



12th Meeting of the IHO (S-100WG) S-101 Project Team

S-101 Documentation and FC GitHub Open Issues Impacting on the Feature Catalogue - Summary

Agenda Item 05.1A



IHO

ISSUE #61: INCLUSION OF ALIASES IN THE S-101 FEATURE CATALOGUE

International Hydrographic Organization

Open Inclusion of Aliases in the S-101 Feature Catalogue #61
JeffWootton opened this issue on Mar 21, 2023 · 6 comments



DavidGrant-NIWC commented 5 days ago

There can be multiple aliases for a given feature or attribute.

Feature Catalogue

[FeatureType] Conveyor (Conveyor)
 [FeatureType] Crane (Crane)
 [FeatureType] Current - Non-Gravitational (CurrentNonGravitational)
 [FeatureType] Custom Zone (CustomZone)

Remains	Non-gravitational current
Alias	String[] Array
[0]	CURRENT
[1]	Non-Tidal Current

The S-57 alias values were originally added to assist the ESRI converter, but they have proved very useful to us for PC development. We often need to determine the S-52 equivalent presentation for S-101 remodeled feature(s), and without the alias field (for instance MORFAC is not present in the FC) we need to dig through the DCEG change log alongside the S-52 DAI rules and try to figure out the evolution of the modeling.



JeffWootton commented on Nov 8, 2023 · edited

Collaborator Author

Discussion at DCEG Sub-Group 4 meeting:

Points to Note:

- Note comments in the GitHub, in general supporting the retention of Aliases in the Feature Catalogue as they are a useful cross-reference back to S-57 for implementers.
- Note that there is no use of Aliases in the ECDIS.

Discussion/Decision:

- There was general agreement that the Aliases should be retained at least until the operational Edition 2.0.0 of S-101.

Action:

- No action at this time. Issue to remain open.

- **Recommendation:** Retain in the Feature Catalogue until at least Edition 2.0.0. Note that this does not impact the data model.



IHO

ISSUE #96: QoBD FEATURES AND MANDATORY ATTRIBUTES

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- Last comment:



JeffWootton commented 2 minutes ago

Collaborator ...

Refer to Paper S-101PT12-06..2 and outcome of discussions at S-101PT12.

If there is an issue with surveyDataRange being mandatory, then suggest that this could be "conditionally" mandatory based on a single instance of zoneOfConfidence only and categoryOfTemporalVariation = 1, 2 or 3.



JeffWootton added the **Feature Catalogue** label 2 minutes ago

- Refer to decisions and outcomes of discussions on paper [S-101PT12-06.2](#).
 - Improve guidance in the DCEG.
 - Attribute surveyDateRange to have multiplicity amended to [0..1].



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ISSUE #97: ATTRIBUTE "LINKAGE"

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rmalyankar commented on Oct 27, 2023

The attribute *linkage*, currently of type *text*, should be restricted to URL type, or at least URI (ref. S-100 1-4.6). *Linkage* is defined in DCEG 1.2.0 (20231016) clause 27.121 as the *Location (address) for online access using a URL/URI address or similar addressing scheme*.

- The *text* type is inconsistent with the intent of the definition.
- URLs can be accessed (assuming it actually exists, has the right permissions, etc.) with an ordinary web browser; some URI formats like doi: identifiers can also be so accessed. Plain text, on the other hand permits any string.



rmalyankar commented on Oct 27, 2023

Author ...

I just noticed that the Simple attribute types clause (2.4.2) in the DCEG 1.2.0 does not include URL (nor URI or URN), is this intentional? Apart from *linkage*, when maritime resource names are introduced into S-101 the relevant attribute should be of type URN.

(The GI Registry allows *URN* as a data type and I expect it allows *URL* and *URI* too.)



- **Recommendation:** Amend as suggested by Raphael and make appropriate change at clause 2.4.2, based on S-101PT12 decision made for attribute type for interoperability/Identifier. However should it be URL or URI?

S-101PT12 Remote Meeting, 13-15 January 2024



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ISSUE #100: UPDATE INFORMATION

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- Last comment:



JeffWootton commented on Nov 8, 2023

Collaborator ...

DCEG Edition 1.2.0 modeling for the UpdateInformation meta feature, intended to replace the current ECDIS mechanism for highlighting ENC Updates to the Mariner:

[UpdateInformation.docx](#)

This revised modelling requires rigorous implementation and testing, and any feedback/comment is invited to inform discussions for the development of the finalized model for S-101 Edition 2.0.0.

