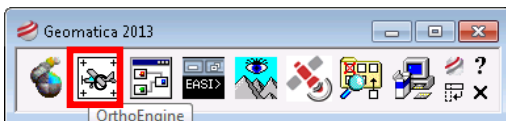


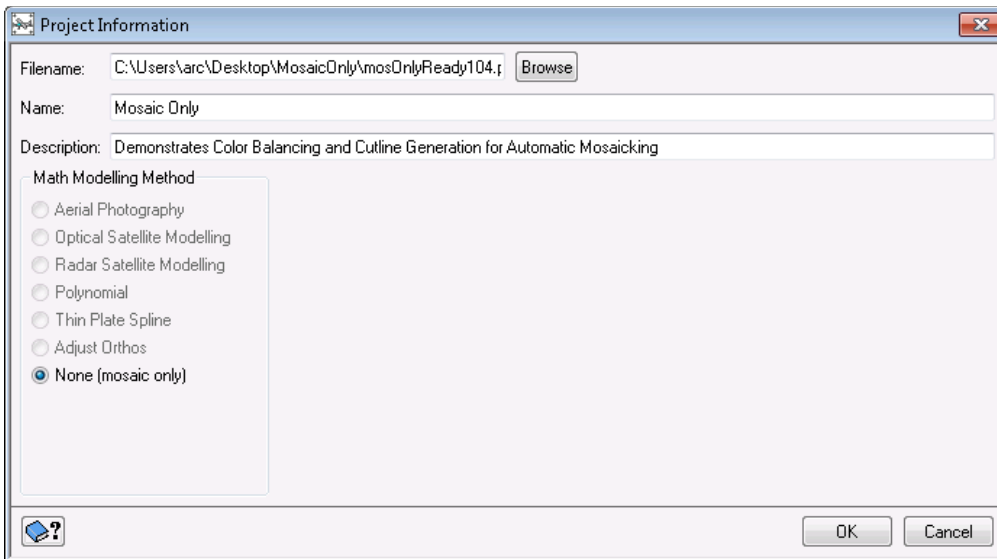
Geomatica OrthoEngine Automated Mosaicking

The purpose of this tutorial is to highlight Geomatica’s advanced automated mosaicking capability using SPOT4/5 scenes collected on multiple dates and orbital passes. The primary mosaicking operations that will be exposed in this tutorial are image normalization, image color balancing and cutline generation.

1. Open the **Geomatica 2013 OrthoEngine** application

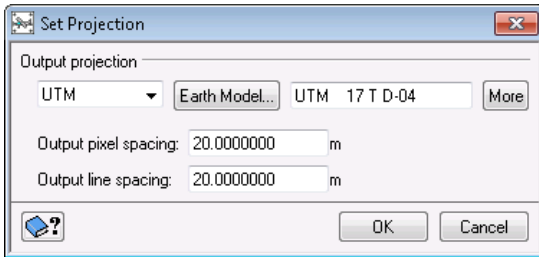


2. In the OrthoEngine menu bar, click **File → New**
3. Give your project a **Filename, Name** and **Description**
4. As the Math Modelling Method select **None (mosaic only)**

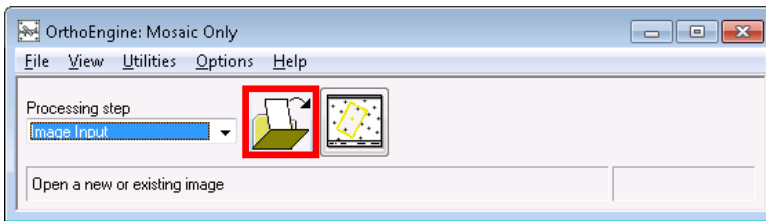


5. Click **OK**
6. In the **Project Processing step** click on the **Set Mosaic File Projection** button. Input the appropriate **Output projection** and **pixel spacing** information

