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Standard

Electronic Chart Display and Information System for Inland Navigation

Inland ECDIS

SECTION 2

Data Standard for Inland ECDIS

Appendix A

Object Catalogue for Inland ECDIS

in addition to the

IHO-S-57 Object Catalogue

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1 Introduction

In the S-57 data model hydrographic information is represented as a defined combination of descriptive and spatial characteristics, called 'feature objects' and 'spatial objects'. Details of further classification and relationships can be found in the respective publications of the IHO. In the S-57 standard, the IHO has laid down a data model, an object catalogue, a description of the exchange format and an ENC product specification.

In order to represent data necessary for inland waterway traffic in an application conforming to S-57, the S-57 object catalogue must be enhanced by the required object classes, attributes and values. Such enhancements in terms of 'user defined objects' are allowed in the S-57 standard and there are means to incorporate them.

1.1 The Object Catalogue

In the object catalogue, all official IHO object classes along with their allowed attributes and attribute values are defined. The Inland ECDIS object catalogue can be compared to the Chart 1 (INT 1) of the sea charts and additionally contains the special object classes and attributes for inland waterways.

The following types of feature objects exist:

Geo:	descriptive characteristics of the real world
Meta:	additional area related information, e.g. survey source
Collection:	information about relationships between objects

The following example from the object catalogue shows the definition of the S-57 feature object class 'Landmark'

Object class: Landmark	
Acronym: LNDMRK	Code: 74
Set Attribute_A:	CATLMK; COLOUR; COLPAT; CONDTN; CONRAD; CONVIS; ELEVAT; FUNCTN; HEIGHT; NATCON; NOBJNM; OBJNAM; STATUS; VERACC; VERDAT; VERLEN;
Set Attribute_B:	INFORM; NINFOM; NTXTDS; PICREP; SCAMAX; SCAMIN; TXTDSC;
Set Attribute_C:	SORDAT; SORIND;
Definition: A prominent object at a fixed location which can be used in determining a location or a direction. (adapted from IHO Dictionary S-32 5th Edition, 2643).	
References: INT 1: ID 5-6, 13; IE 10.1-20, 22-30.1, 30.3-4, 31; IL 11; IQ 100; M-4: 373.6; 374.1; 374.4; 374.5; 374.6; 374.7; 375.1-2; 375.4; 445.6; 456.2; 487.3;	
Remarks:	
Distinction:	beacon, special purpose/general; building single; daymark; pylon/bridge support; topmark;

Example of S57-Object Catalogue (Object Classes)

Each object class is described by the following entries:

- Object Class: Object class name
- Acronym: 6-Character code of the object class
- Code: Integer code
- Set of attributes:
 - subset 'Attribute-A': individual characteristics of an object
 - subset 'Attribute-B': information about the use of an object
 - subset 'Attribute-C': administrative information on the origin of data
- Definition: Definition
- References:
 - INT 1: to the legend of paper charts
 - M-4: to the IHO-Publication M-4 (Chart Specifications of the IHO)
- Remarks: comments, relationships to other object classes

The following example from the object catalogue shows the definition of the S-57 attribute 'Category of landmark'

Attribute class: Category of landmark			
Acronym: CATLMK		Code: 35	
Attribute type: L			
<u>Expected input (value):</u>			
ID	Meaning	INT 1	M-4
1	: cairn	IQ 100; 456.2;	
...	:;	
20	: spire/minaret	IE 10.3, 17;	
<u>Definitions:</u>			
cairn:	a mound of stones, usually conical or pyramidal, raised as a landmark or to designate a point of importance in surveying. (IHO Dictionary, S-32, 5th Edition, 601)		
..... :			
spire/minaret:	a tall conical or pyramid-shaped structure often built on the roof or tower of a building, especially a church or mosque. (adapted from The New Shorter Oxford English Dictionary, 1993)		
Remarks:			
No remarks			

Example of S-57-Object Catalogue (Attributes)

Each attribute is described by the following entries:

- Attribute: attribute name
- Acronym: 6-character code of the attribute
- Code: Integer Code
- Attribute type: 1-character code for the data type
 - enumerated ('E'): exactly one value selected from a list of pre-defined attribute values
 - list ('L'): one or more values selected from a list of pre-defined attribute values
 - float ('F'): floating point numeric value
 - integer ('I'): integer numeric value
 - coded string ('A'): string of ASCII characters in a predefined format
 - free text ('S'): free-format alphanumeric string
- Expected input (value): expected input according to the above mentioned input types
- Definitions: Definition
-
- References:
 - INT 1: to the legend of paper charts
 - M-4: to the IHO-Publication M-4 (Chart Specifications of the IHO)
 -
- Remarks: Comments, relations to other attributes

1.2 Extensions of the object classes and attributes

The extension of existing S-57 object classes with new attributes, and the extension of S-57 attributes with new values are not allowed. Therefore, the S-57 object classes and attributes, which are to be extended according to the requirements of Inland ECDIS, must be copied. Object classes are copied with their complete set of attributes, and attributes are copied with their complete list of attribute values. All new object classes and attributes have the same name as their source but the names are written in lower- case letters.

Reasons for copied object classes:

- Existing object class gets a new attribute, e.g. the object "canal bank" gets the new attribute "category of bank".
- Existing object class gets a copied attribute with new values, e.g. the attribute "category of anchorage area" of the object "anchorage area" gets the new values 10 – 12.
- Existing object class shall be symbolized in another way, e.g. top marks.

Reason for new object classes:

- Real world object can not be transferred into the S-57 world.

