rescue.
8	agricultural	The authority with responsibility for preventing infection of the agriculture of a country and for the protection of the agricultural interests of a country
9	military	A military authority which provides control of access to or approval for transit through designated areas or airspace.
10	private company	a private or publicly owned company or commercial enterprise which exercises control of facilities, for example a calibration area.
11	maritime police	a governmental or military force with jurisdiction in territorial waters. Examples could include Gendarmerie Maritime, Carabinierie, and Guardia Civil.
12	environmental	an authority with responsibility for the protection of the environment.
13	fishery	an authority with responsibility for the control of fisheries.
14	finance	an authority with responsibility for the control and movement of money
15	maritime	a national or regional authority charged with administration of maritime affairs.

References: INT 1: unspecified; M-4: unspecified;

Remarks: No remarks.

Attribute: Category of cargo
Attribute type: Simple
Camel case: categoryOfCargo

Alpha code: CATCGO

Data Type: Enumeration

Definition: ?

Values:

Code	Name	Definition
1	bulk	Normally dry cargo which is transported to and from the vessel on conveyors
2	container	One of a number of standard sized cargo carrying units, secured using standard corner attachments and bars
3	general	Break bulk cargo normally loaded by crane
4	liquid	Any cargo loaded by pipeline
5	passenger	A fee paying traveller
6	livestock	Live animals carried in bulk
7	dangerous or hazardous	Dangerous or hazardous cargo as described by the IMO International Maritime Dangerous Goods code

References: : INT 1: unspecified; M-4: unspecified;

Remarks: If item 7 is used, the nature of dangerous or hazardous cargoes can be amplified with category of dangerous or hazardous cargo

Attribute: Category of dangerous or hazardous cargo or ballast — Alpha code: CATDHC
Attribute type: Simple
Camel case: categoryOfDangerousOrHazardousCargo — Data Type: Enumeration

Definition: ?

Values:

Code	Name	Definition
1	Class 1; Division 1.1	Explosives, Division 1: substances and articles which have a mass explosion hazard
2	Class 1; Division 1.2	Explosives, Division 2: substances and articles which have a projection hazard but not a mass explosion hazard
3	Class 1; Division 1.3	Explosives, Division 3: substances and articles which have a fire hazard and either a minor blast hazard or a minor projection hazard or both, but not a mass explosion hazard
4	Class 1; Division 1.4	Explosives, Division 4: substances and articles which present no significant hazard
5	Class 1; Division 1.5	Explosives, Division 5: very insensitive substances which have a mass explosion hazard
6	Class 1; Division 1.6	Explosives, Division 6: extremely insensitive articles which do not have a mass explosion hazard
7	Class 2.1	Gases, flammable gases
8	Class 2.2	Gases, non-flammable, non-toxic gases
9	Class 2.3	Gases, toxic gases
10	Class 3	flammable liquids
11	Class 4.1	flammable solids, self-reactive substances and desensitized explosives
12	Class 4.2	substances liable to spontaneous combustion
13	Class 4.3	substances which, in contact with water, emit flammable gases
14	Class 5.1	oxidizing substances
15	Class 5.2	organic peroxides
16	Class 6.1	toxic substances
17	Class 6.2	infectious substances
18	Class 7	Radioactive material
19	Class 8	Corrosive substances
20	Class 9	Miscellaneous dangerous substances and articles
21	Harmful Substances in packaged form	Harmful substances are those substances which are identified as marine pollutants in the International Maritime Dangerous Goods Code (IMDG Code). Packaged form is defined as the forms of containment specified for harmful substances in the IMDG Code. (MARPOL (73/78) Annex III)

References: International Maritime Dangerous Goods (IMDG) Code

Remarks: Substances (including mixtures and solutions) and articles subject to the provisions of the International Maritime Dangerous Goods (IMDG) Code are assigned to one of the classes 1-9 according to the hazard or the most predominant of the hazards they present. Some of these classes are subdivided into divisions. These classes or divisions are as listed in IDs 1 : 20 above. (Adapted from IMDG code www.imo.org).

Attribute: Category of IMO ship report
Alpha code: CATREP
Attribute type: Simple
Camel case: categoryOfImoShipReport
Data Type: Enumeration

Definition: ?

Values:

Code	Name	Definition
1	sailing plan	before or as near as possible to the time of departure from a port within a system or when entering the area covered by a system [for instance A, B, J, X etc]
2	position report	when necessary to ensure effective operation of the system
3	deviation report	when the ship's position varies significantly from the position that would have been predicted from previous reports, when changing the reported route, or as decided by the master
4	final report	on arrival at the destination or on leaving the area covered by the system
5	dangerous goods report	when an incident takes place involving the loss or likely loss overboard of packaged dangerous goods, including those in freight containers, portable tanks, road and rail vehicles and shipborne barges, into the sea
6	harmful substances report	when an incident takes place involving the discharge or probable discharge of oil (Annex I of MARPOL 73/78) or noxious liquid substances in bulk (Annex II of MARPOL 73/78)
7	marine pollutants report	in the case of the loss or likely loss overboard of harmful substances in packaged form, including those in freight containers, portable tanks, road and rail vehicles and shipborne barges identified in the International Maritime Goods Code as marine pollutants (Annex III of MARPOL 73/78).
8	any other report	any other report should be made in accordance with the system procedures as notified in accordance with paragraph 9 of the general principles

References: Appendix to IMO Resolution A.851(20) GENERAL PRINCIPLES FOR SHIP REPORTING SYSTEMS AND SHIP REPORTING REQUIREMENTS, INCLUDING GUIDELINES FOR REPORTING INCIDENTS INVOLVING DANGEROUS GOODS, HARMFUL SUBSTANCES AND/OR MARINE POLLUTANTS.
URL: http://www.imo.org/includes/blastDataOnly.asp/data_id%3D22635/A851(20).pdf

Remarks: Through Resolution A.851(20), the IMO encourages authorities to require standard formats and procedures for ship reporting specified at 1 to 7 above but recognises that some authorities require amended formats and these cases are covered by 8 above.

Attribute: Category of pilot
Attribute type: Simple
Camel case: categoryOfPilot

Alpha code: CATPLT

Data Type: Enumeration

Definition: ?