Please note, however, the following decision from S-101PT11: S-101PT11 agreed that, due to lack of time for implementation and testing of the revised model and the impact on production systems and producers, the modelling will be “rolled back” to the Edition 1.1.0 model for initial 2.0.0 operational release, pending further results and evaluation of impacts from implementation and testing.



- Recommendations from Paper [S-101PT12-06.6](#) approved. **Testing required.**



IHO

ISSUE #101: IMPLEMENTATION OF OPTIMUMDISPLAYSCALE

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JeffWootton commented now

Collaborator

Author

...

This Issue is to be discussed at the S-101PT12 second session on 07 March 2024. Some initial "food for thought" to promote discussion:

- Suggest that, regardless of the outcome of the discussions, the attribute defining the "compilation scale" of the data is retained as "optimum display scale" rather than reverting back to "maximum display scale" as it was in S-101 Edition 1.1.0. This will then align the term with the definition of "compilation scale" as it is in the S-57 UOC at clause 2.2.6, which is "*The compilation scale should be considered as the optimum display scale of ENC data.*".
- The term "maximum display scale" would then remain as the term applying to the scale at which the gross overscale indication (prison bars) is activated as the mariner zooms in beyond the optimum display scale. The only question then remaining, I think, is whether the maximum display scale should be encoded in the data (as an attribute as currently in S-101 Edition 1.2.0) or managed within the ECDIS as is currently done with S-52.

The above is intended, in part, to try to reduce as much as possible the changes required to S-101 documentation, regardless of the decision taken over the application of the concepts.



DavidGrant-NIWC commented on Nov 9, 2023

...

We are happy for the Overscale pattern to be triggered at 2 x MaxDS as per S-52 rules when MaxDS=CSCL.

S-52 rules display the pattern at 2x CSCL. The encoding you will be using (MaxDS=CSCL) will display the pattern at 1x CSCL. The pattern will be displayed on your charts when the error is half as much as the equivalent S-52 chart.

There are cases where the pattern will not be displayed regardless of the MSVS/MaxDS/CSCL:

- When the display is "intentionally overscaled".
- When the pattern is turned off (via viewing group 21030 or VGL chart scale boundaries).



- **Recommendation:** Requires testing. Discussions at S-101PT12 will likely not resolve this issue (as happened at S-101PT11). General feedback from correspondence is to retain as is for S-101 Edition 2.0.0.
 - Do we need a vote on this? If so this should be an informed vote based on testing.



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ISSUE #103: DISCONTINUE 'DISPLAY UNCERTAINTIES' BOOLEAN ATTRIBUTE

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alvarosanuy commented on Nov 14, 2023

The PsWG decided not to allocate dedicated portrayal instructions to the horizontal and/or vertical uncertainties encoded in hydrographic features in depths = < 30m.

It was noted that 'display uncertainties' was introduced without mariner's input and that, based on initial testing, it will severely impact the legibility of ENC data.

Accordingly, mariners won't be allowed to graphically visualize feature's Uncertainties (turn them ON/OFF) at their will. The recommendation is to **only use** Vertical & Horizontal uncertainties to trigger A&I (at mariners' request). Both, during route planning and route monitoring phases.

The PsWG is open to re-asses this topic in the future if a mariner supported Use Case is submitted to the S101PT for consideration.

Refer to [S-101-Portrayal-subWG/Working-Documents#1 \(comment\)](#)

Accordingly, it is recommended that the Boolean attribute `displayUncertainties` and associated encoding guidance are removed from the S-101 FC and DCEG.



JeffWootton commented on Nov 29, 2023

Collaborator ...

Based on some of the correspondence I have seen over the past few weeks regarding IMO requirements for display of encoded feature uncertainties during route planning and monitoring, I agree with this recommendation from the Portrayal Sub-Working Group.



TomRichardson6 commented 5 days ago

I think that the work from the ENCWG on uncertainties has effectively superseded this. I would like to make a decision at PT12 but I wonder if we need to go ahead here and simply report this decision at PT13.

- **Recommendation:** Remove from S-101.
- Further discussion may be required based on ENCWG SG discussions.