Reason for copied attributes:

- A new value is needed for an existing attribute.

Reason for new attributes:

- A new attribute with new values is needed.

Procedure with copied object classes and attributes:

The original object classes (i. e. RESARE) and attributes remain in the Presentation Library in order to enable the presentation of older charts. In the data production for Inland ECDIS only the copied object classes (i. e. resare) and attributes are used.

The Integer Codes for the copied and new object classes and attributes have to be registered at the "Open ECDIS Forum" at www.openecdis.org

1.3 Conventions used in this document for types

bold lower case new and copied object classes and attributes,
new values to attributes.

UPPER CASE old objects and attributes (already existing in S-57 Ed. 3.0 and used
without in Inland ECDIS)

lower case old values to attributes

Object Classes

COPIED GEO OBJECT CLASS

Object class	Berth
--------------	-------

ACRONYM

berths

Code: **17010**

Set Attribute_A: **catbrt; comctn**; DATEND; DATSTA; DRVAL1; NOBJNM; OBJNAM; PEREND; PERSTA; QUASOU; SOUACC; STATUS; **trshgd**, verdat

Set Attribute_B: INFORM; NINFOM; NTXTDS; PICREP; SCAMIN; TXTDSC; **updmmsg**

Set Attribute_C: SORIND; SORDAT

Definition:

A named or numbered place where a vessel is moored at a wharf. (IHO Dictionary, S-32, 5th Edition, 470)

References:

INT 1: IF 19;

M-4: 321.1;

Remarks:

Distinction: anchor berth; anchorage area, mooring/warping facility;

Object Classes

COPIED GEO OBJECT CLASS

Object class	Depth area
--------------	------------

ACRONYM

depare

Code: **17003**

Set Attribute_A: DRVAL1; DRVAL2; **eleva1; eleva2; wtwdis**; QUASOU; SOUACC;

Set Attribute_B: INFORM; NINFOM; NTXTDS; PICREP; SCAMIN; TXTDSC; **updmsg**

Set Attribute_C: SORIND; SORDAT

Definition:

A depth area is a water area whose depth is within a defined range of values.

References:

Remarks:

Object Classes

COPIED GEO OBJECT CLASS

Object class	Distance mark
--------------	---------------

ACRONYM

dismar

Code: **17004**

Set Attribute_A: **catdis**; DATEND; DATSTA; NOBJNM; OBJNAM;

Set Attribute_B: INFORM; NINFOM; NTXTDS; PICREP; SCAMIN; TXTDSC; **updmsg**

Set Attribute_C: SORIND; SORDAT

Definition:

A distance mark indicates the distance measured from an origin and consists of either a solid visible structure or a distinct location without special installation. Usually found on canals and rivers.

References:

INT 1: IF 40;

M-4: 361.3; 307;

Remarks:

Distinction: beacon, special purpose;

Object Classes

COPIED GEO OBJECT CLASS

Object class	Harbour Area
--------------	--------------

ACRONYM **hrbare** Code: **17014**

Set Attribute_A: **cathbr; comctn; NOBJNM; OBJNAM; STATUS; unlocd**

Set Attribute_B: **INFORM; NINFOM; NTXTDS; SCAMIN; TXTDSC; updmsg**

Set Attribute_C: **SORIND; SORDAT**

Definition:

The term "harbour" applies only to the area of water with the works necessary for its formation, protections and maintenance (International Maritime Dictionary, 2d. Edition).
A harbour area not only covers the area of water but also the area of land which supplies the harbour installations.

References:

Remarks:

Distinction: port area, harbour basin, terminal, berths

Object Classes

COPIED GEO OBJECT CLASS

Object class	Lock Basin
--------------	------------

ACRONYM **lokbsn** Code: **17016**

Set Attribute_A: HORACC; **horcll**; **horclw**; HORLEN; HORWID; NOBJNM; OBJNAM;
STATUS; TIMEND; TIMSTA

Set Attribute_B: INFORM; NINFOM; NTXTDS; SCAMIN; TXTDSC; **updmgs**

Set Attribute_C: SORIND; SORDAT

Definition:

A lock basin is a wet dock in a waterway, permitting a ship to pass from one level to another
(adapted from IHO Dictionary, S-32, 5th Edition, 2881)

References:

Remarks:

Distinction: Lock area, lock basin part

Object Classes

NEW GEO OBJECT CLASS

Object class	Beacon water-way
--------------	------------------

ACRONYM **bcnwtw** Code: **17060**

Set Attribute_A: BCNSHP; **catwwm**; COLOUR; COLPAT; CONDTN; CONRAD; CONVIS;
DATEND; DATSTA; ELEVAT; HEIGHT; **marsys**; NATCON; NOBJNM;
OBJNAM; PEREND; PERSTA; STATUS; VERLEN;

Set Attribute_B: INFORM; NINFOM; NTXTDS; PICREP; SCAMIN; TXTDSC; **updmsg**

Set Attribute_C: SORIND; SORDAT

Definition:

A beacon is a prominent specially constructed object forming a conspicuous mark as a fixed aid to navigation or for use in hydrographic survey (IHO Dictionary, S-32, 5th Edition, 420).

A beacon water way signs a river or canal itself or any obstructions in or at the river or canal.

References:

Remarks:

Object Classes

NEW GEO OBJECT CLASS

Object class	Communication Area
--------------	--------------------

ACRONYM **comare** Code: **17055**

Set Attribute_A: **catcom**; COMCHA; DATEND; DATSTA; NOBJNM; OBJNAM; STATUS;

Set Attribute_B: INFORM; NINFOM; NTXTDS; SCAMIN; TXTDSC; **updmsg**

Set Attribute_C: SORIND; SORDAT

Definition:

Indicates the coverage of an area, in which a vessel has to report or may request information.