Values:

Code	Name	Definition
1	pilot	pilot licenced to conduct vessels during approach from sea to a specified place which may be a handover place, an anchorage or alongside
2	deep sea	pilot licenced to conduct vessels over extensive sea areas
3	harbour	pilot who is licenced to conduct vessels from a specified place, such as a handover area or anchorage into a harbour
4	bar	pilot licensed to conduct vessels over a bar to or from a handover with a river pilot (for example as used in USA)
5	river	pilot licensed to conduct vessels from and to specified places, along the course of a river (for example as used in Rio Amazonas and Rio de La Plata)
6	channel	pilot licensed to conduct vessels from and to specified places, along the course of a channel. (for example as used in Rio Amazonas and Rio de La Plata)
7	lake	pilot licensed to conduct vessels from and to specified places on a great lake. (for example as used in the Lago de Maracaibo in Venezuela)

Remarks: No remarks.

Attribute: Category of pilot boarding place
Attribute type: Simple
Camel case: categoryOfPilotBoardingPlace

Alpha code: CATPIL

Data Type: Enumeration

Definition: ?

Values:

Code	Name	Definition	References
1	boarding by pilot-cruising vessel	pilot boards from a cruising vessel	INT 1: IT 1.1-3; M-4: 491.1
2	boarding by helicopter	pilot boards by helicopter which comes out from the shore	INT 1: IT 1.4; M-4: 491.2
3	pilot comes out from shore	pilot boards from a vessel which comes out from the shore on request	INT 1: IT 1.1-3; M-4: 491.1

References: ?

Remarks: No remarks

Attribute: Category of regulation / restriction / recommendation — Alpha code: CATRXN
Attribute type: Simple
Camel Case: categoryOfRxN — Data Type: Enumeration

Definition: The broad category or semantic group to which the information, regulation, restriction, or recommendation pertains. These broad categories may correspond to subdivision titles in sailing directions.

Values:

Code	Name	Definition
1	pilotage	Regulation/restriction/recommendation pertaining to pilotage
2	traffic separation, recommended routes, navigation and collision avoidance	Regulation/restriction/recommendation pertaining to traffic separation, recommended routes, and navigation and collision avoidance, for example, overtaking and head-on situations, navigation in fairways or channels, COLREGS
3	use of anchorages	Regulation/restriction/recommendation pertaining to use of anchorages
4	requirements and permissions for the use of port services and facilities	Regulation/restriction/recommendation pertaining to requirements and permissions for the use of port services and facilities, such as tug assistance
5	nature reserves, protected species, environmental protection and pollution	Regulation/restriction/recommendation pertaining to nature reserves, protected species, environmental protection and pollution
6	security and customs	Regulation/restriction/recommendation pertaining to security and customs
7	offshore and coastal activities dangerous to shipping	Regulation/restriction/recommendation pertaining to offshore and coastal activities dangerous to shipping such as drilling platforms, military exercises, dumping grounds
8	required filings and reports for VTS and ship reporting systems	Regulation/restriction/recommendation pertaining to required filings and reports for VTS and ship reporting systems
9	required filings and reports other than VTS and ship reporting systems	Regulation/restriction/recommendation pertaining to required filings and reports other than VTS and ship reporting systems
10	hazards and obstructions	Regulation/restriction/recommendation pertaining to hazards and obstructions
11	operation of vessels in severe weather or other special meteorological conditions	Regulation/restriction/recommendation pertaining to operation of vessels in severe weather or other special meteorological conditions
12	signalling and ship-to-ship communications	Regulation/restriction/recommendation pertaining to signalling and ship-to-ship communications
13	small craft operations	Regulation/restriction/recommendation pertaining to small craft operations
14	commercial cargo operations	Regulation/restriction/recommendation pertaining to commercial cargo operations
15	aids to navigation	Regulation/restriction/recommendation pertaining to aids to navigation
16	miscellaneous port and waterways safety	Regulation/restriction/recommendation pertaining to miscellaneous port and waterways safety
17	regulated navigation areas and limited access areas	Regulation/restriction/recommendation pertaining to regulated navigation areas and limited access areas

18	danger zones and restricted area regulations	Regulation/restriction/recommendation pertaining to danger zones and restricted area regulations danger zones and restricted area regulations

References: M-3 Chapters C 2.2, C 2.8; BSH new-format Sailing Directions; US Coast Pilot Chapter 2, Navigation Regulations (multiple volumes)

Attribute: Category of vessel
Attribute type: Simple
Camel case: categoryOfVessel

Alpha code: CATVSL

Data Type: Enumeration

Definition: ?

Values:

Code	Name	Definition
1	general cargo vessel	a vessel designed to carry general cargo
2	container carrier	a vessel designed to carry ISO containers
3	tanker	a vessel designed to carry bulk liquid or gas, including LPG and LNG
4	bulk carrier	a vessel designed to carry bulk solid material
5	passenger vessel	a vessel designed to carry passengers; often a cruise ship
6	roll-on roll-off	a vessel designed to allow road vehicles to be driven on and off; often a ferry
7	refrigerated cargo vessel	a vessel designed to carry refrigerated cargo
8	fishing vessel	a vessel designed to catch or hunt fish
9	service	a vessel which provides a service such as a tug, anchor handler, survey or supply vessel
10	warship	a vessel designed for the conduct of military operations

References: ?

Remarks: ?

Attribute: Category of vessel registry
Attribute type: Simple
Camel case: categoryRegistry

Alpha code: CATRGY

Data Type: Enumeration

Definition: The locality of vessel registration or enrolment relative to the nationality of a port, territorial sea, administrative area, exclusive zone or other location.

Values:

Code	Name	Definition
1	domestic	The vessel is registered or enrolled under the same national flag as the port, harbour, territorial sea, exclusive economic zone, or administrative area in which the object that possesses this attribute applies or is located.
2	foreign	The vessel is registered or enrolled under a national flag different from the port, harbour, territorial sea, exclusive economic zone, or other administrative area which the object that possesses this attribute applies or is located.
3	both domestic and foreign	The vessel is registered or enrolled under more than one flag, one of which is the same as that of the port, harbour, territorial sea, exclusive economic zone, or other administrative area which the object that possesses this attribute applies or is located.