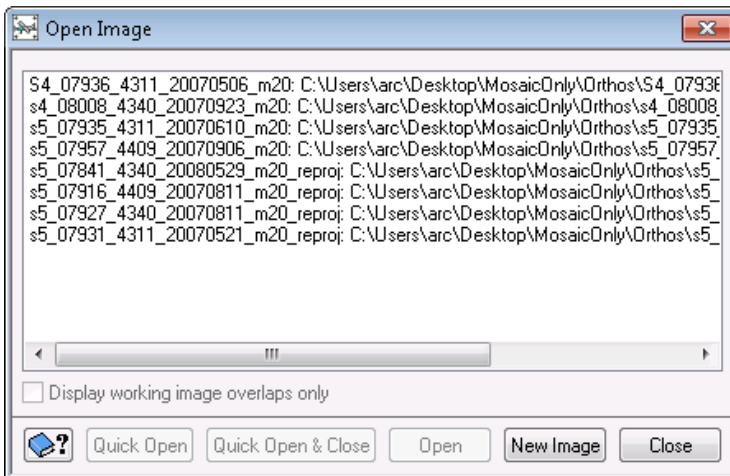




7. Click **OK**
8. In OrthoEngine, change the **Processing step** to **Image Input**
9. Click on **Open new or existing image** button



10. In the **Open Image** panel, click **New Image**
11. In **File Selector** navigate to the images you want to input
12. Click **OK** to the pop up message

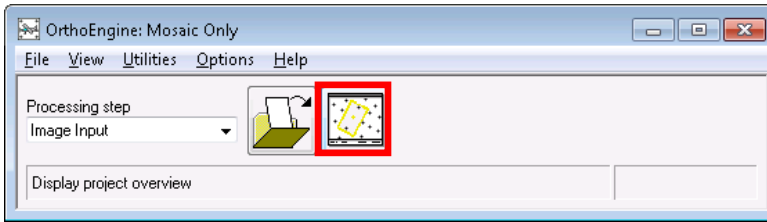


13. Click **Close**

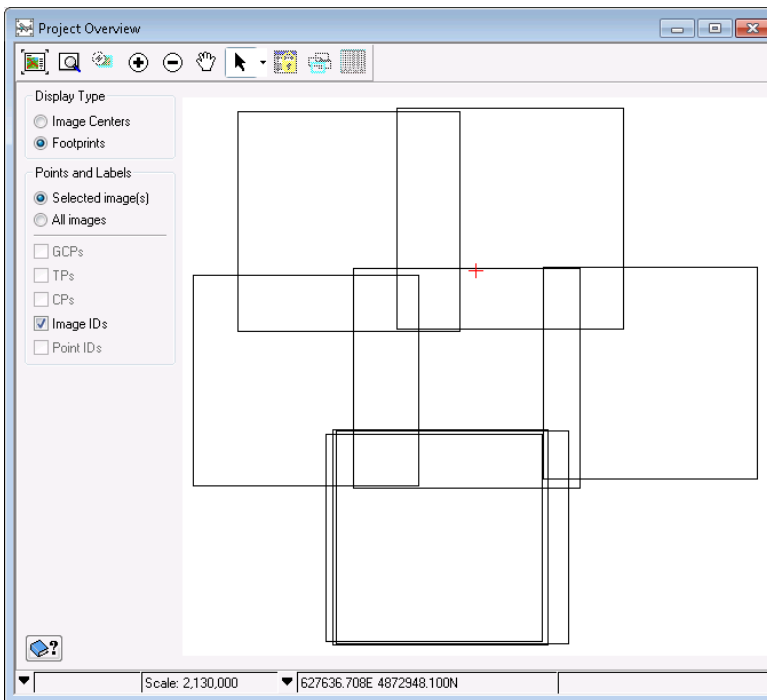
The images are now loaded into the OrthoEngine Project and are ready for mosaic processing

14. In OrthoEngine select the **Display Project Overview** button





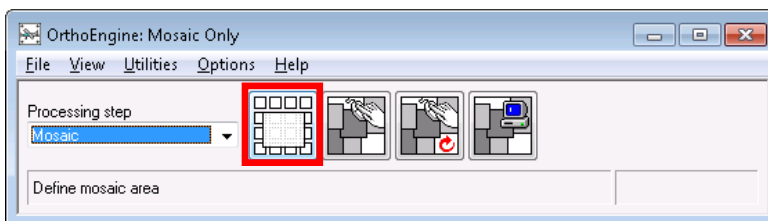
15. The following panel opens:



16. Close this panel

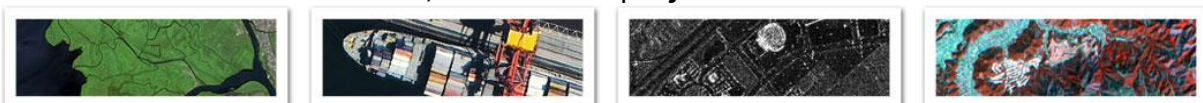
17. In **OrthoEngine**, change the **Processing step** to **Mosaic**

18. Click the **Define Mosaic Area** button

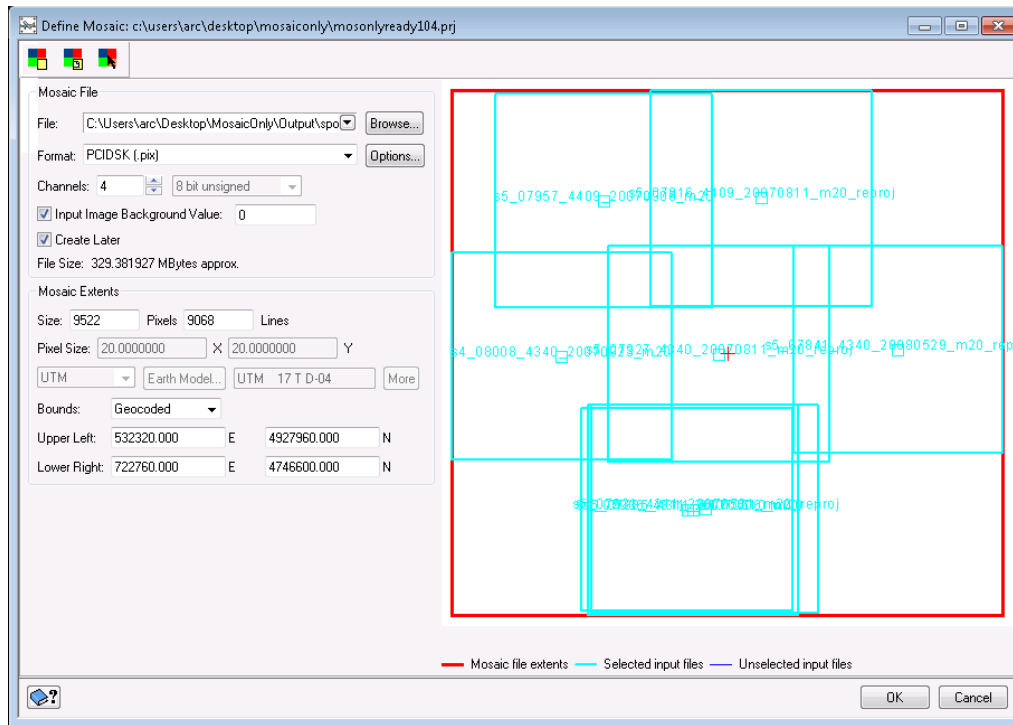


19. In the **Define Mosaic Area** panel, click **Browse**

20. In the File Selector, select the output **file name** and **location** for the mosaic file



21. Leave everything else as default in **Define Mosaic Area** Dialog box



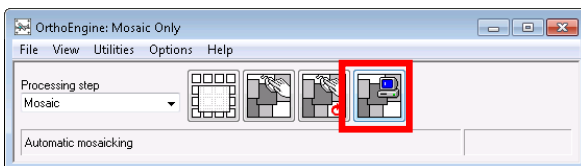
Footprints

The **Define Mosaic** panel allows the user to define the mosaic file that will be used to hold the mosaicked imagery. In this panel, the user can:

- Set which images to include in the mosaic, by selecting/unselecting the footprints
- Set the mosaic bounds by dragging the red rectangular boundary extent
- Specify, which channels to include and the bit-depth of the channels

22. Click **OK**

23. In **OrthoEngine**, click the **Automatic mosaicking** button

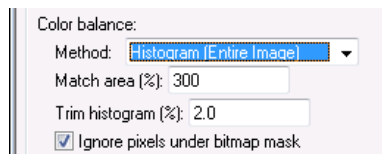


24. In the **Automatic Mosaicking** panel, change the **Normalization** method to **Adaptive Filter** by selecting it in the dropdown list and click **Apply All**



For optical imagery, the **Adaptive Filter** and **Hotspot** are the only 2 normalization methods that are relevant.

25. Under **Color Balance**, ensure **Histogram (Entire Image)** method is selected
26. Check **Ignore pixels under bit mask**



27. Under **File Options**, click **Browse** next to **External Bitmap**
28. Navigate and select a water mask. If you do not have one, skip this step.

