

Virtual Image and Image Stitching

N.B. This feature is currently only supported for the Leica camera

Virtual Images

A Virtual Image (i.e. an image made up from more than one objective field of view) may be required when the area of interest, to a particular analyst or in a particular analysis, is larger than that viewable by the objective dictated by the desired level of detail. A requirement may also arise when an object may be small enough to be viewable in an objective's field of view but the application requires automated capture of the images, so the object may happen to span two or more captured images.

PETROG is not designed to be an image analysis system and the facilities provided do not try to replace image analysis software packages. Nevertheless there are various uses in PETROG for virtual images and hence an image stitching facility is provided.

Collecting Images for Stitching

An image stitching facility is provided under menu

Reporting | Virtual Image

The scope of the virtual image is determined from the Area of Interest (AoI). At present the algorithm only works for a rectangular AoI, so an error message is displayed if the current AoI is not rectangular. (Remember that changing the AoI from elliptical to rectangular requires more work than just changing the type, because the defining coordinates represent different measurements: bottom left & top right versus left and bottom ends of major and minor axes respectively).

The number of images to be taken is under user control: an image is displayed on the screen and the user moves the slide (using the stepper stage) until the desired overlap has been achieved, separately for the x (horizontal) and y (vertical) directions. The overlap is displayed, separately for the x (horizontal) and y (vertical) directions, as a percentage of the image's length and width. These overlap values, set at a specific point, are then used as initial (approximate) values by the stitching algorithm for all pairs of images.

The amount of movement set by the user at this representative point is used by the software for moving the slide across the Area of Interest until the entire region has been covered. The individual images are saved in a directory under the project's director area, e.g.:

C:\Photos\[ProjectName]\LowMagImage\

The naming convention is similar to that used elsewhere in PETROG, i.e based on the sample's unique ID (in the SAMPLE database table) and the coordinates of the stepper stage at the moment the image was taken. An image taken at point (9870,43210) on sample with ID 12345 will have a filename:

wh012345_X09870Y43210.JPG

Stitching the images is a separate process, and users are free to use third party implementations of a stitching algorithm if they prefer.

Image Stitching in PETROG

This is still under development.