References:

Remarks:

Distinction:

Object Classes

NEW GEO OBJECT CLASS

Object class	Notice mark
--------------	-------------

ACRONYM **notmrk** Code: **17050**

Set Attribute_A: **catnmk; fnctnm; dirimp; disipd; disipu; disbk1; disbk2; addmrk; marsys; ORIENT; CONDTN; NOBJNM; OBJNAM; STATUS;**

Set Attribute_B: **INFORM; NINFOM; NTXTDS; PICREP; SCAMIN; TXTDSC; updmsg**

Set Attribute_C: **SORIND; SORDAT**

Definition:

to be amended

References:

Remarks:

Distinction:

Object Classes

NEW GEO OBJECT CLASS

Object class	Port Area
--------------	-----------

ACRONYM **prtare** Code: **17059**

Set Attribute_A: **comctn; NOBJNM; OBJNAM; STATUS; unlocd**

Set Attribute_B: **INFORM; NINFOM; NTXTDS; SCAMIN; TXTDSC; updmsg**

Set Attribute_C: **SORIND; SORDAT**

Definition:

Apart from harbours a port includes a city or borough with accommodation and facilities for landing passengers and goods and some amount of overseas trade. A port may possess a harbour but a harbour is not necessarily a port (International Maritime Dictionary, 2d. Edition).

References:

Remarks:

Distinction:

harbour area, harbour basin, terminal, berths

Object Classes

NEW GEO OBJECT CLASS

Object class	Refuse dump
--------------	-------------

ACRONYM **refdmp** Code: **17062**

Set Attribute_A: **catdmp; comctn**; NOBJNM;OBJNAM, TIMEND, TIMSTA,

Set Attribute_B: INFORM; NINFOM; NTXTDS; PICREP; SCAMIN; TXTDSC; **updmsg**

Set Attribute_C: SORIND; SORDAT

Definition:

At a refuse dump ships are able to unload their refuse like waste oil or black water.

References:

Remarks:

Object Classes

NEW GEO OBJECT CLASS

Object class	Route planning point
--------------	----------------------

ACRONYM

rtplpt

Code: **17063**

Set Attribute_A:

NOBJNM; OBJNAM;

Set Attribute_B:

INFORM; NINFOM; NTXTDS; PICREP; SCAMIN; TXTDSC; **updmsg**

Set Attribute_C:

SORIND; SORDAT

Definition:

A route planning point describes the projection of a feature object onto the waterway axis.

References:

Remarks:

Object Classes

NEW GEO OBJECT CLASS

Object class	Terminal
--------------	----------

ACRONYM **termnl** Code: **17064**

Set Attribute_A: **cattml; comctn; NOBJNM; OBJNAM; TIMEND; TIMSTA; trshgd, unlocd**

Set Attribute_B: INFORM; NINFOM; NTXTDS; PICREP; SCAMIN; TXTDSC; **updmsg**

Set Attribute_C: SORIND; SORDAT

Definition:

A terminal covers that area on shore which provides buildings and constructions for the transfer of cargos from and to ships.

References:

Remarks:

Distinction: port area, harbour area, harbour basin, berths

Object Classes

NEW GEO OBJECT CLASS

Object class	Turning basin
--------------	---------------

ACRONYM

trnbsn

Code: **17065**

Set Attribute_A: HORCLR; NOBJNM; OBJNAM

Set Attribute_B: INFORM; NINFOM; NTXTDS; PICREP; SCAMIN; TXTDSC; **updmsg**

Set Attribute_C: SORIND; SORDAT

Definition:

An area of water or enlargement of a channel used for turning vessels (International Maritime Dictionary, 2d Edition)

References:

Remarks:

Object Classes

NEW GEO OBJECT CLASS

Object class	Waterway axis
--------------	---------------

ACRONYM **wtwaxs** Code: **17051**

Set Attribute_A: **catccl**; NOBJNM; OBJNAM;

Set Attribute_B: INFORM; NINFOM; NTXTDS; PICREP; SCAMIN; TXTDSC; **updmsg**

Set Attribute_C: SORIND; SORDAT

Definition:

The waterway axis can be defined by e.g:

- the middle line of a fairway,
(Definition of fairway: That part of a river, harbour; etc. where the main navigable channel for vessels of larger size lies. It is also the usual course followed by vessels entering or leaving harbours, called 'ship channel'. (International Maritime Dictionary, 2nd Ed.)
- the middle line of a water way
(Definition of waterway: The waterway covers the entire area of a river or canal)

References:

Remarks:

The object name indicates the specific name of a public waterway/or part of waterway.

