

# CalibrateDSX Parameters

## Centroid Threshold

The relative threshold for identifying pixels that belong to the POI. Once a grayscale region has been identified as a POI, its centroid is calculated by a weighted average of all the pixels that have an intensity value greater than this percentage (0.0 to 1.0) of the maximum intensity. **Click Search Factor**

Used when digitizing POIs in the X-ray images. If you click at point X,Y in an image, a region of the image is searched for the best location of a grayscale centroid. This region is a square centered at X,Y with sides equal to two times the expected radius of the POI times the click search factor (default = 1.25). **Corrected Image Size X**

The size, in pixels, of the corrected X-ray image on the X axis. The default value is -1, which preserves the original size. **Corrected Image Size Y**

The size, in pixels, of the corrected X-ray image on the Y axis. The default value is -1, which preserves the original size. **Edge Threshold**

The relative threshold for identifying suitable POIs. For a grayscale region in an X-ray image to be considered a POI, the average edge value within the region must be at least at the *Edge Threshold* percentage (0.0 to 1.0) of the maximum edge value. The default value is 0.10. **Gauss Kernel Size**

The size of the Gaussian smoothing kernel used to reduce noise in the X-ray images during correction. The acceptable values are 3 (for a 3×3 kernel), 5 (for a 5×5 kernel), and 7 (for a 7×7 kernel). Any other value will turn off the X-ray smoothing. The default value is -1. **Gauss Sigma**

The standard deviation of the Gaussian distribution curve used for X-ray smoothing. The larger the value, the higher the weight of a pixel's neighbors when smoothing that pixel. The default value is 1.0. **Grid Bead Threshold View 1**

The relative intensity threshold when processing calibration grid X-ray images for the first view. Pixels with intensities below this percentage (0.0 to 1.0) of the maximum intensity are set to 0. The default value is 0.3. **Grid Bead Threshold View 2**

The relative intensity threshold when processing calibration grid x-ray images for the second view. Pixels with intensities below this percentage (0.0 to 1.0) of the maximum intensity are set to 0. The default value is 0.3. **Grid Centroid Min Size**

The smallest allowable size, in pixels, of the centroids representing the beads/holes in the grid images. Centroids smaller than this size are ignored for the purposes of distortion correction. The default value is 9. **Grid Invert**

Specifies whether or not to invert the intensities of the grid image during correction. If the grid object is radiopaque beads, this parameter should be false. If the grid object is holes in a radiopaque sheet, this parameter should be true. The default is false. In the corrected grid images the centroids used to perform distortion correction should be light regions on a dark background. **Grid Min Num Centroids**

The minimum number of bead/hole centroids allowable in each grid image slice. If fewer than this number are found, the image slice is not used for distortion correction. The default value is 400. **Grid X Angle**

The angle between the X axis of grid beads/holes and the X axis of the grid image. If the grid X axis is supposed to be aligned with the image intensifiers, set this parameter to 0.0. If the alignment of the grid X axis is unknown (common with hex grids of holes), set this parameter to a value outside the range -360.0 to 360.0, which tells CalibratedDSX to calculate the alignment. The default value is 999.9. **Grid XY Angle**

The angle between the X and Y axes of beads/holes in the grid object. For hex grids, this parameter can be set to 60.0 or 120.0. The default value is 90.0. **Grid X Spacing**

The distance, in millimeters, between adjacent beads/holes in the grid object, along the X axis. The default value is 10.0. **Grid Y Spacing**

The distance, in millimeters, between adjacent beads/holes in the grid object, along the Y axis. The default value is 10.0. **Image Distance Allowance**

Used when calculating the 3D configuration parameters. It is the amount by which the source-to-image-plane distance is allowed to change from the user-specified value. The default value is 0.0. **Image Padding**

The number of pixels to add onto all four sides of an x-ray image during distortion correction. The default value is 0. **Image Threshold**

An absolute intensity threshold when uniformity-correcting images. A pixel in the corrected image is set to zero if its value in the uncorrected image has an intensity below this value. The default is 1.0. **Optimize Pixel Size**

Specifies whether or not to optimize the pixel size when calculating the 3D configuration parameters. The default value is false. **POI Scale**

Used to calculate the expected radius, in pixels, of the POI in the x-ray images. The expected radius is the physical size of the POI multiplied by the scale factor, divided by the pixel size. The scale factor should increase with the distance between the POI and the image plane. The default value is 1.0. **Pose Map Cutoff Frequency**

The low-pass cutoff frequency for smoothing the cubic splines in the POI pose maps. The default value is 20.0. If the value is set to 0.0 or less the smoothing is turned off. **Positive Frame Times**

A boolean indicating whether or not to shift all frame times so that none of them is negative. If true, the frame times for both views will be shifted by the same amount so that the smallest frame time is 0.0. If reporting times are already defined when the X-ray view data is corrected, they will be shifted as well. Lastly, the Time Offset value in the mocap parameters will be shifted by the same amount. The default value is false. **Propagation Search Factor**

Used when propagating POIs. In order to propagate a POI (at coordinates X, Y in one frame) to the next frame, a region of the next frame is searched for the best location of a grayscale centroid. This region is a square centered at X, Y with sides equal to two times the expected radius of the POI times the propagation search factor. The default value is 2.0. **Smoothing Threshold**

When smoothing a pixel, pixels in the kernel that are not within this threshold of the value of the pixel being smoothed are ignored. This threshold is a percentage (0.0 to 1.0) of the maximum pixel value in the image. A negative value indicates that no thresholding will occur. The default value is -1.0.

### **Square Pixels**

Specifies whether or not to force the X and Y pixel sizes to be the same when distortion-correcting an x-ray image. The default value is true. **White Threshold**

The relative intensity threshold when uniformity-correcting images. A pixel in the corrected image is set to zero if its corresponding pixel in the white image has an intensity less than this percentage (0.0 to 1.0) of the maximum intensity in the white image. The default is 0.3.

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