

Title: Part 9 Hatch Fill corrections**S-100 Maintenance - Change Proposal Form**

Organisation	Portolan Sciences LLC	Date	26 Feb. 2024
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Change Proposal Type (*Select only one option*)

1. Clarification	2. Correction	3. Extension
	X	

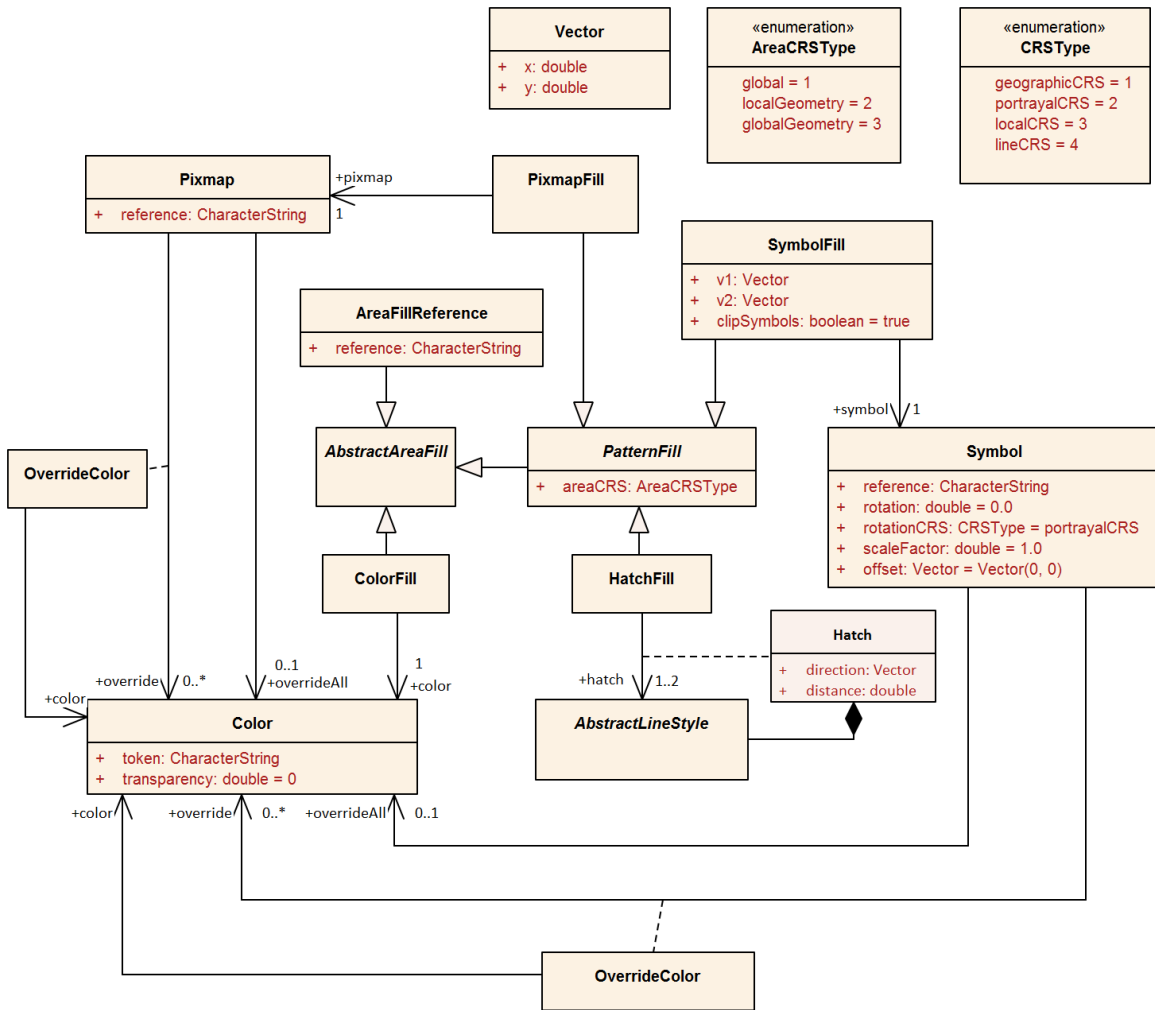
Location (*Identify all change proposal locations*)

No.	S-100 Version No.	Part No.	Section No.	Proposal Summary
1	5.2.0	9	12.5	Correct the number of the first sub-clause of 9-12.5 (The AreaFills Package) from 9-13.5.1 to 9- 12 .5.1.
2		9	12.5.1	Figure 9-21 (Area Fills Package): Revise as shown in Item 2 below.
3		9	12.5.1.7	Revise the table for HatchFill to change the multiplicity of the association to AbstractLineStyle from 1 to 1..2; add an explanation of model and an example of its use in a portrayal catalogue.
4		9	12.4.1.1	Add remark to clause 9-12.4.1.1 AbstractLineStyle stating it is implemented by LineStyleBase.
5		9	12.5.1.1	Add remark to clause 9-12-5.1.1 AbstractAreaFill stating that it is implemented by AreaFillBase.
6		9	12.5.1.8	Rename role "line" to "lineStyle" and add clarifying remark.
7		9a	11.2.1	Add direction and distance for the second linestyle to the parameters for HatchFill