Attributes

COPIED OBJECT ATTRIBUTES

Attribute	Category of Anchorage area
-----------	----------------------------

ACRONYM

catach

Code: **17000**

Attribute type: L

Expected input:

ID	Meaning	
1:	unrestricted anchorage	
2:	deep water anchorage	IN 12.4; 431.3;
3:	tanker anchorage	IN 12.5; 431.3;
4:	explosives anchorage	IN 12.7; 431.3;
5:	quarantine anchorage	IN 12.8; 431.3;
6:	sea-plane anchorage	IN 14; 449.6;
7:	small craft anchorage	
8:	small craft mooring area	IQ 44; 431.7;
9:	anchorage for periods up to 24 hours	IN 12.6; 431.3;
10:	push tow anchorage	
11:	anchorage for other vessels than push tows	
12:	anchorage for other vessels than dangerous cargo vessels	

Definitions:

References:

Remarks:

Attributes

COPIED OBJECT ATTRIBUTES

Attribute	Category of bridge
-----------	--------------------

ACRONYM

catbrg

Code: **17006**

Attribute type: L

Expected input:

ID	Meaning	
1:	fixed bridge	ID 22
2:	opening bridge	ID 23.1
3:	swing bridge	ID 23.2
4:	lifting bridge	ID 23.3
5:	bascule bridge	ID 23.4
6:	pontoon bridge	ID 23.5
7:	draw bridge	ID 23.6
8:	transporter bridge	ID 24
9:	footbridge	
10:	viaduct	
11:	aqueduct	
12:	suspension bridge	

Definitions:

References:

Remarks:

Attributes

COPIED OBJECT ATTRIBUTES

Attribute	Category of distance mark
-----------	---------------------------

ACRONYM

catdis

Code: **17001**

Attribute type: E

Expected input:

ID	Meaning	
1:	distance mark not physically installed	IF 40;
2:	visible mark, pole	IF 40;
3:	visible mark, board	IF 40;
4:	visible mark, unknown shape	IF 40;
5:	kilometre mark, waterway bank	
6:	hectometre mark, waterway bank	
7:	kilometre mark, waterway axis	
8:	hectometre mark, waterway axis	

Definitions:

References:

Remarks:

Attributes

COPIED OBJECT ATTRIBUTES

Attribute	Category of ferry
-----------	-------------------

ACRONYM

catfry

Code: **17007**

Attribute type: L

Expected input:

ID	Meaning	INT 1
1:	'free-moving' ferry	IM 50
2:	cable ferry	IM 51
3:	ice ferry	
4:	swinging wire ferry	

Definitions:

References:

Remarks:

The attribute `category of ferry` does not encode the various types of ferry vessel, but the manoeuvrability of the ferry. The value `cable ferry` indicates a ferry that follows a fixed route guided by a cable. A cable ferry may hinder the flow of other traffic.

Attributes

COPIED OBJECT ATTRIBUTES

Attribute	Category of harbour facilities
-----------	--------------------------------

ACRONYM

cathaf

Code: **17008**

Attribute type: L

Expected input:

ID	Meaning	
1-3:	deleted values (see new object class termnl)	
4-5	deleted values (see new object class hrbare)	
6	naval base	
7-8	deleted values (see new object class termnl)	
9:	ship yard	
10-11:	deleted values (see new object class termnl)	
12:	harbour master's office	IF60
13:	pilot office	
14:	water-police office	
15:	customs office	IF61
16:	service and repair	
17:	quarantine station	IF62.1

Definitions:

References:

Remarks:

Attributes

COPIED OBJECT ATTRIBUTES

Attribute	Category of signal station traffic
-----------	------------------------------------

ACRONYM

catsit

Code: **17002**

Attribute type: L

Expected input:

ID	Meaning	INT1
1:	port control	IT 23;
2:	port entry and departure	
3:	International Port Traffic	IT 21
4:	berthing	
5:	dock	
6:	lock	IT 24
7:	flood barrage	
8:	bridge passage	IT 25.1
9:	dredging	
10:	oncoming traffic indication	

Definitions:

References:

Remarks:

Attributes

COPIED OBJECT ATTRIBUTES

Attribute	Category of signal station warning
-----------	------------------------------------

ACRONYM

catsiw

Code: **17003**

Attribute type: L

Expected input:

ID	Meaning	INT1
1:	danger	IT 35
2:	maritime obstruction	
3:	cable	
4:	military practice	IT 36
5:	distress	IT 26
6:	weather	IT 29
7:	storm	IT 28
8:	ice	IT 30
9:	time	IT 31
10:	tide	IT 33
11:	tidal stream	IT 34
12:	tide gauge	IT 32.2
13:	tide scale	IT 32.1
14:	diving	
15:	high water mark	
16:	vertical clearance indication	
17:	over/under vertical clearance indication	
18:	depth indication	

Definitions:

References:

Remarks:

Attributes

COPIED OBJECT ATTRIBUTES

Attribute	Marks navigational – System of
-----------	--------------------------------

ACRONYM

marsys

Code: **17009**

Attribute type: E

Expected input:

ID	Meaning	INT1
1:	IALA A	IQ 130
2:	IALA B	IQ130
9:	no system	
10:	other system	
11:	EU Inland waterway	

Definition:

to be amended

Remarks:

Attributes

COPIED OBJECT ATTRIBUTES

Attribute	Restriction
-----------	-------------

ACRONYM

restrn

Code: **17004**

Attribute type: L

Expected input:

ID	Meaning	INT1
1:	anchoring prohibited	IN 20
2:	anchoring restricted	
3:	fishing prohibited	IN 21
4:	fishing restricted	
5:	trawling prohibited	
6:	trawling restricted	
7:	entry prohibited	IN 2.2
8:	entry restricted	
9:	dredging prohibited	
10:	dredging restricted	
11:	diving prohibited	
12:	diving restricted	
13:	no wake	
14:	area to be avoided	IM 29.1
15:	construction prohibited	
16:	overtaking prohibited	
17:	passing prohibited	
18:	standstill prohibited	
19:	standstill restricted	
20:	berthing prohibited	
21:	berthing restricted	
22:	turning prohibited	
23:	empty	
24:	speed limited	
25:	restricted fairway depth	
26:	restricted fairway width	

Definitions:

References:

Remarks:

Attributes

COPIED OBJECT ATTRIBUTES

Attribute	Vertical datum
-----------	----------------

ACRONYM

verdat

Code: **17005**

Attribute type: E

Expected input:

ID : Meaning

...

- 30. Equivalent height of water (German GIW)**
- 31. Highest Shipping Height of Water (German HSW)**
- 32. Amsterdam Ordinance Datum (NAP)**
- 33. current waterlevel**

Definition:

to be amended

References:

to be amended

Remarks:

Attributes

NEW OBJECT ATTRIBUTES

Attribute	Additional mark
-----------	-----------------

ACRONYM

addmrk

Code: **17050**

Attribute type: L

Expected input:

ID:	Meaning
1:	top (board)
2:	bottom (board)
3:	right (triangle to the right)
4:	left (triangle to the left)

Definition:

The kind and location of an additional mark at a notice mark

References:

Remarks:

Distinction: notmrk

Attributes

NEW OBJECT ATTRIBUTES

Attribute	Bunker vessel, availability
-----------	-----------------------------

ACRONYM

bunves

Code: **17065**

Attribute type: E

Expected input:

ID: Meaning

1: **bunker vessel available**

2: **no bunker vessel available**

Definition:

The availability of a bunker vessel at a bunker station

References:

Remarks:

Attributes

NEW OBJECT ATTRIBUTES

Attribute	Category of bank
-----------	------------------

ACRONYM

catbnk

Code: **17051**

Attribute type: E

Expected input:

ID:	Meaning
1:	steep bank
2:	flat bank
3:	embankment, fastened
4:	embankment, unfastened

Definition:

References:

Remarks:

Attributes

NEW OBJECT ATTRIBUTES

Attribute	Category of berth
-----------	-------------------

ACRONYM

catbrt

Code: **17066**

Attribute type: L

Expected input:

ID: Meaning
1: loading
2: unloading
3: overnight accommodation

Definition:

References:

Remarks:

Distinction: transshipment goods

Attributes

NEW OBJECT ATTRIBUTES

Attribute	Category of bunker station
-----------	----------------------------

ACRONYM

catbun

Code: **17067**

Attribute type: L

Expected input:

ID	Meaning
1:	diesel oil
2:	water
3:	ballast

Definitions:

References:

Remarks:

Attributes

NEW OBJECT ATTRIBUTES

Attribute	Category of CEMT class
-----------	------------------------

ACRONYM

catccl

Code: **17068**

Attribute type: L

Expected input:

ID	Meaning
1:	0 small vessels and pleasure craft
2:	I peniche
3:	II campine barge
4:	III Dortmund-Ems barge
5:	IV Rhine-Herne barge
6:	Va Large Rhine barge; 1-barge push-tow unit
7:	Vb 2-barge push-tow unit; long formation
8:	Vla 2-barge push-tow unit; wide formation
9:	Vlb 4-barge push-tow unit
10:	Vlc 6-barge push-tow unit
11:	No CEMT class

Definitions:

References:

Remarks:

Attributes

NEW OBJECT ATTRIBUTES

Attribute	Category of communication
-----------	---------------------------

ACRONYM

catcom

Code: **17069**

Attribute type: L

Expected input:

ID	Meaning
1:	VTS centre
2:	VTS sector
3:	IVS point
4:	MID
5:	Lock
6:	Bridge
7:	custom

Definitions:

References:

Remarks:

Attributes

NEW OBJECT ATTRIBUTES

Attribute	Category of harbour area
-----------	--------------------------

ACRONYM

cathbr

Code: **17070**

Attribute type: L

Expected input:

ID	Meaning
1:	custom harbour
2:	port of refuge
3:	yacht harbour/marina
4:	fishing harbour
5:	private harbour

Definitions:

References:

Remarks:

Attributes

NEW OBJECT ATTRIBUTES

Attribute	Category of notice mark
-----------	-------------------------

ACRONYM

catnmk

Code: **17052**

Attribute type: E

Expected input:

ID	:	Meaning
1:		entry prohibited, (A.1)
2:		entry prohibited, but smallcraft boats without engine permitted, (A.1a)
3:		overtaking prohibited, (A.2)
4:		overtaking between push tows and towing units prohibited, (A.3)
5:		no passing and overtaking, (A.4)
6:		mooring prohibited, (A.5)
7:		mooring prohibited, with distance from the bank, (A.5.1)
8:		anchoring prohibited, (A.6)
9:		berthing prohibited, (A.7)
10:		turning prohibited, (A.8)
11:		avoid wave wash, (A.9)
12:		passing on left side prohibited, (A.10)
13:		passing on right side prohibited, (A.10)
14:		boats with engine prohibited, (A.12)
15:		sport and pleasure boats prohibited, (A.13)
16:		waterskiing prohibited, (A.14)
17:		sailing boats prohibited, (A.15)
18:		boats without engines or sails prohibited, (A.16)
19:		windsurfing prohibited, (A.17)
20:		waterscooters and jetskis prohibited, (A.20)
21:		highspeed motorboats prohibited (A.18)
22:		slipping of boats prohibited, (A.19)
23:		mandatory traffic direction, left, (B.1)
24:		mandatory traffic direction, right, (B.1)
25:		mandatory change of the fairwayside to port, (B.2a)
26:		mandatory change of the fairwayside to starboard, (B.2b)
27:		port fairwayside is mandatory traffic direction, (B.3a)
28:		starboard fairwayside is mandatory traffic direction, (B.3b)
29:		mandatory crossing of the fairwayside to port, (B.4a)
30:		mandatory crossing of the fairwayside to starboard, (B.4b)
31:		mandatory stop, (B.5)
32:		maximum speed limit, (B.6)
33:		mandatory sound signal, (B.7)
34:		special attention, (B.8)
35:		give way to other vessels when entering the main fairway, (B.9a)
36:		give way to other vessels when crossing the main fairway, (B.9b)
37:		mandatory radiophone, (B.11)
38:		restricted fairway depth, (C.1)

