/R=*roiSpec* Specifies a region of interest (ROI). The ROI is defined by a wave of type unsigned byte (/b/u). The ROI wave must have the same number of rows and columns as *imageMatrix*. The ROI itself is defined by the entries whose values are 0. Regions outside the ROI can take any nonzero value. The ROI does not have to be contiguous and can take any arbitrary shape.

In general, the *roiSpec* has the form {*roiWaveName*, *roiFlag*}, where *roiFlag* can take the following values:

roiFlag=0: Set pixels outside the ROI to 0.

roiFlag=1: Set pixels outside the ROI as in original image (default).

roiFlag=2: Set pixels outside the ROI to NaN (=64).

By default *roiFlag* is set to 1 and it is then possible to use the /R flag with the abbreviated form /R=*roiWave*. When *imageMatrix* is a 3D wave, *roiWave* can be either a 2D wave (matching the number of rows and columns in *imageMatrix*) or it can be a 3D wave which must have the same number of rows, columns, and layers as *imageMatrix*. When using a 2D *roiWave* with a 3D *imageMatrix*, the ROI is understood to be defined by *roiWave* for each layer in the 3D wave.

See **ImageGenerateROIMask** for more information on creating ROI waves.

/V=*vRegions* Specifies the number of vertical subdivisions to be used with the /A flag. The number of image pixels in the horizontal direction must be an integer multiple of *vRegions*. If the image dimensions are not divisible by the number of regions that you want, you can pad the image using ImageTransform **padImage**.

/W=*waveName* Specifies a 256-point wave that provides the desired histogram. The operation will attempt to produce an image having approximately the desired histogram values. This flag does not apply to the adaptive histogram equalization (/A flag)

See Also

The **ImageGenerateROIMask** and **ImageTransform** operations for creating ROIs. For examples see **Histograms** on page III-372 and **Adaptive Histogram Equalization** on page III-354.

ImageHistogram

ImageHistogram [***flags***] ***imageMatrix***

The ImageHistogram operation calculates the histogram of *imageMatrix*. The results are saved in the wave W_ImageHist. If *imageMatrix* is an RGB image stored as a 3D wave, the resulting histograms for each color plane are saved in W_ImageHistR, W_ImageHistG, W_ImageHistB.

imageMatrix must be a real-valued numeric wave.

Flags

/I Calculates a histogram with 65536 bins evenly distributed between the minimum and maximum data values. The operation first finds the extrema and then calculates the bins and the resulting histogram. Data can be a 2D wave of any type including float or double.

/P=*plane* Restricts the calculation of the histogram to a specific plane when *imageMatrix* is a non RGB 3D wave.