Water Mask

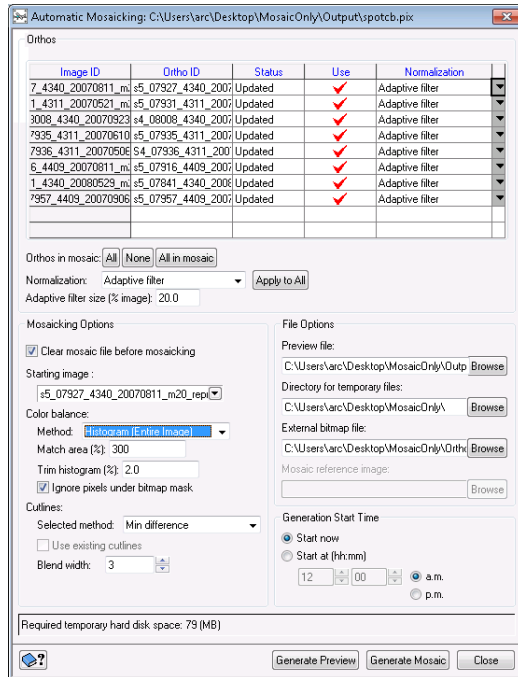
The Water Mask is used to exclude pixels from statistics for calculating the color balancing of the image. The pixels under the mask will still have color balancing applied.

Water and clouds are the most common features that are excluded, because they will have detrimental effects on the color balancing of ground pixels.

Note: Large water bodies do not usually color balance well, which is a general industry issue

29. The panel should look like below:



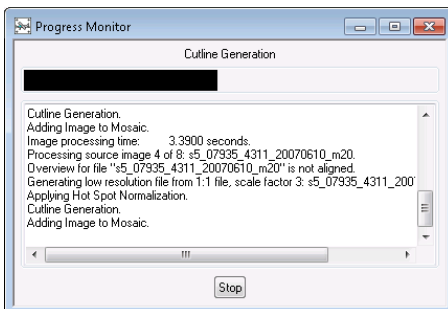


30. Click **Generate Preview**

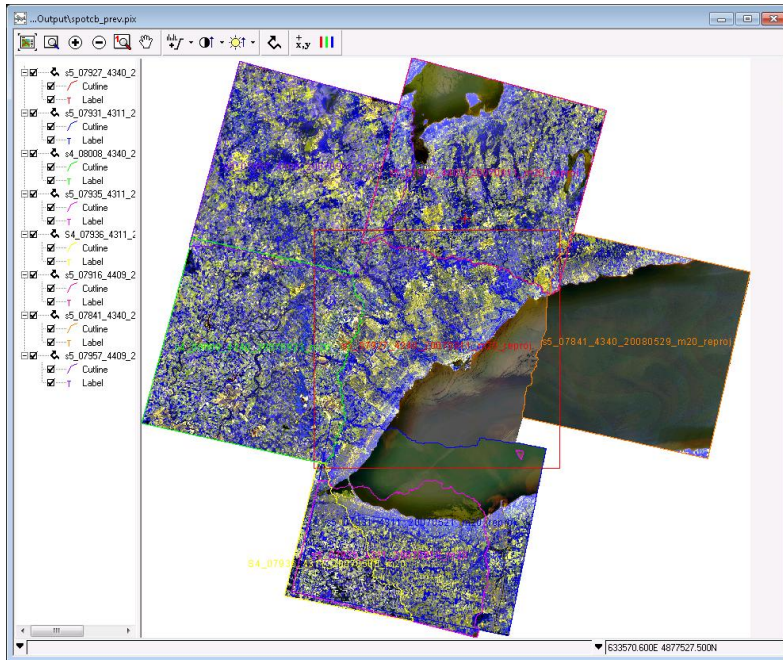
Mosaic Preview and Generation

Generate Preview creates a low-resolution version of the mosaic. The preview file is saved under the path and file name specified in Preview File box. You can use the preview of the mosaic to verify the color balance and cutline selection before continuing with the full resolution version. Click on Generate Mosaic and this will process all files and create the full-resolution version of the mosaic. The output mosaic is saved under the path and file name defined in the Define Mosaic window.

31. The **Progress Monitor** opens



32. The following preview will appear:



About the Preview

The preview mosaic is a very valuable output, because it is a low resolution preview of the final mosaic, which provides the user with a strong idea of how the automatic settings for the color balancing and cutlines will turn out. Preview takes a fraction of the time to generate, as compared to the final full resolution mosaic, so different settings can be used in different runs to compare, which parameter set will provide the best results.

33. Close out of the **Preview Window** and the **Automatic Mosaicking** panel

34. Click **Generate Mosaic** in the Automatic Mosaic window to generate the final mosaic

