

1	2	(3)	4	5	(6)	(7)	
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S-100 Part 9	CAR IS	Page 7 Section 6.1	3 rd paragraph	ed	An XSLT processor transforms XML input into XML outputs	An XSLT processor transforms XML input into XML outputs	
S-100 Part 9	CAR IS	Page 28 Section 9.2.1 And A.3	spatialReference	ed	DrawingInstruction identifies that the multiplicity is optional or many for the spatialReference.	XSD example A.3 on page 67 needs to have maxOccurs of unbounded. <pre><xs:element name="spatialReference" type="SpatialReference" minOccurs="0" maxOccurs="unbounded"></pre>	
S-100 Part 9	CAR IS	Page 28 Section 9.2.1 And A.3	DrawingInstruction display scale	ed	Consider adding an optional displayScale parameter onto DrawingInstruction. Could carry min and max display scale. Normally the scale use is managed via the feature or the data coverage but in some cases the portrayal of a feature changes based on context such as display scale or mariner settings. For example to use symbolized line boundary for an area at large scale but simplified at small scale. E.g. anchor symbols along line or simple dashed magenta line. Also isolated dangers get set to scamin of infinite	Add an optional attribute to DrawingInstruction for displayScale. displayScale being a complex with optional min and max values but with at least one defined if displayScale is populated.	
S-100 Part 9	CAR IS	Page 28 Section 9.2.4	Model	te	NullInstruction inherits from DrawingInstruction which means it must have viewing group display priority and display plane populated. This doesn't seem to have any value.	Propose to change the model such that a common abstract base class be created from which NullInstruction and DrawingInstruction inherit.	
S-100 Part 9	CAR IS	Page 37 Section 10.3.1.6	VisibleParts	te	"The symbol has to be placed at a representative position in each visible part of the surface." Should describe what is meant by representative position.	We could say that: Typically the symbol would be at the centre of gravity except for shapes where this point falls outside of the shape. For those cases it is up to the system to find a visible location inside of the area to place the symbol.	

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S-100 Part 9	CAR IS	Page 38 Section 10.4.1.2 10.4.1.3	Dash	te	It would be good to note that there can be multiple dash definitions and what that means for implementation. Some examples would probably be helpful. The provided mechanism may need enhancement. The Dash definition has a space and a line. What if you want the pattern to start with a line then a space? Maybe to do this a complex linestyle is needed?	Propose that portrayal technical working group provide clarity and examples.	
S-100 Part 9	CAR IS	Page 39 Section 10.4.1.4	ComplexLineStyle	te	ComplexLineStyle probably needs to be enhanced to provide more information about how a linestyle is defined by a combination of simple line styles and symbols oriented with respect to the localCRS of the line.	Propose that portrayal technical working group provide clarity and examples. Need to define complex linestyles, how are they implemented via svg or do we need additional XML to define the patterning info. Basically I see that a complex linestyle could comprise of a sequence of elements repeated along the line made up of: a simple linestyle dash or dott pattern a sequence of symbols - with scalefactor and rotation with a CRS that says to rotate from the tangent of the line or to rotate with reference to the top of the screen. Perhaps two patterns, long and short. If the long pattern is too long to fit then use the short pattern, If we want to be able to register and reuse complex line patterns then the XML pattern description could be given a name/id and kept in the register. Maybe we could allow both: ComplexLineStyle - has the full definition of the	

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						pattern with references to external svg symbols RegisteredComplexLineStyle - carries a reference to a pattern name in the register	
S-100 Part 9	CAR IS	Page 42 Section 10.5.1.5	SymbolFill v1 and v2	te	What units are the vectors given in? Could be mm on display or in increments of the width/height of the referenced symbol. Propose that mm on display be used and portrayal designed would need to know how big the symbol is when defining the pattern.	Vector offsets defined in mm on display	
S-100 Part 9	CAR IS	Page 42 Section 10.5.1.5	HatchFill background	te	Remove entry for "background" colour for Hatchfill. Only draw parallel lines. Use AreaFill in combination to color fill an area before drawing hatch pattern. Background is already not in the XSD defined in A.2	Remove "background" for HatchFill. The UML diagram for 10.5.1 needs to be updated to remove the "background" color reference from HatchFill.	
S-100 Part 9	CAR IS	Page 43 Section 10.5.1.8	AreaCRSType	te	The enumerants in 10.5.1.8 does not match what is in XSD provided in A.2 where it has "Global" where 10.5.1.8 has "Device". We may need 3 settings. Device, Global and LocalGeometry.	Device – anchor point is consistent with a location on the drawing device such as starting with the corner of the screen. As screen pans the pattern will appear to shift/move through the object on screen. Local Geometry – Anchor point is consistent with the local geometry of the object being depicted. Such as the left corner of the object . Patterns of adjacent objects may not match. Global – Anchor Point consistent with a common geographic reference point such as 0,0. All patterns stay consistent with each other and as panning occurs.	