IHO

ISSUE #104: ATTRIBUTE FORMAT AND RANGE OF VALUES

Attribute format and range of values #104

Open Christian-Shom opened this issue on Nov 30, 2023 · 4 comments



Christian-Shom commented on Nov 30, 2023

Collaborator

Although S-57 attribute catalogue defines a format for type Float that does not always fulfil the need for some features (ex : xxx.x for RADIUS), it is possible to use larger values (ex: 1500 for RADIUS). S-58 check 26b contains the following guidance: "for attribute values of type "float", the resolution given in the format statement by the integer part (for example XX.X) must not be checked" and Validation software do not trigger errors in such cases.

- Is this going to work similarly in S-101, now that we have xml FCs?
- should we include some introductory Notes at the start of Sections 27 and 28 of the DCEG stating that the Format indication is indicative only and no padded zeros should be used?
- should we consider using the upper and lower permitted values within the Feature Catalogue? (this would avoid having validation checks such S-58 26a and 26b in S-101).
- should we simply add an additional "x" to the format descriptions with a statement to not include padded zeros?

Christian-Shom commented on Jan 4

Collaborator Author

There are only 6 constraints in the entire current FC, the most complete being for depthRangeMaximumValue:

```
<S100FC:constraints>
  <S100CD:textPattern>sxxxxx.xx; s = sign, negative values only</S100CD:textPattern>
  <S100CD:range>
    <S100Base:lowerBound>-30</S100Base:lowerBound>
    <S100Base:upperBound>12000</S100Base:upperBound>
    <S100Base:closure>closedInterval</S100Base:closure>
  </S100CD:range>
</S100FC:constraints>
```

This is far from reflecting the entire DCEG.

- Should we review it to make it the reference (and not the DCEG)?
- I do not understand the constraints on attribute source in the FC:

```
<S100FC:constraints>
  <S100CD:stringLength>150</S100CD:stringLength>
  <S100CD:textPattern>c...</S100CD:textPattern>
</S100FC:constraints>
```

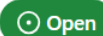
- **Recommendation:** Note paper S-101PT12-06.12. Move forward based on discussions. Not critical for Edition 1.2.0. Address in slower time.



IHO

ISSUE #108: ENCODING OF SPEED LIMITS

Encoding of speed limits #108



KlasOstergren-SMA opened this issue on Jan 8 · 5 comments

International Hydrographic Organization

- GitHub comments almost unanimously support Option 2



Christian-Shom commented on Jan 10

Collaborator

Where there is effectively a speed limit and the information is available, I can't see why it would not be possible to encode it on features other than **Restricted Area**, such as **Fairway**, **Precautionary Area**, **Anchorage Area**, etc.

I admit there are features for which **Restriction** value 27 is « strange » (**Cable Area**, **Deep Water Route Part**, etc.). Maybe the list of features allowing value 27 could be reviewed. But everywhere this value is allowed, I think complex attribute **vessel speed limit** must be allowed too.

So, I'm in favour of option 2 with a possibility of option 1 on some features.

On the same topic, I think there needs to have a validation check « For each feature object where **category of restricted area** is Equal to 24 and **restriction** does Not contain value 13 », and possibly expand the guidance in the DCEG.



KlasOstergren-SMA commented on Jan 8

There are inconsistencies in the DCEG and the data model regarding the encoding of speed limits.

17.4 Speed limits states:

Speed is often limited inside harbours in order to prevent wakes. If it is required to encode this restriction, it must be done using a **Restricted Area** feature (see clause 17.8), with the attribute category of restricted area = 24 (no wake area) or restriction = 13 (no wake). If it is required to encode cases where the speed limit is known in general or for a certain class(es) of vessel, it must be done using restriction = 27 (speed restricted), with the speed limit, speed units and, if appropriate, the class of vessel, encoded using an instance of the complex attribute vessel speed limit, sub-attributes speed limit, speed units and vessel class.

At the same time, it is possible to encode restriction=27 (speed restricted) for several other features where the complex attribute vessel speed limit doesn't exist.

I see three options:

1. Remove restriction value 27 (speed restricted) as an allowable value for all features other than **Restricted Area**
2. Add the complex attribute vessel speed limit to all features where restriction value 27 (speed restricted) is allowed
3. Amend the guidance in 17.4 to reflect the current situation
4. Leave as is

Any thoughts?

