

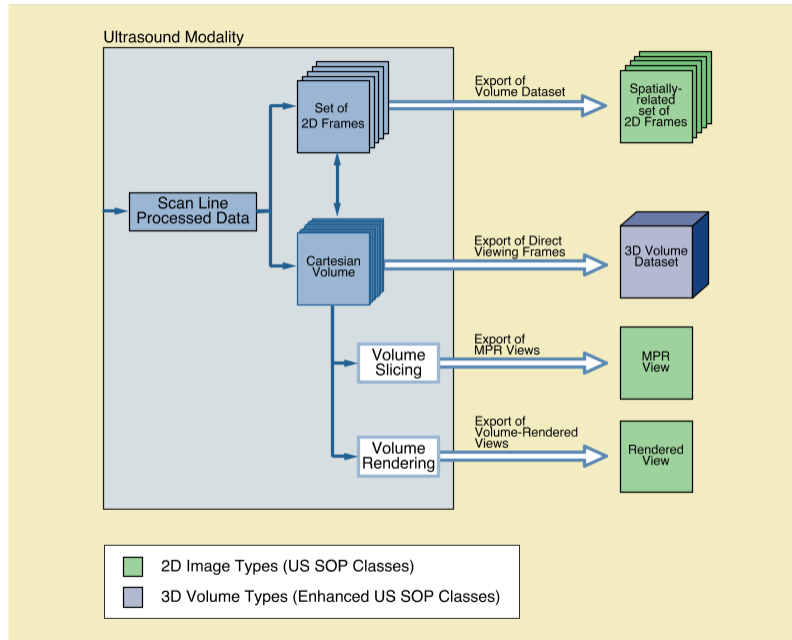
## DICOM Change Proposal

|                     |                                                     |
|---------------------|-----------------------------------------------------|
| STATUS              | Assigned                                            |
| Date of Last Update | 2025/01/12                                          |
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| Submission Date     | 2025/01/12                                          |

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|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|
| Change Number                                                                                                                                                                                                                                                                                                                                                                       | CP-2498 |
| Log Summary: Adjust Description According Figure for 3D Ultrasound Source and Derived Images                                                                                                                                                                                                                                                                                        |         |
| Name of Standard                                                                                                                                                                                                                                                                                                                                                                    | PS3.17  |
| Rationale for Change:<br><br>The current text refers to style elements in a figure which meanwhile got updated in style from the original figure in Supplement 43, Storage of 3D Ultrasound Images. The updated figure uses colors to differentiate elements instead of “striped” or “cross-hatched” styles. The description should be corrected according to the new illustration. |         |
| Change Wording:                                                                                                                                                                                                                                                                                                                                                                     |         |

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| <b><i>Modify PS3.17 Section PP.3 3D Ultrasound Solutions in DICOM as indicated</i></b> |
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- 5 This section maps the use case hierarchy in Section PP.2.2 to specific solutions in the DICOM Standard. As described in items 1a and 1b, there are two different types of data related to 3D image acquisition: the 3D volume data itself and 2D images derived from the volume data. See Figure PP.3-1.



**Figure PP.3-1. Types of 3D Ultrasound Source and Derived Images**

### PP.3.1 3D Volume Data sets

The 3D volume data is conveyed via the Enhanced US Volume SOP Class, which represents individual 3D Volume Data sets or collections of temporally-related 3D Volume Data sets using the 'enhanced' multi-frame features used by Enhanced Storage SOP Classes for other modalities, including shared and per-frame functional group sequences and multi-frame dimensions. The 3D Volume Data sets represented by the Enhanced Ultrasound IOD (the **striped grey-blue** box in Figure PP.3-1) are suitable for Multi-Planar Reconstruction (MPR) and 3D rendering operations. Note that the generation of the Cartesian volume, its relationship to spatially-related 2D frames (whether the volume was created from spatially-related frames, or spatially-related frames extracted from the Cartesian volume), and the algorithms used for MPR or 3D rendering operations are outside the scope of this Standard.

### PP.3.2 2D Derived Images

The 2D image types represent collections of frames that are related to or derived from the volume data, namely Render Views (projections), separate Multi-Planar Reconstruction (MPR) views, or sets of spatially-related source frames, either parallel or oblique (the **cross-hatched light-green** images in Figure PP.3-1). The Ultrasound Image and Ultrasound Multi-frame Image IODs are used to represent these related or derived 2D images. The US Image Module for the Ultrasound Image Storage and Ultrasound Multi-frame Image Storage SOP Classes have defined terms for "3D Rendering" (render or MPR views) and "Spatially Related Frames" in value 4 of the Image Type (0008,0008) Attribute to specify that the object contains these views while maintaining backwards compatibility with Ultrasound review applications for frame-by-frame display, which may be displayed sequentially ("fly-through" or temporal) loop display or as a side-by-side ("light-box") display of spatially-related slices. Also, the optional Source Image Sequence (0008,2112) and Derivation Code Sequence (0008,9215) Attributes may be included to more succinctly specify the type of image contained in the instance and the 3D Volume Data set from which it was derived.