Attribute: City name
Attribute type: Simple
Camel case: cityName

Alpha code: CITYNM

Data Type: text

Definition: The name of a town or city

Remarks: No remarks

Attribute: Communication channel — Alpha code: COMCHA
Attribute type: Simple
Camel case: communicationChannel — Data Type: text

Definition: A channel number assigned to a specific radio frequency, frequencies or frequency band.

Constraints:

Length	4
Structure	Each VHF-channel should be indicated by 2 digits and up to 2 characters (A-Z)

References: INT 1: IM 40; M-4: 488;

Remarks: The attribute “communication channel” encodes the various VHF-channels used for communication. The indication of several VHF-channels is possible through use of multiplicity > 1.

Attribute: Country
Attribute type: Simple
Camel case: country

Alpha code: CONTRY

Data Type: text

Definition: The name of a nation

References: Adapted from The American Heritage Dictionaries

Remarks: Keep a standard for country names under review.

Attribute: Date end | Alpha code: DATEND
Attribute type: Simple
Camel case: dateEnd | Data Type: Date

Definition: The attribute “date end” indicates the latest date on which an object (e.g. a buoy) will be present.

Constraints:

Other	CCYYMMDD, consisting of 4 digits for the calendar year (CCYY), 2 digits for the month (MM) (e.g. April = 04) and 2 digits for the day (DD), according to ISO 8601:1988

References: ?

Remarks: This attribute is to be used to indicate the removal or cancellation of an object at a specific date in the future. See also “periodic date end”. Example: 19961007 for 07 October 1996 as ending date.

Attribute: Date start
Alpha code: DATSTA
Attribute type: Simple
Camel case: dateStart
Data Type: Date

Definition: The attribute “date, start” indicates the earliest date on which an object (e.g. a buoy) will be present.

Constraints:

Other	CCYYMMDD, consisting of 4 digits for the calendar year (CCYY), 2 digits for the month (MM) (e.g. April = 04) and 2 digits for the day (DD), according to ISO 8601:1988

References: ?

Remarks: This attribute is to be used to indicate the deployment or implementation of an object at a specific date in the future. See also “periodic date start”. Example: 19960822 for 22 August 1996 as starting date.

Attribute: Day of the week
Attribute type: Simple
Camel case: dayOfWeek

Alpha code: DYOFWK

Data Type: Enumeration

Definition: The day of the week.

Values:

Code	Label	Definition
1	Monday	the day of the week before Tuesday and following Sunday
2	Tuesday	the day of the week before Wednesday and following Monday
3	Wednesday	the day of the week before Thursday and following Tuesday
4	Thursday	the day of the week before Friday and following Wednesday
5	Friday	the day of the week before Saturday and following Thursday
6	Saturday	the day of the week before Sunday and following Friday (together with Sunday forming part of the weekend)
7	Sunday	the day of the week before Monday and following Saturday (together with Saturday forms part of the weekend)

Remarks: No remarks.

Attribute: Day of Week Range
Alpha code: DYWKRN
Attribute type: Complex
Camel case: dayOfWeekRange
Data Type: Complex

Definition: A range of days of the week, expressed as a complex type whose sub-attributes are the days of the week that begin and end the range. There is only 1 sub-attribute, which gives the day of the week. The multiplicity of this attribute must be exactly 2. The first instance gives the beginning day of the range and the second the ending day (both are included in the range).

SubAttributes:

Name	Alpha code	Camel case	Cardinality	sequential
Day of the week	dyofwk	dayOfWeek	2	True

Remarks: Though the definition permits a range of days of the week to cross the week boundaries (e.g., it is possible to specify a range as “Thursday to Monday”) the use of ranges that cross week boundaries is discouraged.
Example: To code the range “Monday through Friday” use the sequence: dyofwk=1, dyofwk=5.

Attribute: Delivery point | Alpha code: DELPNT
Attribute type: Simple
Camel case: deliveryPoint | Data Type: text

Definition: Details of where post can be delivered such as the apartment, name and/or number of a street, building or PO Box

References: ?

Remarks: This could be repeated if there is more than one address item required in addition to the city name.

Attribute: Destination | Alpha code: DSTNTN
Attribute type: Simple
Camel case: destination | Data Type: text

Definition: The place or general direction to which a vessel is going or directed.

References: ?

Remarks: In addition to a placename of a port, harbour area or terminal, the place could include generalities such as “The north-west”, or “upriver”.

Attribute: Email address
Alpha code: EMAILS
Attribute type: Simple
Camel case: emailAddress
Data Type: text

Definition: An address assigned to an organisation or person to send or receive electronic mail. Example: steven.smith@domain.com

References: ?

Remarks: No remarks.

Attribute: Fax number | Alpha code: NUMFAX
Attribute type: Simple
Camel case: faxNumber | Data Type: text

Definition: A number assigned to a fax machine. Example: + 49 381 4563769

References: not specified

Remarks: The telephone number should be written according to the ITU Recommendation ITU-T E.123. Only spaces should be used to visually separate groups of numbers in international notation.

Attribute: IMO format for reporting Alpha code: IMOREP
Attribute type: Simple
Camel case: imoFormatForReporting Data Type: Boolean

Definition: True: Reports are required in formats according to standard IMO ship reporting system
False: Reports are required in specified formats which are not according standard IMO ship reporting system

References: ?

Remarks: No remarks

Attribute: Information
Attribute type: Simple
Camel case: information

Alpha code: INFORM

Data type: text

Definition: Textual information about the object in a single language.

References: INT 1: IA 16; M-4: 242.3-5;

Remarks: The language is expected to be specified in an accompanying attribute (see INFOML, LANGGE).
This attribute should be used, for example, to hold the information that is shown on paper charts by cautionary and explanatory notes.
No formatting of text is possible within INFORM. If formatted text is required, then the attribute TXTDSC must be used.
[Multi-lingual attributes are being defined by TSMAD.]

Attribute: Information, multi-lingual
Attribute type: Complex
Camel case: informationMultilingual

Alpha code: INFOML

Data type: Complex

Definition: Container for textual information about the object in a single language and identification of the language used.

Sub-Attributes:

Name	Alpha code	Camel case	Cardinality	sequential
Language	LANGGE	language	1	n/a
Information	INFORM	information	1	n/a

References: INT 1: IA 16(?); M-4: 242.3-5(?);

Remarks: This complex attribute links the text in a particular INFORM attribute with the language used in it.
Example: To code the text “Nondangerous wrecks have been omitted from this area” in English, use LANGGE=”en”, INFORM=” Nondangerous wrecks have been omitted from this area”.
[The specification of multi-language attributes is being discussed by TSMAD.]

Attribute: Internet address | Alpha code: ADRNET
Attribute type: Simple
Camel case: internetAddress | Data Type: text

Definition: An Internet address (for example, http://www.hmco.com/trade/), usually consisting of the access protocol (http), the domain name (www.hmco.com), and optionally the path to a file or resource residing on that server (trade).

References: The American Heritage Dictionaries

Remarks: The address could be a website or an ftp site.

Attribute: Jurisdiction
Attribute type: Simple
Camel case: jurisdiction

Alpha code: JRSDTN

Data Type: Enumeration

Definition: The jurisdiction applicable to an administrative area.

Values:

Code	Name	Definition
1	international	involving more than one country; covering more than one national area
2	national	an area administered or controlled by a single nation
3	national sub-division	an area smaller than the nation in which it lies.

References: ?

Remarks: No remarks.

Attribute: Language
Attribute type: Simple
Camel case: language

Alpha code: LANGGE

Data Type: text

Definition: The name of a natural language.

Remarks: The value of this attribute must be one of the Alpha-2 codes specified in ISO 639-2:1998.
Distinction: Language information (LNGINF);
[The specification of multi-language attributes is being discussed by TSMAD.]

Attribute: Limitation type
Attribute type: Simple
Camel case: limitationType

Alpha code: LIMTYP

Data Type: Enumeration

Definition: This attribute describes the interpretation of a “chalim” information object in the context of the object(s) with which it is associated.

Values:

Code	Name	Definition
1	prohibited	use of facility (boarding place, etc.) by vessels satisfying the conditions is prohibited
2	required	use of facility (boarding place, etc.) by vessels satisfying the conditions is required
3	permitted	use of facility (boarding place, etc.) by vessels satisfying the conditions is permitted but not required
4	recommended	use of facility (boarding place, etc.) by vessels satisfying the conditions is recommended
10	included	associated information object applies to vessels satisfying the conditions
11	excepted	associated information object does not apply to vessels satisfying the conditions

Remarks: The conditions under which the limitation operates are those expressed by the “chalim” object to which this attribute is bound.

Attribute: Location Name | Alpha code: GMLLCN
Attribute type: Simple
Camel case: gmlLocationName | Data Type: text

Definition: A verbal designation or description of the location of a feature.

References: GML 3.2

Remarks: This attribute is derived from the “locationName” element in GML. It is intended for designating locations in language a human reader can understand, for designating imprecise locations, or for designating locations which may not have corresponding spatial objects defined in the data set.
This attribute must not be used for encoding the official name of a feature.
Examples: “on a line between X and Y”; “1 mile E of Sandy Hook Light”; “North mole bearing 211° ”, “offshore”.

Distinction: OBJNAM

Attribute: Maritime Mobile Service Identity (MMSI) Code Alpha code: MMSICO
Attribute type: Simple
Camel case: maritimeMobileServiceIdentityCode Data Type: Integer

Definition: The Maritime Mobile Service Identity (MMSI) Code is formed of a series of nine digits which are transmitted over the radio path in order to uniquely identify ship stations, ship earth stations, coast stations, coast earth stations, and group calls. These identities are formed in such a way that the identity or part thereof can be used by telephone and telex subscribers connected to the general telecommunications network principally to call ships automatically.

Constraints:

length	9

References: Adapted from USCG which in turn adapted it from Appendix 43 of the International Telecommunications Union Radio Regulations

Unit of measure: None

Remarks: Format: XXXXXXXXX Example: 366777490

Attribute: Maximum air draught — Alpha code: MAXAIR
Attribute type: Simple
Camel case: maximumAirDraught — Data Type: Real

Definition: The maximum allowed height of the highest point of a vessel above the water-line.

Unit of measure: ?
Quantity: length

Constraints:

range	[0, ∞)

References: Adapted from UKHO NP100/2004

Remarks: Example: 022.55 for a maximum air draught of 22.55 metres.
(Unit: defined in the HUNITS attribute of the M_UNIT meta object class, e.g. metre (m))
Resolution: 0.01

Attribute: Maximum breadth (beam) Alpha code: MAXBRD
Attribute type: Simple
Camel case: maximumBreadth Data Type: Real

Definition: The maximum allowed breadth (beam) of a vessel.

Unit of measure: ?
Quantity: length

Constraints:

range	[0, ∞)

References: ?

Remarks: Example: 22.54 for an allowed maximum breadth of 22.54 metres.
(Unit: defined in the HUNITS attribute of the M_UNIT meta object class, e.g. metre (m))
Resolution: 0.01

Attribute: Maximum displacement tonnage
Attribute type: Simple
Camel case: maximumDisplacementTonnage

Alpha code: MAXDPL

Data Type: Integer

Definition: The maximum allowed displacement tonnage of a vessel.

Unit of measure: ?
Quantity: mass?

Constraints:

range	[1, ∞)

References: not specified;

Remarks: Example: 22254 for allowed maximum displacement tonnage of 22254.
(Unit: defined in the wunits attribute of the M_UNIT meta object class, e.g. metric tons (t))
Resolution: 1

Attribute: Maximum draught
Alpha code: MAXDRF
Attribute type: Simple
Camel case: maximumDraught
Data Type: Real

Definition: The maximum allowed vertical distance, at any section of a vessel from the surface of the water to the bottom of the keel.

Unit of measure: ?
Quantity: length

Constraints:

range	[0, ∞)

References: adapted from IHO Dictionary, S-32, 5th Edition, 1448

Remarks: Example: 12.56 for a maximum draught of 12.56 metres.
Unit: defined in the HUNITS attribute of the M_UNIT meta object class, e.g. metre (m))
Resolution 0.01

Attribute: Maximum deadweight tonnage
Attribute type: Simple
Camel case: maximumDeadweightTonnage

Alpha code: MAXDWT

Data Type: Integer

Definition: The maximum allowed deadweight tonnage of a vessel.

Unit of measure: tonnes
Quantity: mass

Constraints:

range	[1, ∞)

References: not specified;

Remarks: Example: 12345 for allowed maximum deadweight tonnage of 12345.
Unit defined in the wunits attribute of the M_UNIT meta object class, e.g. metric tons (t)
Resolution: 1

Attribute: Maximum gross tonnage
Attribute type: Simple
Camel case: maximumGrossTonnage

Alpha code: MAXGTN

Data Type: Integer

Definition: The maximum allowed gross tonnage of a vessel. A gross ton is a unit of gross internal capacity equal to 100 cubic ft (2.83 cubic m) (adapted from Oxford Dictionary of English). Gross tonnage is a function of the moulded volume of all enclosed spaces of the ship (International Convention on Tonnage Measurements in Ships, 1969).

Unit of measure: GT
Quantity: volume

Constraints:

range	[1, ∞)

Remarks: No remarks.

References: Oxford Dictionary of English; International Convention on Tonnage Measurements in Ships, 1969; IMO web page on International Convention on Tonnage Measurements in Ships, 1969 (URL: http://www.imo.org/Conventions/mainframe.asp?topic_id=259&doc_id=685 retrieved 01 July 2009).

Remarks: Example: 98765 for allowed maximum gross tonnage of 98765.
GT is the abbreviation in the IMO Convention.
Resolution: 1

Attribute: Maximum overall length
Attribute type: Simple
Camel case: maximumOverallLength

Alpha code: MAXLOA

Data Type: Real

Definition: The maximum allowed overall length of a vessel

Unit of measure: ?
Quantity: length

Constraints:

range	[0, ∞)

References: not specified;

Remarks: Example: 82.54 for an allowed maximum overall length of 82.54 metres.
Unit defined in the HUNITS attribute of the M_UNIT meta object class, e.g. metre (m)
Resolution: 0.13 m or 0.13 ft

Attribute: Maximum net tonnage
Alpha code: MAXNTN
Attribute type: Simple
Camel case: maximumNetTonnage
Data Type: Integer

Definition: The maximum allowed net tonnage of a vessel. A net ton is the taxable gross tonnage of a merchant ship. The net tonnage is produced by a formula which is a function of the moulded volume of all cargo spaces of the ship (International Convention on Tonnage Measurements in Ships, 1969).

Unit: NT
Quantity: volume

Constraints:

range	[1, ∞)

References: International Convention on Tonnage Measurements in Ships, 1969

Remarks: Example: 45678 for allowed maximum net tonnage of 45678. See the remark for maximum gross tonnage. Similar considerations apply here, and the IMO web site (http://www.imo.org/Conventions/mainframe.asp?topic_id=259&doc_id=685 retrieved 01 July 2009) gives the unit of measure as net tonnes (NT).
Resolution: 1

Attribute: Minimum displacement tonnage
Attribute type: Simple
Camel case: minimumDisplacementTonnage

Alpha code: MINDPL

Data Type: Integer

Definition: The minimum allowed displacement tonnage of a vessel.

Unit of measure: tonnes
Quantity: mass

Constraints:

range	[1, ∞)

References: unspecified;

Remarks: Example: 22254 for allowed minimum displacement tonnage of 22254.
Unit defined in the wunits attribute of the M_UNIT meta object class, e.g. metric tons (t)
Resolution: 1

Attribute: Minimum deadweight tonnage
Attribute type: Simple
Camel case: minimumDeadweightTonage

Alpha code: MINDWT

Data Type: integer

Definition: The minimum allowed deadweight tonnage of a vessel

Unit: tonnes
Quantity: mass

Constraints:

range	[1, ∞)

References: unspecified;

Remarks: Example: 12345 for allowed minimum deadweight tonnage of 12345.
Unit of measure: defined in the wunits attribute of the M_UNIT meta object class, e.g. metric tons (t)
Resolution: 1

Attribute: Minimum gross tonnage
Attribute type: Simple
Camel case: minimumGrossTonnage

Alpha code: MINGTN

Data Type: Integer

Definition: The minimum allowed gross tonnage of a vessel.

Unit of measure: GT
Quantity: volume

Constraints:

range	[1, ∞)

References: unspecified;

Remarks: Example: 98765 for allowed minimum gross tonnage of 98765.
Resolution: 1

Attribute: Minimum overall length
Attribute type: Simple
Camel case: minimumOverallLength

Alpha code: MINLOA

Data Type: Real

Definition: The minimum allowed overall length of a vessel

Unit of measure: ?
Quantity: length

Constraints:

range	[0, ∞)

References: unspecified;

Remarks: Example: 82.54 for an allowed minimum overall length of 82.54 metres.
Unit: defined in the HUNITS attribute of the M_UNIT meta object class, e.g. metre (m)
Resolution: 0.13 m or 0.13 ft

Attribute: Minimum net tonnage
Attribute type: Simple
Camel case: minimumNetTonnage

Alpha code: MINNTN

Data Type: Integer

Definition: The minimum allowed net tonnage of a vessel.

Unit of measure: NT
Quantity: volume

Constraints:

range	[1, ∞)

References: International Convention on Tonnage Measurements in Ships, 1969

Remarks: Example: 45678 for allowed minimum net tonnage of 45678.
Resolution: 1

Attribute: Nationality
Alpha code: NATION
Attribute type: Simple
Camel case: nationality
Data Type: text

Definition: The attribute “nationality” indicates the nationality of the specific object.

Constraints:

Length	2
Structure	The value must conform to ISO 3166

References: ISO 3166

Remarks: No remarks.

Attribute: Notice time
Alpha code: NTCTIM
Attribute type: Complex
Camel case: noticeTime
Data Type: Complex

Definition: Span of time, prior to the time the service is needed, for preparations to be made to fulfill the requirement.

References: ?

Sub-Attributes:

Name	Alpha code	Camel case	Cardinality	sequential
Notice time in hours	NTCHRS	noticeTimeHours	1	n/a
Notice time text	NTCTXT	noticeTimeText	0..1	n/a

Attribute: Notice time in hours
Attribute type: Simple
Camel case: noticeTimeHours

Alpha code: NTCHRS

Data Type: Integer

Definition: The time in hours, prior to the time the service is needed, when notice must be provided to the service provider.

References:

Unit of measure: Hours
Quantity: duration

Constraints:

range	[1, ∞)

Remarks: Resolution: 1; Example: 24 for 24 hours notice.

Attribute: Notice time text | Alpha code: NTCTXT
Attribute type: Simple
Camel case: noticeTimeText | Data Type: text

Definition: Text string qualifying the notice time specified in ntchrs. This may explain the time specification in ntchrs (e.g., “3 working days” for a ntchrs value of “72”) or consist of other language qualifying the time, e.g., “on leaving previous port” or “on passing reporting line XY”).

Remarks: No remarks.

Attribute: Object name
Alpha code: OBJNAM
Attribute type: Simple
Camel case: objectName
Data Type: text

Definition: The individual name of an object.

References: INT 1: ID 7, IF 19, IN 12.2-3; M-4: 371; 323.1-2; 431.2-3; 431.5;

Remarks: no remarks
[This Hydro attribute needs adapting for multi-language datasets.]

Attribute: Performance
Alpha code: PRFMNC
Attribute type: Simple
Camel case: performance
Data Type: text

Definition: A description of the required handling characteristics of a vessel including hull design, main and auxiliary machinery, cargo handling equipment, navigation equipment and manoeuvring behaviour.

References: unspecified

Remarks: No remarks

Attribute: Periodic date end | Alpha code: PEREND
Attribute type: Simple
Camel case: periodicDateEnd | Data Type: Date

Definition: The end of the active period for a seasonal object (e.g. a buoy). See also “date end”.

Constraints:

Structure	The value should be encoded using 4 digits for the calendar year (CCYY), 2 digits for the month (MM) (e.g. April = 04) and 2 digits for the day (DD). `CCYYMMDD` (full date); `--MMDD` (same day each year); `--MM` (same month each year) This conforms to ISO 8601:1988.
Other	If an object has either of its PERSTA/PEREND attribute values non-null, the other must also be non-null.

References: ISO 8601:1988

Remarks: Example: `--1015` for an ending date of 15 October each year

Attribute: Periodic date start
Alpha code: PERSTA
Attribute type: Simple
Camel case: periodicDateStart
Data Type: Date

Definition: The start of the active period for a seasonal object (e.g. a buoy). See also “date start”.

Constraints:

Structure	The value should be encoded using 4 digits for the calendar year (CCYY), 2 digits for the month (MM) (e.g. April = 04) and 2 digits for the day (DD). `CCYYMMDD` (full date); `--MMDD` (same day each year); `--MM` (same month each year) This conforms to ISO 8601:1988.
Other	If an object has either of its PERSTA/PEREND attribute values non-null, the other must also be non-null.

References: ISO 8601:1988

Remarks: Example: `--04` for an operation starting in April each year

Attribute: Pictorial representation | Alpha code: PICREP
Attribute type: Simple
Camel case: pictorialRepresentation | Data Type: text

Definition: Indicates whether a pictorial representation of the object is available. The string encodes the file name of an external graphic file (pixel/vector) as permitted in the list of allowed support formats.

References: INT 1: IE 3.1-2; M-4: 456.5; 457.3;

Remarks: The “pictorial representation” could be a drawing or a photo.

Attribute: Pilot district — Alpha code: PILDST
Attribute type: Simple
Camel case: pilotDistrict — Data Type: text

Definition: The name assigned to the area within which a particular pilotage service operates.

References: INT 1: IT 1.2; M-4: 491.1-2;

Remarks: No remarks.
[This Hydro attribute needs adapting for multi-language datasets.]

Attribute: Pilot movement
Attribute type: Simple
Camel case: pilotMovement

Alpha code: PLTMOV

Data Type: Enumeration

Definition: The embarkation or disembarkation activity of a pilot. This attribute specifies whether pilots embark and/or leave the vessel.

Values:

Code	Name	Definition
1	embarkation	The place where vessels not being navigated according to a pilot's instructions pick up a pilot while in transit from sea to a port or restricted waters for future navigation under pilot instructions.
2	disembarkation	The place where vessels being navigated under a pilot's instructions in transit from sea to a port or constricted waters drop the pilot and proceed without being subject to pilot instructions.
3	pilot change	The place where vessels being navigated under a pilot's instructions drop off the pilot and pick up a different pilot for future navigation under pilot's instructions.

References: unspecified;

Remarks: If the Pilot boarding place is used at a port for embarkation and disembarkation, this attribute is not used.

Attribute: Pilot qualification
Attribute type: Simple
Camel Case: pilotQualification

Alpha code: PLTQFC

Data Type: Enumeration

Definition: ?

Values:

Code	Name	Definition
1	government pilot	A pilot service carried out by government pilots.
2	pilot approved by government	A pilot service carried out by pilots who are approved by government.
3	state pilot	A pilot that is licensed by the State (USA) and/or their respective pilot association, required for all foreign vessels and all American vessels under registry, bound for a port with compulsory State pilotage. A federal licence is not sufficient to pilot such vessels into the port
4	federal pilot	A pilot who carries a Federal endorsement, offering services to vessels that are not required to obtain compulsory State pilotage. Services are usually contracted for in advance
5	company pilot	A pilot provided by a commercial company
6	local pilot	A pilot with local knowledge but who does not hold a qualification as a pilot
7	citizen with sufficient local knowledge	A pilot service carried out by a citizen with sufficient local knowledge
8	citizen with doubtful local knowledge	A pilot service carried out by a citizen whose local knowledge is uncertain

Remarks: No remarks.

Attribute: Pilot request
Attribute type: Simple
Camel case: pilotRequest

Alpha code: PLTRQS

Data Type: text

Definition: Description of the pilot request procedure.

References: unspecified;

Remarks: No remarks.

Attribute: Pilot vessel
Alpha code: PLTVSL
Attribute type: Simple
Camel case: pilotVessel
Data Type: text

Definition: Description of the pilot vessel. The pilot vessel is a small vessel used by a pilot to go to or from a vessel employing the pilot's services. (adapted from Science and Technology Dictionary)

References: unspecified;

Remarks: No remarks.

Attribute: Postal code
Alpha code: POSCOD
Attribute type: Simple
Camel case: postalCode
Data Type: text

Definition: Known in various countries as a postcode, or ZIP code, the postal code is a series of letters and/or digits that identifies each postal delivery area.

References: unspecified;

Remarks: No remarks.

Attribute: Preference of pilot boarding place
Alpha code: PRFPIL
Attribute type: Simple
Camel case: preferenceOfPilotBoardingPlace
Data Type: Enumeration

Definition: This attribute allows for boarding places to be designated as primary or alternate boarding places.

Values:

Code	Name	Definition
1	Primary	The preferred and published pilot boarding place which is used in normal weather conditions.
2	Alternate	The pilot boarding place which is used if the primary boarding place is unsuitable, for example because of weather or sea state

Remarks: No remarks.

Attribute: Regulation / restriction / recommendation code — Alpha code: RXNCOD
Attribute type: Simple
Camel Case: rxnCode — Data Type: Enumeration

Definition: This attribute encodes the most common types of regulations (recommendations, restrictions).

Values:

Code	Name	Definition
1	Pilotage compulsory	Pilotage is compulsory
2	Pilot qualifications	Pertaining to the qualifications of pilot (details described in INFORM attribute or TXTDSC file)
3	Passage prohibited	Passage prohibited at all times
4	Passage conditionally prohibited	Passage prohibited under certain weather conditions (details in INFORM or TXTDSC file)
5	Overtaking prohibited	Overtaking prohibited at all times
6	Overtaking conditionally permitted	Overtaking permitted only under certain conditions (stated in INFORM/TXTDSC file)
7	Restricted passage	Pertaining to head-on situations in restricted passages or fairways (details in INFORM or TXTDSC file)
8	Tugs	Tug assistance compulsory
9	Quarantine and health	Quarantine and health
10	Customs	Customs
11	Loading and unloading	Loading and unloading cargo
12	Drawbridge operations	Drawbridge operations
13	Navigation prohibited	Navigation prohibited
14	Right of way	Pertaining to right of way
15	Traffic permission required	Permission required from an authority for transit
16	Dimensional	Applicable only to vessels exceeding specified dimensions (associated chalim will specify limits)

Remarks: This attribute encodes the most common types of regulations (recommendations, restrictions) in a form that software (e.g., ECDIS) can use to do at least some subject-specific processing. Since the details are in natural language (i.e., as text in INFORM), this will not be comprehensive, but (a) it should be possible to use this in conjunction with “chalim” in some cases to provide enhancements like automatic indicators in the ECDIS/ECS that passage is forbidden for vessels of certain size; (b) provide hints, such as a hint that pilotage is *probably* compulsory, etc.

Attribute: Remote pilot
Attribute type: Simple
Camel case: remotePilot

Alpha code: RMTPLT

Data Type: Boolean

Definition: Whether remote pilotage is available.

True	Remote pilot is available	Pilotage is available remotely from shore or other location remote from the vessel requiring pilotage
False	Remote pilot is not available	Remote pilotage is not available

References: unspecified;

Remarks: No remarks.

Attribute: Scale maximum | Alpha code: SCAMAX
Attribute type: Simple
Camel case: scaleMaximum | Data Type: Integer

Definition: The maximum scale at which the object may be used e.g. for ECDIS presentation. The modulus of the scale is indicated, that is 1:25 000 is encoded as 25000.

Unit of measure: None
Resolution: 1

Constraints:

range	[1, ∞)

References: unspecified;

Remarks: Example: If a particular maximum scale is specified as 1:25 000 (encoded as 25000), an example of a larger scale would be 1:20 000 (encoded as 20000).

Attribute: Scale minimum — Alpha code: SCAMIN
Attribute type: Simple
Camel case: scaleMinimum — Data Type: Integer

Definition: The minimum scale at which the object may be used e.g. for ECDIS presentation. The modulus of the scale is indicated, that is 1:25 000 is encoded as 25000.

Unit of measure: None
Resolution: 1

Constraints:

range	[1, ∞)

References: unspecified;

Remarks: Example: If a particular maximum scale is specified as 1:25 000 (encoded as 25000), an example of a larger scale would be 1:20 000 (encoded as 20000).

Attribute: Service access procedure
Alpha code: SVAPRC
Attribute type: Simple
Camel case: serviceAccessProcedure
Data Type: text

Definition: A description of the procedure to access the marine service.

References: unspecified;

Remarks: None.

Attribute: Source date | Alpha code: SORDAT
Attribute type: Simple
Camel case: sourceDate | Data Type: Date

Definition: The production date of the source, e.g. the date of measurement.

Constraints:
Format CCYYMMDD. The source date should be encoded using 4 digits for the calendar year (CCYY), 2 digits for the months (MM) and 2 digits for the Day (DD), according to ISO 8601: 1988.

References: ISO 8601: 1988

Remarks: No remarks.

Attribute: Source indication
Attribute type: Simple
Camel case: sourceIndication

Alpha code: SORIND

Data Type: ?

Definition: Information about the source of the object.

[Should be defined by TSMAD since this is metadata for individual objects including ENC objects.]

References: unspecified;

Remarks: ?

Attribute: Status
Attribute type: Simple
Camel case: status

Alpha code: STATUS

Data Type: Enumeration

Definition: ?
Values:

Code	Label	Definition	References
1	permanent	intended to last or function indefinitely. (The Concise Oxford Dictionary, 7th Edition)	
2	occasional	acting on special occasions; happening irregularly. (The Concise Oxford Dictionary, 7th Edition)	INT 1: IP 50; M-4: 473.2;
3	recommended	presented as worthy of confidence, acceptance, use, etc. (The Macquarie Dictionary, 1988)	INT 1: IN 10; M-4: 431.1;
4	not in use	no longer used for the purpose intended; disused.	INT 1: IL 14, 44; M-4: 444.7;
5	periodic/intermittent	recurring at intervals. (The Concise Oxford Dictionary, 7th Edition)	INT 1: IC 21; IQ 71; M-4: 353.3; 460.5;
6	reserved	set apart for some specific use. (adapted from The Concise Oxford Dictionary, 7th Edition)	INT 1: IN 12.9;
7	temporary	meant to last only for a time. (The Concise Oxford Dictionary)	INT 1: IP 54;
8	private	not in public ownership or operation.	INT 1: IQ 70;
9	mandatory	compulsory; enforced. (The Concise Oxford Dictionary, 7th Edition)	
11	extinguished	no longer lit	
12	illuminated	lit by floodlights, strip lights, etc.	
13	historic	famous in history; of historical interest. (The Concise Oxford Dictionary, 7th Edition)	
14	public	belonging to, available to, used or shared by, the community as a whole and not restricted to private use. (adapted from The New Shorter Oxford English Dictionary, 1993)	
15	synchronized	occur at a time, coincide in point of time, be contemporary or simultaneous. (The New Shorter Oxford English Dictionary, 1993)	
16	watched	looked at or observed over a period of time especially so as to be aware of any movement or change. (adapted from The New Shorter Oxford English Dictionary, 1993)	
17	un-watched	usually automatic in operation, without any permanently-stationed personnel to superintend it. (adapted from IHO Dictionary, S-32, 5th Edition, 2814)	
18	existence doubtful	an object that has been reported but has not been definitely determined to exist	

.

References: ?

Remarks: No remarks

Attribute: Telegraph address
Attribute type: Simple
Camel case: telegraphAddress

Alpha code: ADRTLG

Data Type: text

Definition: The telegraphic address assigned to an organisation.

Remarks: No remarks.

Attribute: Telephone number
Alpha code: NUMTEL
Attribute type: Simple
Camel case: telephoneNumber
Data Type: text

Definition: A number assigned to a telephone.

References: unspecified;

Remarks: The telephone number should be written according to the ITU Recommendation ITU-T E.123. Only spaces should be used to visually separate groups of numbers in international notation. The letters "int." are used to indicate internal number extensions. Example: + 49 381 4563764 int.254

Attribute: Telephone number outside working hours Alpha code: NMTLOW
Attribute type: Simple
Camel case: telephoneNumberOutsideWorkingHours Data Type: text

Definition: A number assigned to a service for use outside working hours.

References: unspecified;

Remarks: The telephone number should be written according to the ITU Recommendation ITU-T E.123. Only spaces should be used to visually separate groups of numbers in international notation. The letters "int." are used to indicate internal number extensions. Example: + 49 172 4019079 int.123

Attribute: Telex number
Attribute type: Simple
Camel case: telexNumber

Alpha code: NUMTLX

Data Type: text

Definition: Numbers assigned to a telex machine as a unique identifier.

References: unspecified;

Remarks: No remarks.

Attribute: Textual description
Attribute type: Simple
Camel case: textualDescription

Alpha code: TXTDSC

Data Type: text

Definition: The file name of an external text file that contains the text ~~in English~~.
[Specification needed from TSMAD, especially for multi-lingual representation of contents.]

Remarks: The attribute “textual description” indicates that a file containing text extracted from relevant pilot books or navigational publications is available.

Attribute: Thickness of ice capability
Attribute type: Simple
Camel case: thicknessOfIceCapability

Alpha code: ICECAP

Data Type: Integer

Definition: The thickness of ice that the ship can safely transit.

Unit of measure: centimetres
Quantity: length

Constraints:

range	[1, ∞)

References: unspecified;

Remarks: Example: 080 for ice which has a thickness of 80 cm

Attribute: Time of end of work
Attribute type: Simple
Camel case: timeOfEndOfWork

Alpha code: TIMENW

Data Type: time

Definition: The time of the end of the working day.

References: ISO 8601:1988

Remarks: The time of end of work is the time-of-day in hours and minutes using a 24-hr clock, e.g., 1830 for 6:30 p.m.

Attribute: Time of start of work
Alpha code: TIMSTW
Attribute type: Simple
Camel case: timeOfStartOfWork
Data Type: time

Definition: The time of the start of the working day.

References: ISO 8601:1988

Remarks: The time of start of work is the time-of-day in hours and minutes using a 24-hr clock, e.g., 0600 for 6:00 a.m.

Attribute: Time reference
Attribute type: Simple
Camel case: timeReference

Alpha code: TIMREF

Data Type: Enumeration

Definition: ?

Values:

Code	Name	Definition
1	UTC	Co-ordinated Universal Time
2	LT	Local time

References: unspecified;

Remarks: No remarks.

Attribute: Working hours of day
Attribute type: Complex
Camel case: workingHoursOfDay

Alpha code: WKHRDY

Data Type: Complex

Definition: The working hours of the day for the port or service.

Sub-Attributes:

Name	Alpha code	Camel case	Cardinality	sequential
Time reference	TIMREF	timeReference	1	n/a
Time of start of work	TIMSTW	timeOfStartOfWork	1..*	True
Time of end of work	TIMENW	timeOfEndOfWork	1..*	True

Constraints:

Other	Pair-wise correspondence between timstw and timenw is required. For each timstw/timenw pair, timstw must precede timenw.

Remarks: ~~This attribute could be repeated if there are a number of working time periods in a day (e.g. 0800-1200, 1400-2000~~). No remarks.

Attribute: Working days of week
Attribute type: Complex
Camel case: workingDaysOfWeek

Alpha code: WKDYWK

Data Type: Complex

Definition: The working days of the week.

Sub-Attributes:

Name	Alpha code	Camel case	Cardinality	sequential
Day of week	DYOFWK	dayOfWeek	0..7	True
Day of week range	DYWKRN	dayOfWeekRange	0..*	True

Constraints:

Other	Duplicates or overlaps are not permitted.

Remarks: The total number of “Day of week” and “Day of week range” values must be appropriate for the number of entries in the corresponding Working hours of Day attribute, if present. Note that a day may have more than one working period.

Annex C. Feature Associations

There are no feature associations currently defined in this product specification.