Change Proposal

Detailed revisions in red below

Item 2: **Figure 9-21 Area Fills Package**



Item 3: 9-12.5.1.7 HatchFill

Role Name	Name	Description	Mult.	Type
Class	HatchFill	Defining a pattern made of one or two sets of parallel lines	-	-
Association	hatch	A set of parallel lines	1..2	Hatch

NOTE: The modeling of hatch fills represents the conceptual relationship between hatch fills and line styles in terms of “hatch” as a complex role whose sub-structure is represented by the Hatch association class.

EXAMPLE: The fill below is defined in terms of two line styles, each with its own direction and spacing in the fill. One line style is defined inline while the second references a line style defined elsewhere in the portrayal catalogue. (Attributes and content elided for brevity.)

```

<S100AF:hatchFill>
  <areaCRS>...</areaCRS>
  <hatch>
    <lineStyle>...</lineStyle>
    <direction>...</direction>
    <distance>...</distance>
  </hatch>
</hatch>

```

```

        <lineStyleReference reference="LineStyleX"/>
        <direction>...</direction>
        <distance>...</distance>
    </hatch>
</S100AF:hatchFill>

```

Item 4: 9-12.4.1.1 AbstractLineStyle

Add this note following the table:

NOTE: AbstractLineStyle is implemented in the portrayal catalogue by the type LineStyleBase.

Item 5: 9-12.5.1.1 AbstractAreaFill

Add this note following the table:

NOTE: AbstractAreaFill is implemented in the portrayal catalogue by the type AreaFillBase.

Item 6: 9-12.5.1.8 Hatch

Role Name	Name	Description	Mult.	Type
Class	Hatch	A set of parallel lines used for an area fill pattern		
Attribute	direction	The vector defining the direction of the set of lines	1	Vector
Attribute	distance	The distance between the lines measured perpendicular to the direction	1	double
Composition	lineStyle	The line style used for each hatch line	1	LineStyle::AbstractLineStyle

NOTE: The *lineStyle* composition is implemented in the portrayal catalogue by inlining one of *lineStyle*, *lineStyleReference*, or *compositeLineStyle*.

Item 7: 9a-11.2.1 Drawing Commands

...

HatchFill:direction,distance,lineStyle[,direction,distance,lineStyle]

Instructs the host to fill an area using **one or two linestyles a hatch symbol** defined within the Portrayal Catalogue. Direction and distance are as defined in Part 9 clause 9-12.5.1.8.

Each linestyle parameter refers to either a linestyle defined within the Portrayal Catalogue or to a linestyle created by a preceding LineStyle command. **Each linestyle has its own direction and distance in the context of the fill.**

Change Proposal Justification

Item 1: Corrects a typographical error.

Items 2, 3, 6:

- (1) Corrects the role name in the UML diagram (Figure 9-21) and multiplicity in table in 9-12.5.7.
- (2) Clarifies that the "hatch" element in the portrayal contains the line style element. Does not require a revision of the portrayal XML schemas.

Explanation: Hatch is an association class in the UML model. (There are similar association classes elsewhere in the portrayal model, including in the same UML

diagram.) The current modeling of hatch fills is in principle sufficient to represent the conceptual relationship between hatch fills and line styles considering “hatch” as a complex role whose sub-structure is represented by the Hatch association class (this is how it is currently encoded in the portrayal catalogue). However, adding the link between Hatch and AbstractLineStyle will clarify that each hatch element in the XML encoding of HatchFill contains a linestyle.

An alternative model using composition associations is possible but would be subject to its own set of misinterpretations compared to the implementing XML schema. Given that there are association classes elsewhere in the portrayal model as well, the proposed changes will be the simplest fix at this time.

Items 4,5: Align the conceptual model in Part 9 with its implementation in the XML schemas.

Item 7: Align Part 9a with the existing AreaFills model and schema in the portrayal catalogue. The current list of parameters for HatchFill in Part 9a does not capture the fact that as an association class, there is a different set of distance and offset attributes applying to each linestyle in the hatch fill.

What parts of the S-100 Infrastructure will this proposal affect?

- S-100 Feature Concept Dictionary Interface or Database
- S-100 Portrayal Register
- S-100 Feature Catalogue Builder
- S-100 Portrayal Catalogue Builder
- S-100 UML Models
- S-100 GitHub Schemas

Please send completed forms and supporting documentation to the secretary S-100WG.