- **Recommendation:** Add complex attribute vesselSpeedLimit to all features carrying attribute restriction with allowable value 27 (speed restricted).
 - Should a review be carried out on features having speed restricted as an allowable value?



IHO

ISSUE #110: FC 1.2 HAS INVALID MULTIPLICITY FOR CATEGORYOFDOLPHIN

FC 1.2 has invalid multiplicity for `categoryOfDolphin` #110

Open DavidGrant-NIWC opened this issue 3 weeks ago · 0 comments



DavidGrant-NIWC commented 3 weeks ago

Should be 1,1:

S-101 Attribute	S-57 Acronym	Allowable Encoding Value	Type	Multiplicity
category of dolphin	(CATMOR)	1 : mooring dolphin 2 : deviation dolphin 3 : berthing dolphin 4 : fender or breasting dolphin	EN	1,1
colour	(COLGRP)	1 : white	EN	0* (optional)

FC 1.2 binds with `infinite="true"` and value of "1". Not sure if there is a schematron check for this (binding with both a value and `infinite="true"`), but there should be.

```
<S100FC:S100_FC_FeatureType isAbstract="false">
  <S100FC:name>Dolphin</S100FC:name>
  <S100FC:definition>A post or group of posts, used for mooring or warping a vessel, or as an aid to navigation. The dolphin may be in the water, on a wharf or on the beach.</S100FC:definition>
  <S100FC:code>Dolphin</S100FC:code>
  <S100FC:definitionReference>
    <S100FC:sourceIdentifier>650</S100FC:sourceIdentifier>
    <S100FC:definitionSource ref="IHOREG"/>
  </S100FC:definitionReference>
  <S100FC:attributeBinding sequential="false">
    <S100FC:multiplicity>
      <S100Base:lower>1</S100Base:lower>
      <S100Base:upper xsi:nil="false" infinite="true">1</S100Base:upper>
    </S100FC:multiplicity>
  </S100FC:attributeBinding>
</S100FC:S100_FC_FeatureType>
```

- No comments since Issue was posted.

- Recommendation:** Needs to be addressed. Apply to FC Edition 1.2.1.



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ISSUE #114: MULTIPLICITY OF RELATIONSHIPS (LIGHTS AND TRANSPONDER BEACONS) IN FC 1.2.0

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- S-101PT Chair: Various issues for relationships in FC 1.2.0. Action for FC fix release 1.2.1.



kusala9 commented 5 days ago

There seems to be three mandatory relationships required for LightAllAround according to the latest FC 1.2.0

Mandatory Feature Bindings from the 1.2.0 FC for LightAllAround. this would require one from each group to be associated. They also all have the same association and role, so could all be combined. DCEG doesn't mandate any relationships at all.

Seems to also affect Fog, Sectored and Air Obstruction Lights too.

Feature Associations				
S-101 Role	Association Type	Associated to	Type	Multiplicity
Supported by	Structure/Equipment (see clause 25.15)	Cardinal Beacon, Cardinal Buoy, Bridge, Building, Crane, Conveyor, Dolphin, Emergency Wreck Marking Buoy, Fishing Facility, Floating Dock, Fortified Structure, Hulk, Installation Buoy, Isolated Danger	Composition	0,1

```
<S100FC:featureBinding roleType="composition">
  <S100FC:multiplicity>
    <S100Base:lower>1</S100Base:lower>
    <S100Base:upper xsi:nil="false" infinite="false">1</S100Base:upper>
  </S100FC:multiplicity>
  <S100FC:association ref="StructureEquipment"/>
  <S100FC:role ref="supportedBy"/>
  <S100FC:featureType ref="LightAllAround"/>
  <S100FC:featureType ref="LightSectored"/>
</S100FC:featureBinding>

<S100FC:featureBinding roleType="composition">
  <S100FC:multiplicity>
    <S100Base:lower>1</S100Base:lower>
    <S100Base:upper xsi:nil="false" infinite="false">1</S100Base:upper>
  </S100FC:multiplicity>
  <S100FC:association ref="StructureEquipment"/>
  <S100FC:role ref="supportedBy"/>
  <S100FC:featureType ref="Daymark"/>
</S100FC:featureBinding>
```

```

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<S100FC:featureBinding roleType="composition">
  <S100FC:multiplicity>
    <S100Base:lower>1</S100Base:lower>
    <S100Base:upper xsi:nil="false" infinite="false">1</S100Base:upper>
  </S100FC:multiplicity>
  <S100FC:association ref="StructureEquipment"/>
  <S100FC:role ref="supportedBy"/>
  <S100FC:featureType ref="Bridge"/>
  <S100FC:featureType ref="Building"/>
  <S100FC:featureType ref="Crane"/>
</S100FC:featureBinding>
```

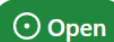
- **Recommendation:** Needs to be addressed. Apply to FC Edition 1.2.1.



IHO

ISSUE #115: REMOVE POINT AS ALLOWABLE GEOMETRIC PRIMITIVE FOR FEATURE MAGNETIC VARIATION

Remove point as allowable geometric primitive for feature MagneticVariation #115



JeffWootton opened this issue 4 days ago · 1 comment



JeffWootton commented 4 days ago

Collaborator

Suggestion is to remove point as an allowable geometric primitive for **Magnetic Variation** in S-101. Issue would be the capability of Producing Authorities to apply this change to their ENC portfolio.

The principle reason for this proposal is that, unless a point feature falls within the ECDIS display, the Mariner will be required to continually zoom out until a point feature is in the screen display.

A possible solution could be to include a single **Magnetic Variation** feature of type surface covering the entire area of data coverage for the ENC dataset at the larger optimum display scales (up to 350000?) and ; and isogonals (curves) at smaller scales.



alvarosanuy commented 14 hours ago

A possible solution could be to include a single **Magnetic Variation** feature of type surface covering the entire area of data coverage for the ENC dataset at the larger optimum display scales (up to 350000?) and ; and isogonals (curves) at smaller scales.

Depending on the area of the world and the scale of the product, multiple Surfaces may be required to be encoded in one ENC to cater for rapid and/or large changes in magnetic variations.

Beyond that (an updated encoding guidance), I support removing Point as an allowable geometric primitive.

- **Recommendation:** Retain point for now. Discuss further post-Edition 2.0.0.



IHO

ISSUE #116: ALLOWABLE VALUES OF WATERLEVEL EFFECT FOR LANDREGION

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Allowable values of waterLevelEffect for LandRegion #116

Open

JeffWootton opened this issue 4 days ago · 1 comment

- S-101PT Chair: Seems like no action is needed, I think this may be related to paper chart production. Only action could be to allow value 4.



JeffWootton commented 4 days ago

Collaborator ...

Comment from UK: Attribute water level effect currently only has values 7 or 6 for feature Land Region, however some of the values for category of land region may, by definition, be in the intertidal area.

IHO Sec Response: Comment is specific to marsh - by definition, marsh is "An area of wet, often spongy ground that is subject to frequent flooding or tidal inundations, but not considered to be continually under water. ...". This to me is water level effect = 6. Therefore consider that no further action is required.

Other opinions are welcome on this issue.



alvarosanuy commented 14 hours ago

...

Tend to agree with Jeff's comments.



- **Recommendation:** No further action. Close Issue.



IHO

ISSUE #118: ADD INTHEWATER AS AN ALLOWABLE ATTRIBUTE FOR FEATURE BUILTUPAREA

International Hydrographic Organization

- Discussed at S-101PT12 in association with Paper S-101PT12-06.9. Action assigned to apply this change.

Add inTheWater as an allowable attribute for feature BuiltUpArea

Open JeffWootton opened this issue 4 days ago · 1 comment



JeffWootton commented 4 days ago

Collaborator ...

Consideration should be given to amending the encoding of built-up areas over water to be similar as for buildings, landmarks, etc. That is, adding the "system" attribute in the water and amending the encoding guidance accordingly.

SHOM: Quite agree with Editor Comments. Encoding of Coast Line should be suppressed.



JeffWootton added **DCEG** **Feature Catalogue** **For S-101 Ed 2.0.0** labels 4 days ago



alvarosanuy commented 14 hours ago

Supported



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- Recommendation:** May be added for Edition 2.0.0 but is a lower priority so only include in Edition 2.0.0 if time allows.

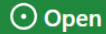


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ISSUE #119: CABLEOVERHEAD - ALLOWABLE VALUE FOR ATTRIBUTE CATEGORYOFCABLE

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CableOverhead - allowable value for attribute categoryOfCable



JeffWootton opened this issue 4 days ago · 1 comment



JeffWootton commented 4 days ago

Collaborator ...

