

6.0 Mosaicking

The Mosaic tool box tools will help you create mosaics, making all images look alike by changing the color and by cutting the overlapping sections and applying the feathering tool to hide the seam of the cut.

6.1 Mosaic tool box



The Mosaic toolbox is used to balance the tone between all images of a mosaic and to automatically, or semi-automatically, create a mosaic by cutting the overlapping sections and applying the feathering tool to hide the seam of the cut.

The Mosaic toolbox displays two tools, *Balance Tone* and *Define Seam*.

To	Select in the Mosaic tool box
Balance the tone of colors between all of the images of a mosaic.	 <i>Balance Tone Tool</i>
Define the position of the seam between two overlapping image portions of a mosaic and to remove the portion defined by the seam from the top image.	 <i>Define Seam Tool</i>

6.2 Balance Tone tool



Use the *Balance Tone* tool to when you want to balance the tone of colors between all of the images of a mosaic.

Upon selecting the *Balance Tone* tool, the tool settings box displays two option lists, *Mode* and *Source Area*:

Tool Setting	Effect
Mode	<p>Mode represents the method to be used for tone balancing.</p> <ul style="list-style-type: none"> • Average - Averages the tone by using all selected images and averaging a unique color table that is applied to all the selected images. All selected images are altered based on the tone average and standard deviation from the image selection set. The <i>Average</i> method is useful when all images look good but are not perfectly balanced. <i>Average</i> is the default option. • From Reference - Utilizes a source image color table to balance the selected images. <i>From Reference</i> should be used when one image of the mosaic, or an area of the image, looks particularly good and all other images of the mosaic should look similar. <i>Tone Balance</i> is performed for each selected image, except the reference image, to match the <i>Reference Area</i>. The <i>Reference Area</i> is selected by using one of the available options under the <i>Source Area</i> option list

	<p>When <i>Average</i> is selected, only <i>Entire Images</i> and <i>Overlaps</i> are available from the <i>Source Area</i> option list. The other areas, <i>Block</i>, <i>Oriented Block</i>, <i>Element</i> and <i>Fence</i> are not available.</p>
Source Area	<p>Source Area represents the area of the selected images to which tone balance will be applied. Possible areas are listed below.</p> <ul style="list-style-type: none"> • Entire Images <p><i>Average mode:</i></p> <p>All pixels of all selected images are used for the <i>Balance Tone</i> computation.</p> <p><i>From Reference mode:</i></p> <p>The complete reference image will be used. The Histogram of the Reference image is applied to the selected images.</p> • Overlaps <p><i>Average mode:</i></p> <p>Only the overlapping pixels of all the selected images are used for the <i>Balance Tone</i> computation.</p> <p><i>From Reference mode:</i></p> <p>Pixels of the overlapping portion of the reference are used to compute the new histogram that is applied to all selected images.</p> • Block (Available with <i>From Reference</i> only) <p>In the <i>Block</i> source area, the area is chosen by entering a block shape selection on the Reference Image. This technique allows you to sample pixels of a specific area of the reference image.</p> • Oriented Block (Available with <i>From Reference</i> only) <p>In the <i>Oriented Block</i> source area, the area is chosen by entering an oriented block shape on the Reference Image. This technique allows you to sample pixels of a specific area of the reference image.</p> • Element (Available with <i>From Reference</i> only) <p>In the <i>Element</i> source area, the area is chosen by selecting a closed design file element. This technique allows you to only sample pixels of a specific area of the reference image using a non-reticular shape. The pixels comprised inside the element are used to compute the new histogram that will be applied the all selected images.</p> • (Available with <i>From Reference</i> only) <p>In the <i>Fence</i> source area, the active fence is used to select the pixels that are used to compute the new histogram that is applied to the selected images.</p>

To Tone Balance with Average Mode

1. From the Raster Manager Tools menu, choose *Image>Mosaic*
The Mosaic toolbox opens
2. In the Mosaic toolbox, select the *Balance Tone* tool
3. From the Tools Settings box, set:
Mode: Average
Source Area: Entire Images
 If the images you want to process are already selected (multiple-selection) – proceed to step 6.
4. Select the first image by pointing at the image and enter a data point.
5. Repeat step 4 for remaining images to be balanced.
6. *Reset* to accept the image selection set.
7. Enter a data point to process the image selection set.
8. The images from the selection set are now balanced.

To Tone Balance with From Reference Mode

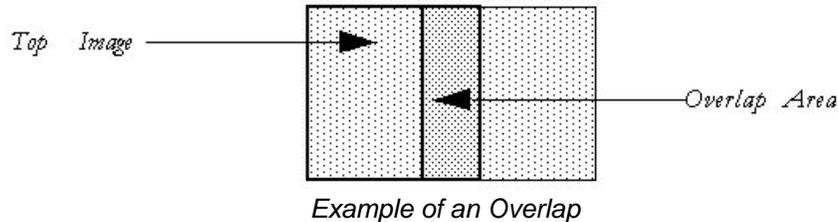
1. From the Raster Manager Tools menu, choose *Image>Mosaic*
The Mosaic toolbox opens
2. In the Mosaic toolbox, select the *Balance Tone* tool
3. From the Tools Settings box, set:
Mode: From Reference
Source Area: Entire Image
 If the images you want to process are already selected (multiple-selection) – proceed to step 6.
4. Select the first image by pointing at the image and enter a data point.
5. Repeat step 4 for all the other images to be balanced.
DO NOT select the image that is used as the reference.
6. *Reset* to accept the image selection set.
7. Select the reference image by pointing at the reference image and enter a data point.
8. Enter a data point to process the image selection set.
9. The images from the selection set are now balanced using the reference image.

 The reference image is not modified.

6.3 Define Seam tool



Use the Define Seam Tool to define the position of the seam between two overlapping image portions of a mosaic and to remove the portion defined by the seam from the *top image*. *Define Seam* may also apply the *feathering* tool to the seam. All options are available through the tools settings dialog.



Tool Setting	Effect
Seam Type	<p>A seam is defined as a segment between the two intersection points of the overlapping area.</p> <ul style="list-style-type: none"> • Quick: <ul style="list-style-type: none"> