S-101PT6

Placement of texts in S-101

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Agenda Item 16

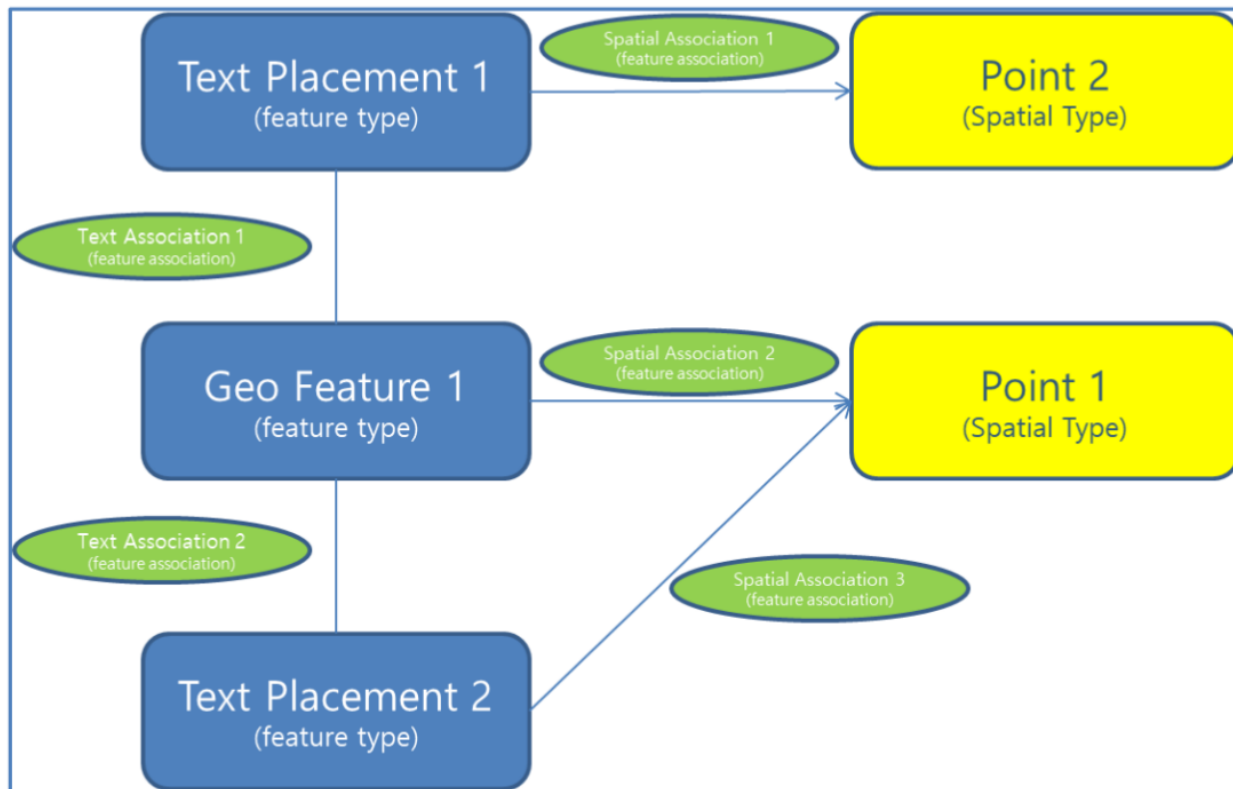- One major improvement of S-101: possibility for the cartographer to "control" the placement of a text on the ECDIS.

- Will avoid overlap with other features or texts and offer mariners a better readability.

- This possibility is implemented by the new cartographic feature "Text Placement".

- This paper proposes to confirm the possibilities of placing S-101 ENCs names and light legends on the ECDIS.

- This will allow wide testing to be carried on, so that the best data model can be retained.

Text Placement data model

- Text Placement cartographic feature is linked to the geographic feature object by a Text association.

- Text Placement will change the position of the text that would have been set by the default portrayal.

- Text Placement is defined in the Feature Catalogue as having a Point Primitive.

- Confirmed in the DCEG (23.1.1): "Text Placement should only be associated with features of type point".

- Text Placement itself is an independent geo feature so it also can have spatial association.

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Text Placement feature is defined as follows in the DCEG:

23.1   Text placement

IHO Definition: **TEXT PLACEMENT**.   The Text Placement feature is used in association with the Feature Name attribute or a light description to optimise text positioning in ECDIS.

S-101 Cartographic Feature: Text Placement

Primitives: Point

Real World	Paper Chart Symbol	ECDIS Symbol

S-101 Attribute	S-57 Acronym	Allowable Encoding Value	Type	Multiplicity
flip bearing			RE	0,1
text justification		1 : left 2 : centred 3 : right	EN	1,1
text			TE	0,1
text type		1 : name 2 : light characteristic	EN	0,1
scale minimum	(SCAMIN)	See clause 2.5.9	IN	0,1

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Text association is defined as follows in the DCEG:

25.15 Text association

Text Association: IHO Definition: A feature association for the binding between a geo feature and the cartographically positioned location for text.

Remarks:
- No remarks.

Role Type	Role	Associated With	Multiplicity
Association	Identifies	All Geo Features	0,*
	Positions	**Text Placement**	1,1

- One Text Placement can be associated to only one Geo feature.

- One Geo feature can be associated to more than one Text Placement features.

- Text Association carries no attributes.

Spatial association is defined as follows in the S-101 Product Specification

B5.1.31 Spatial Association field - SPAS

Subfield name	Label	Value	Format	Comment
Referenced Record Name	*RRNM		b11	Record name of the referenced record
Referenced Record Identifier	RRID		b14	Record identifier of the referenced record
Orientation	ORNT		b11	{1} Forward {2} Reverse {255} NULL (Not Applicable)
Scale Minimum	SMIN		b14	Denominator of the largest scale for which the feature type can be depicted by the referenced spatial feature. If the value is 0 it does not apply
Scale Maximum	SMAX		b14	Denominator of the smallest scale for which the feature type can be depicted by the referenced spatial feature. If the value is $2^{32}-1$ it does not apply
Spatial Association Update Instruction	SAUI	{1}	b11	{1} - Insert

- **The current SPAS model permits to use Scale Maximum and Scale Minimum subfields to control Text Placement features.**

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WAY FORWARD

- Along the Scale range of an ENC (from Maximum to Minimum Display Scales), it may be needed/useful to have two or more different placements of one text, according to the scale at which the ENC is displayed.

- Future cartographic production tools could be fitted with functionalities that calculates symbols/texts overlappings and automatically populates the attributes of the Text Placement features, including the scale range.

- *Flip bearing* being an attribute of the Text Placement feature, the only possibility to encode various "orientations" of a text is to use various Text Placement features.

- It is proposed to test and possibly review the current model to allow various Text Placement features, with different scale ranges, being associated to one geo feature.

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RECOMMENDATIONS

It is recommended to:

- Confirm the use of Scale Maximum and Scale Minimum on the Spatial Association field (SPAS).

- Invite volunteers to discuss the way to improve S-101 ENC text readability with Text Placement feature and its associations (Text and Spatial).

ACTIONS REQUESTED FROM THE S-101 PROJECT TEAM

1. Discuss this paper its recommendations.

2. Invite interested people to participate in further discussions, among the DCEG or Portrayal Sub-Group.

3. Agree on any other possible action.