- 39: restricted vertical clearance, (C.2)
- 40: restricted width of the fairway or passage, (C.3)
- 41: general restrictions (with additional sign), (C.4)
- 42: restricted width of the waterway at the left bank, (C.5)
- 43: restricted width of the waterway at the right bank, (C.5)
- 44: recommended passage for both directions, (D.1a)
- 45: recommended passage for only one direction, (D.1b)
- 46: recommended passage on right side, (D.2)
- 47: recommended passage on left side, (D.2)
- 48: recommended traffic direction, left; (D.3)
- 49: recommended traffic direction, right, (D.3)
- 50: entry permitted, (E.1)
- 51: overhead power line crossing, (E.2)
- 52: weir, (E.3)
- 53: cable ferry, (E.4)
- 54: ferry, (E.4b)
- 55: mooring permitted, (E.5)
- 56: mooring permitted, with distance, (E.5.1)
- 57: mooring permitted, between two distances, (E.5.2)
- 58: maximum number of vessels laying side by side, (E.5.3)
- 59: mooring facilities for push tows, (E.5.4)
- 60: mooring facilities for push tows with one blue cone, (E.5.5)
- 61: mooring facilities for push tows with two blue cones, (E.5.6)
- 62: mooring facilities for push tows with three blue cones, (E.5.7)
- 63: mooring facilities for other vessels than push tows, (E.8)
- 64: mooring facilities for other vessels than push tows with one blue cone, (E.5.9)
- 65: mooring facilities for other vessels than push tows with two blue cones, (E.5.10)
- 66: mooring facilities for other vessels than push tows with three blue cones, (E.5.11)
- 67: mooring facilities for all vessels (E.5.12)
- 68: mooring facilities for all vessels with one blue cone, (E.5.13)
- 69: mooring facilities for all vessels with two blue cones, (E.5.14)
- 70: mooring facilities for all vessels with three blue cones, (E.5.15)
- 71: anchoring permitted, (E.6)
- 72: berthing permitted, (E.7)
- 73: facilities for transfer of vehicles, (E.7.1.)
- 74: turning permitted, (E.8)
- 75: crossing with secondary waterway ahead, (E.9a)
- 76: secondary waterway ahead on the right, (E.9b)
- 77: secondary waterway ahead on the left, (E.9c)
- 78: secondary waterway ahead (main waterway right), (E.9d)
- 79: secondary waterway ahead (main waterway left), (E.9e)
- 80: secondary waterway left (main waterway right), (E.9f)
- 81: secondary waterway right (main waterway left) (E.9g)
- 82: secondary waterway ahead and left (main waterway right), (E.9h)
- 83: secondary waterway ahead and right (main waterway left), (E.9i)
- 84: crossing with main waterway ahead, (E.10a)
- 85: junction with main waterway ahead, (E.10b)
- 86: junction with main waterway ahead and right, (E.10.c)
- 87: junction with main waterway ahead and left, (E.10d)
- 88: junction with main waterway ahead and right (secondary waterway left), (E.10e)
- 89: junction with main waterway ahead and left (secondary waterway right), (E.10f)
- 90: end of prohibition or regulation, (E.11)

91:	drink water (E.13)
92:	telephone (E.14)
93:	boats with engine permitted (E.15)
94:	sport and pleasure boats permitted, (E.16)
95:	waterski area, (E.17)
96:	sailing boats permitted, (E.18)
97:	boats without engine or sails permitted, (E.19)
98:	windsurfing permitted, (E.20)
99:	nautical radio information, (E.23)
100:	waterscooters, jetskis permitted, (E.24)
101:	high speed motorboats permitted, (E.21)
102:	slipping of boats permitted, (E.22)

Definition:

References: All order numbers are referenced to CEVNI (European Code for Inland Waterways) revision 2, edited by the Economic Commission for Europe of the United Nations, 2001.

Remarks:

Attributes

NEW OBJECT ATTRIBUTES

Attribute	Category of refuse dump
-----------	-------------------------

ACRONYM

catrfd

Code: **17071**

Attribute type: L

Expected input:

ID	Meaning
1:	cargo residue/slop
2:	waste oil
3:	gray/black water
4:	domestic refuse

Definitions:

References:

Remarks:

Attributes

NEW OBJECT ATTRIBUTES

Attribute	Category of terminal
-----------	----------------------

ACRONYM

cattml

Code: **17072**

Attribute type: L

Expected input:

ID	Meaning	INT1
1:	Passenger terminal	
2:	Ferry terminal	IF10
3:	Tansshipment terminal	
4:	RoRo terminal	

Definitions:

A terminal provides facilities for handling particular forms of cargo (IHO Dictionary, S-32, 5th Edition, 5343).

References:

Remarks:

Distinction: transshipment goods

Attributes

NEW OBJECT ATTRIBUTES

Attribute	Category of waterway mark (buoy, beacon)
-----------	--

ACRONYM

catwwm

Code: **17112**

Attribute type: E

Expected input:

ID	:	Meaning
1:		right side
2:		left side
3:		separation
4:		right fairway side
5:		left fairway side
6:		fairway separation
7:		fairway at the right side
8:		fairway at the left side
9:		fairway change to the right side
10:		fairway change to the left side
11:		obstruction at the right side
12:		obstruction at the left side
13:		turn off at the right side
14:		turn off at the left side
15:		junction at the right side
16:		junction at the left side
17:		harbour entry at the right side
18:		harbour entry at the left side
19:		bridge mark

Definition:

References:

This list is referenced to the German Rheinschiffahrts-Polizeiverordnung (RheinSchPV) and Wasserstraßen-Verkehrsordnung (WVO) of Republic of Austria.

Remarks:

Attributes

NEW OBJECT ATTRIBUTES

Attribute	Class of dangerous cargo
-----------	--------------------------

ACRONYM

clsdng

Code: **17055**

Attribute type: E

Expected input:

ID	:	Meaning
1	:	one blue light/cone
2	:	two blue lights/cones
3	:	three blue lights/cones

Definition:

References:

Remarks:

Attributes

NEW OBJECT ATTRIBUTES

Attribute	Communication
-----------	---------------

ACRONYM

comctn

Code: **17073**

Attribute type: S

Expected input:

all kinds of communication, e.g. phone or fax number, email, address etc.

Definition:

References:

Remarks:

Attributes

NEW OBJECT ATTRIBUTES

Attribute	Direction of impact
-----------	---------------------

ACRONYM

dirimp

Code: **17056**

Attribute type: L

Expected input:

ID	:	Meaning
1	:	upstream
2	:	downstream
3	:	to the left bank
4	:	to the right bank

Definition:

Direction of the impact of an area, which is signed by notice marks.

References:

Remarks:

Attributes

NEW OBJECT ATTRIBUTES

Attribute	Distance from bank, first
-----------	---------------------------

ACRONYM

disbk1

Code: **17057**

Attribute type: F

Definition:

Minimum distance of the impact of an area, which is signed by notice marks. The distance is measured from the notice mark rectangular to the bank.

References:

Minimum value: **0**

Indication:

Unit: defined in the HUNI subfield of the DSPM record or in the HUNITS attribute of the M_UNIT meta object class, e.g. metre (m)

Resolution: 1 metre

Format:

xx

Example:

30

Remarks:

Attributes

NEW OBJECT ATTRIBUTES

Attribute	Distance from bank, second
-----------	----------------------------

ACRONYM

disbk2

Code: **17058**

Attribute type: F

Definition:

Maximum distance of the impact of an area, which is signed by notice marks. The distance is measured from the notice mark rectangular to the bank.

References:

Minimum value:

0

Indication:

Unit: defined in the HUNI subfield of the DSPM record or in the HUNITS attribute of the M_UNIT meta object class, e.g. metre (m)

Resolution: 1 metre

Format:

xx

Example:

50

Remarks:

Attributes

NEW OBJECT ATTRIBUTES

Attribute	Distance of impact, upstream
-----------	------------------------------

ACRONYM

disipu

Code: **17059**

Attribute type: F

Definition:

Upstream distance of the impact of an area, which is signed by notice marks. The distance is normally given on an additional mark left and/or right of the notice mark.

References:

Minimum value: **0**

Indication:

Unit: defined in the HUNI subfield of the DSPM record or in the HUNITS attribute of the M_UNIT meta object class, e.g. metre (m)

Resolution: 1 metre

Format:

xxx

Example:

100

Remarks:

Attributes

NEW OBJECT ATTRIBUTES

Attribute	Distance of impact, downstream
-----------	--------------------------------

ACRONYM

disipd

Code: **17060**

Attribute type: F

Definition:

Downstream distance of the impact of an area, which is signed by notice marks. The distance is normally given on an additional mark left and/or right of the notice mark.

References:

Minimum value:

0

Indication:

Unit: defined in the HUNI subfield of the DSPM record or in the HUNITS attribute of the M_UNIT meta object class, e.g. metre (m)

Resolution: 1 metre

Format:

xxx

Example:

100

Remarks:

Attributes

NEW OBJECT ATTRIBUTES

Attribute	Elevation 1
-----------	-------------

ACRONYM

eleva1

Code: **17061**

Attribute type: F

Definition:

Elevation 1 of a depth area

References:

Minimum value: **0.00**

Indication:

Unit: defined in the HUNI subfield of the DSPM record or in the HUNITS attribute of the M_UNIT meta object class, e.g. metre (m)

Resolution: 0.01 metre

Format:

xxx.xx

Example:

12.34

Remarks:

Attributes

NEW OBJECT ATTRIBUTES

Attribute	Elevation 2
-----------	-------------

ACRONYM

eleva2

Code: **17062**

Attribute type: F

Definition:

Elevation 2 of a depth area

References:

Minimum value: **0.00**

Indication:

Unit: defined in the HUNI subfield of the DSPM record or in the HUNITS attribute of the M_UNIT meta object class, e.g. metre (m)

Resolution: 0.01 metre

Format:

xxx.xx

Example:

12.34

Remarks:

Attributes

NEW OBJECT ATTRIBUTES

Attribute	Function of notice mark
-----------	-------------------------

ACRONYM

fnctnm

Code: **17063**

Attribute type: E

Expected input:

ID	:	Meaning
1	:	prohibition mark
2	:	regulation mark
3	:	restriction mark
4	:	recommendation mark
5	:	information mark

Definition:

References:

Remarks:

Attributes

NEW OBJECT ATTRIBUTES

Attribute	Horizontal clearance, length
-----------	------------------------------

ACRONYM

horcll

Code: **17074**

Attribute type: F

Definition:

The length of an object, such as a lock or basin, which is available for safe navigation. This may, or may not, be the same as the total physical length (HORLEN) of the object

References:

Minimum value: 0

Indication:

Unit: defined in the HUNI subfield of the DSPM record or in the HUNITS attribute of the M_UNIT meta object class, e.g. metre (m)

Resolution: 0.1 metres

Format:

xxx.x

Example:

125.1 for a width of 125.1 metres.

