

Geo-Imaging Accelerator (GXL) System: Mosaic Preparation GXL Workflow

MOSAIC PREPARATION GXL WORKFLOW

The Mosaic Preparation GXL Workflow (MOSPREP) allows you to perform all of the necessary tasks required to produce a good quality image mosaic. The most significant of tasks undertaken prior to the production of an image mosaic is the specification of the correct color balancing method to utilize in the mosaic, the proper cutline method, and the preferred image z-ordering.

Color balancing is important to the production of an image mosaic. Without color balancing, the final product will have a "patch-work" appearance which may be undesirable as a final product. MOSPREP offers several methods of color balancing to assist you in alleviating the effects of differing gains and biases among the input imagery to the mosaic which contribute to a "patch-work" mosaic. The exclusion of pixels containing features such as significantly large cloud cover, water cover, or high brightness and low brightness areas should be performed on the input images to MOSPREP prior to its execution. Colour balance methods include:

- Overlap
- Histogram Match
- LUT Match
- Reference Image Match

When producing a mosaic, you only want the best portions of your images to be included in the mosaic. Cutlines are polygons which specify which portions of your images will be included in the mosaic. They help to ensure that your images are seamlessly joined together.

When the cropped images are added to the mosaic, the data in overlapping areas are covered up by the most recent addition. Areas where several images overlap provide you with more opportunities to find the best location for the cutlines. MOSPREP provides several methods of automatically determining cutlines which appear to be best, including:

- Minimum Difference
- Minimum Relative Difference
- Edge Matching
- Entire Area

Image z-ordering is also important as it allows you to define how images will be added to the mosaic, and in what order. Typically, you want your best images to be the top-most images in the mosaic.

GXL WORKFLOW PREREQUISITES

This is an add-on GXL Workflow that is used within the Geo-Imaging Accelerator (GXL) System. Ortho XL is a prerequisite GXL Workflow. PanSharp XL is required for mosaic preparation of pan sharpened imagery.

GXL WORKFLOW OPERATORS

MOSPREP is a single job. The mosaic preparation will use PCI PPF technology with a migration path to MP/GPU acceleration.

The source image list XML file specified as output in MOSPREP defines the relative Z-ordering of scenes that are to be processed, as well as providing some parameters for treatment of each of the scenes in the list.

In addition to the output source image list XML file, a scene description file is also generated automatically for each input scene in the mosaic. The scene description files are located in a sub-directory residing in the location of the output source image list XML file. There is one file per scene, and it is named [sceneID].xml according to the scene ID of each image in the source image list file.

For each scene, the scene description file provides basic information that describes which images will comprise the mosaic, what portions of each image that will comprise the mosaic, and how the color balancing will be applied. The cutlines are stored in separate SHP files, one for each scene comprising the mosaic.

The job processor for MOSPREP (GXLMosaicPreparation) has the following operators used for job submissions:

Job identifiers

- **User:** name of the user submitting the job
- **Priority:** priority of the job
- **Comment:** comment to distinguish the job

Start

- **On Server:** select the processing server to run the job
- **When:** select when the job is to be started

Input Parameter

- **Predefined configurations:** The user can define and select an XML configuration file which automatically sets all parameters for the project. This is useful for when you need to repeat projects.

Workflow values

- **InputFolder:** Directory containing the scenes to be mosaicked together
- **OutputFile:** Output file
- **NoDataValue:** Specifies a NoData value for the input images
- **SortMethod:** Specifies how file will be sorted prior to processing

- **NormalizationMethod:** Specifies the radiometric transformation to be performed to each source image before further processing. Options include:
 - None
 - Hot Spot
 - Adaptive filter
- **ColorBalancingSpecification:** Specifies the color balancing method to be applied. Options include:
 - None
 - Overlap
 - Neighborhood
 - Histogram
- **LocalMask:** Specifies whether to apply a local exclusion mask
- **GlobalExclusionMaskFile** Specifies a file name, that in conjunction with GlobalExclusionMask, can be used to define a global exclusion mask
- **GlobalExclusionMask:** Specifies a set of integer, that in conjunction with, GlobalExclusionMaskFile, can be used to define a global exclusion mask
- **CutlineMethod:** Specifies the cutline method. Options include:
 - None
 - Minimum Difference
 - Minimum Relative Difference
 - Edge
 - Maximum Data

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