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S-100 Part 9	CAR IS	Page 44 Section 10.6.2.1	Font Match	te	Regarding whether actual Fonts are referenced or not. It is understood that referencing a specific Font may be an issue with copyright or cost of purchasing a Font however there may be cases where reference to a specific font could be desired, perhaps even a custom font could be provided by the specification provider. Maybe there could be two different Font classes. The current "Font" could be renamed to "FontCharacteristics" and another element created called "FontReference" which provides a reference to a named Font. A product specific portrayal spec could choose to abstain from using specific FontReferences.	Have two ways to specify Fonts. A Font matched by a set of Characteristics "FontCharacteristics" and a reference to an actual named Font "FontReference".	
S-100 Part 9	CAR IS	Page 44 Section 10.6.2.1	Font defaults	te	Assign defaults for Font characteristic settings. In XSD use attributes rather than elements so that defaults can be used when attributes are not explicitly given.	Default serifs to "False" or 0 Default weight to Medium Default slant to Upright Default proportion to Proportional	
S-100 Part 9	CAR IS	Page 48 Section 11.3	LineStyle	te	SVG doesn't seem to have what we want to complex line pattern definitions. Consider extending ComplexLineStyle definition to include a combination of simple linestyle and references to point symbols. See Page 39 proposal above. Then the Portrayal Catalogue LineStyles folder would either go away or could contain xml files defining a shared set of named complex line patterns	Remove LineStyles folder or change it from SVGItem to XML named Complex line definitions that reference point symbol svg files.	
S-100 Part 9	CAR IS	Page 48 Section 11.3	ColorProfiles	te	SVG doesn't seem to have what want for colour definitions. Perhaps the ColorProfiles folder could contain a set of XML named colour tables containing a use parameter (day, night etc) and a list of colours defined in sRGB and CIE.	Define XML schema for color tables and replace Color Profiles folder in Catalogue such that it is contains XML colour tables and not SVG items.	
S-100	CAR	Page 48	pixmaps	te	SVG has an image element which typically references an external image file such as a png but it	Consider how to handle pixmap fills and whether using an svg file to reference an image provides	

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Part 9	IS	Section 11.3			<p>is possible to include a base64 encoded pixmap in the SVG. There is some mention on forums that this approach is not optimal because some implementations may not cache the image and display might be slower.</p> <p>We should consider whether it is desirable to use SVG image or just use PNG or JPG.</p> <p>Also what is the difference then between a symbol fill and a pixmap fill other than a pixmap fill would more typically be tiled with no gaps between the images.</p> <p>If we include svg image in the S-100 svg profile then there is only one svg file type but it can reference an image file. Then we need a folder to place the referenced image files.</p>	anything useful.	
S-100 Part 9	CAR IS	Page 48 Section 11.3	SVG naming	te	Given the previous recommendations to use SVG only for point symbols and pixmaps we still need to consider a naming convention such that the difference between a pixmap svg and point symbol svg can be determined by the name of the file.	Naming convention for svg files such as SY_symbolname.svg PX_pixmapname.svg	
S-100 Part 9	CAR IS	Page 48 Section 11.3	headings	ed	The tables under 11.3 describing the model are missing section headings and names	Add section headings to each class table.	
S-100 Part 9	CAR IS	Page 51 Section 11.3	ContextParameter	te	Add unit of measure to context parameter for use when parameter type is a number	Add unit of measure to ContextParameter to the UML model, ContextParameter table and xsd in A.4	
S-100 Part	CAR IS	Page 52 A.1 Input	Top level	te	There should probably be a top level global element in the schema for "Dataset"	Create top level global element dataset of type Dataset and have Dataset made up of a list of Features, Information objects and Spatial data.	