Remarks:

Distinction: HORLEN

Attributes

NEW OBJECT ATTRIBUTES

Attribute	Horizontal clearance, width
-----------	-----------------------------

ACRONYM

horclw

Code: **17075**

Attribute type: F

Definition:

The width of an object, such as a lock or basin, which is available for safe navigation. This may, or may not, be the same as the total physical width (HORWID) of the object.

References:

Minimum value: 0

Indication:

Unit: defined in the HUNI subfield of the DSPM record or in the HUNITS attribute of the M_UNIT meta object class, e.g. metre (m)

Resolution: 0.1 metres

Format:

xxx.x

Example:

125.1 for a width of 125.1 metres.

Remarks:

Distinction: HORWID

Attributes

NEW OBJECT ATTRIBUTES

Attribute	Transshipping goods
-----------	---------------------

ACRONYM

trshgd

Code: **17076**

Attribute type: L

Expected input:

ID:	Meaning
1:	containers
2:	bulk goods
3:	oil
4:	fuel
5:	chemicals
6:	liquid goods
7:	explosive goods
8:	fish
9:	cars
10:	general cargo

Definition:

The kind of goods which are transferred from and to ships

References:

Remarks:

Attributes

NEW OBJECT ATTRIBUTES

Attribute	UN Location Code
-----------	------------------

ACRONYM

unlocd

Code: **17077**

Attribute type: S

Definition:

For locations the UN CEFACT Recommendation 16 (UN LOCODE - unique identification of locations and harbours) is proposed for use wherever possible for places and harbours.

For terminals 5 digits are added to identify the terminals within a harbour.

References:

The UN locodes can be obtained from the Internet (www.unece.org/locode).
The terminal codes are available at Bureau Telematica in the Netherlands

Indication:

Format:

UN LOCODE: Alphanumeric, 5 digits

Terminal code: Alphanumeric, 5 digits, always in combination with UN-
LOCODE

Example:

UN LOCODE of Bingen: DEBIN

UN LOCODE and terminal code of ECT Duisburg: DEDUIECTDU

Remarks:

Attributes

NEW OBJECT ATTRIBUTES

Attribute	Update message
-----------	----------------

ACRONYM

updmsg

Code: **40000**

Attribute type: S

Expected input:

Definitions:

Textual update information about an object

References:

Remarks:

The attribute `update message` can be used to inform the mariner about the reason for an update or special warnings referring to the object.

Attributes

OBJECT ATTRIBUTES

Attribute	National update message
-----------	-------------------------

ACRONYM

nupdms

Code: **40020**

Attribute type: S

Expected input:

Definitions:

Textual update information about an object in national language

References:

Remarks:

The attribute `update message` can be used to inform the mariner about the reason for an update or special warnings referring to the object.

Attributes

NEW OBJECT ATTRIBUTES

Attribute	Waterway distance
-----------	-------------------

ACRONYM

wtwdis

Code: **17064**

Attribute type: F

Definition:

The distance measured from an origin of a river or canal.

References:

Minimum value: 0

Indication:

Unit: kilometres
Resolution: 0.1

Format:

xxx.x

Example:

523.4 for a waterway distance of 523.4 km.

Remarks:

7 Overview of Inland ECDIS Object Classes and Attributes

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8 List of additional used S-57 Object Attributes

-A-	
-B-	
-C-	
COLOUR	Colour
COMCHA	Communication channel
CONDTN	Condition
CONRAD	Conspicuous, radar
CONVIS	Conspicuous, visually
-D-	
DATEND	Date end
DATSTA	Date start
-E-	
EXPSOU	Exposition of sounding
-F-	
-G-	
-H-	
HORACC	Horizontal accuracy
HORCLR	Horizontal clearance
HORLEN	Horizontal length
HORWID	Horizontal width
-I-	
INFORM	Information
-J-	
-K-	
-L-	
-M-	
-N-	
NATCON	Nature of construction
-O-	
OBJNAM	Object name
ORIENT	Orientation
-P-	
PEREND	Periodic date end
PERSTA	Periodic date start
PICREP	Pictorial representation
-Q-	
QUASOU	Quality of sounding measurement
-R-	
RECDAT	Recording date
RECIND	Recording indication

-S-	
SCAMIN	Scale minimum
SOUACC	Sounding accuracy
SORDAT	Source date
SORIND	Source indication
STATUS	Status
-T-	
TXTDSC	Textual description
TIMEND	Time end
TIMSTA	Time start
TRAFIC	Traffic flow
-U-	
-V-	
VERACC	Vertical accuracy
VERCLR	Vertical clearance
VERCCL	Vertical clearance, closed
VERCOP	Vertical clearance, opened
VERCSA	Vertical clearance, safe
VERLEN	Vertical length

Additional National Language Attributes

NINFOM	Information in national language
NOBJNM	Object name in national language
NTXTDS	Textual description in national language