Suggest that values 4 (telephone) and 5 (telegraph) for attribute `category of cable` are replaced with new value 10 (telecommunications cable) for feature `Overhead Cable`.



alvarosanuy commented 14 hours ago



Supported. I believe this was already done for submarine cables.



- **Recommendation**: Apply change for Edition 2.0.0.



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ISSUE #120: NEW FEATURE DEPTHDISCONTINUITY

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New feature DepthDiscontinuity #120

Open

JeffWootton opened this issue 4 days ago · 1 comment

- S-101PT Chair: I think this has come up previously as it could certainly be added after 2.0.0 propose make this post 2.0.0 and continue to review.
- Re: Alvaro comment: Full proposal was pending based on outcome of DQWG discussions



JeffWootton commented 4 days ago

Collaborator ...

This has been a long outstanding open discussion item. Original notes:

Note that there is a proposal for a **Depth Discontinuity** feature that is awaiting completion of the work of the DQWG on data quality before it is discussed further.

SHOM: Not seen anything in DQWG reports on this... I'm in favour of a new feature. More generally, in favour of deleting the "pseudo" lines (0.3mm large areas) (Caution areas and Maritime jurisdiction areas).

There is a requirement to determine if such a feature is still required, and if so what the data modelling, encoding guidance and portrayal. Not sure if this can be done in time for S-101 Edition 2.0.0.



alvarosanuy commented 14 hours ago

...

Need to see the proposal first. Can it be shared here?



- **Recommendation:** Discuss further post-Edition 2.0.0.



IHO

ISSUE #121: SYSTEM ATTRIBUTE FLAREBEARING

International Hydrographic Organization

- IHO Sec Comment: Tend to agree with Alvaro. The 2nd part of the CSP as described by Dave actually performs the function originally intended to be performed by flareBearing.

System attribute flareBearing #121

Open JeffWootton opened this issue 3 days ago · 4 comments



JeffWootton commented 3 days ago

Collaborator

Should "system" attribute flare bearing be populated by the production systems every time (i.e. (1,1))? [Impacts clauses 19.2, 19.4 and 19.5]

Consider that this is dependent on whether there is a portrayal CSP that automatically orientates the light flare to a "default" value.



DavidGrant-NIWC commented 3 days ago

The portrayal CSP which evaluates flareBearing is LightFlareAndDescription.

The default orientation for the light flare is 135 degrees. This value is used if none of the conditions below apply.

- If flareBearing is populated, its value is used to orient the light flare.
- If flareBearing is not populated, or is unknown and:
 - the light colour contains 1, 6, or 11 (it is white, yellow or orange) and
 - there is a LightAllAround, LightAirObstruction, or LightFogDetector associated with the same spatial object (EXACTLY the same point spatial object in the encoding)
 - the light flare is oriented at 45 degrees.

flare bearing (see clause 30.2) – defines the orientation direction of a light flare where more than one all around light is collocated so as to avoid the light flares from being coincident in the ECDIS display. This attribute is automatically calculated and populated as required by the ENC production software. However, for improved ENC display in ECDIS, encoders may manually populate flare bearing to cartographically align, for example, along a transit or leading line.

alvarosanuy commented 15 hours ago

Excuse my ignorance here but, does flareBearing really fit the definition of a 'System attribute'?

In my mind, it would fit the criteria if it was only to declutter collocated all around lights, where predefined set of flare bearings exist and they are auto-populated by the production tool to ensure all of the flares are readable (similar to sector arc extension). Problem is, we also want to allow data producers to encode any bearing they want to assist them with other decluttering or cartographic scenarios. Consequently, the attribute can't be locked for editing.

I believe what we want is for flareBearing encoding to be assisted by production tools (i.e. allowing cartographers to rotate the flare with the mouse and until its position makes sense with the surrounding data and then get flareBearing auto-populated once the flare is dropped at a location).

Having said this, sometimes you want the flare at exactly 090 and, by dragging and spinning the flare around, it may be difficult to 'stop' exactly at that value. Therefore, it should be possible for the user to overwrite the bearing the production tool came up with.

In the collocated lights example, all values could be preloaded by the production tool but they have to be editable if necessary.

- **Recommendation:** Retain as [0..1] and re-assign as simple attribute rather than "system" attribute.



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THANK YOU

S-101PT12 Remote Meeting, 13-15 January 2024