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9		Schema					
S-100 Part 9	CAR IS	Page 52 A.1 Input Schema	Attributes	te	Add feature attribute elements to input schema as part of a Feature or Information type.		
S-100 Part 9	CAR IS	Page 52 A.1 Input Schema	Enumerated Attributes	te	Enumerated attributes are transported as code values, typically numeric. E.g. color 3 is Red. For portrayal rule matching the enumeration code is best but when including an enumerated attribute as part of a text string or in a pick report the label is desired. E.g. "Red" not '3'. Should we provide both enumeration code and label via the input schema such that portrayal can use what it wants or do we make a rule stating that when used as string output the label of the enumeration should be filled in by the system. How would system know that "Color" attribute is being used in the output drawing instructions? See next proposal to provide "useValueOf" attributes on text elements etc.	Input schema entries for enumerated attributes could include both code and label for portrayal to work with. For example <categoryOfCardinalMark code="3">south cardinal mark</categoryOfCardinalMark> Or see next proposal to have "useValueOf"	
S-100 Part 9	CAR IS	Page 58 A.2 Symbol Definition Schema	Using attribute values	te	In the symbol definition schema consider substituting all xs:double, xs:string with a complex type that extends the simple type with an optional attribute that provides the input Feature Attribute where the value should come from. This allows the portrayal to fill in an explicit value or leave the value Null and fill in the "useValueOf" attribute to reference the Feature attribute from where the value should be obtained. Then the ECDIS can do things like show the enumeration label instead of the code	<xs:complexType name="Double"> <xs:simpleContent> <xs:extension base="xs:double"> <xs:attribute name="useValueOf" type="xs:string" use="optional" /> </xs:extension> </xs:simpleContent> </xs:complexType>	

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					or switch strings based on language etc.		
S-100 Part 9	CAR IS	Page 61 A.2 Symbol Definition Schema	Symbol	te	Use of "default" values for XML elements. In XSD when a default is defined for an XML element it only applies when the element is given but has a null value. It does not make the element optional. If the value is defined as an XML attribute then the attribute tag can be left out and then the default applies. So for fields such as CRS or other flags it might make more sense to model them in XML as attributes and then they don't have to be given and clutter up the output when the default is applicable.	Consider complex type Symbol Rotation, rotationCRS, scaleFactor offset could all be modelled as XML attributes. {HA: Actually I prefer that we define styles and reference a style that defines the defaults}	
S-100 Part 9	CAR IS	Page 67 A.3 Presentation Schema	FeatureReference	te	Why model the reference as an attribute and not just FeatureReference a simple string type.	Change FeatureReference complex type into a simpletype of type string.	
S-100 Part 9	CAR IS	Page 72 A.3 Presentation Schema	ContextParameter default type	te	The type for element "default" should be "xs:any" not "xs:anyURI" because it is intended to carry a value consistent with one of the ParameterTypes (Boolean,Integer,Double,String,Date) Alternatively could be a union of the ParameterTypes.	<code><xs:element name="default" type="xs:any"/></code>	
S-100 Part 9	CAR IS	New		te	Consider a means to have system determine spatial Information such as quality and conditionally apply instructions only to spatials matching a given condition. Although a recursive process through component spatials and related spatial information could be done in XSLT it should be possible to perform this		

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					<p>more efficiently within the systems data structures.</p> <p>See separate proposal to add an optional spatialInfo condition reference onto a drawing instruction such that the drawing instruction will only apply to the objects component spatials that meet the criteria.</p> <p>This would allow portrayal to simply define for a feature a selection of drawing instructions such as a linestyle for good quality curves and another for poor quality curves.</p> <p>The condition would be a named condition and provided separately such that the portrayal instruction only needs the name of the condition to apply.</p>		
S-100 Part 9	CAR IS	New		te	<p>Consider adding a concept of styles to PC. This would be especially useful for Text as the number of parameters for a text instruction is extensive yet there are few sets of values that are actually used in a given portrayal. Allow a style to be defined such as 'Navaid Text' or 'PlaceNames' and have the style name provide a set of corresponding text parameters. Could also apply to simple line styles and point instruction parameters that rarely change such as rotation, scaling etc.</p>		
S-100 Part 9	CAR IS	New		te	<p>SVG symbols – pivot point</p> <p>Use the centre of the covering rectangle. In order to use an offset or arrow, design the cover to be large enough to cause the offset. So an arrow 2 units high would have a cover 4 units high with the arrow</p>		

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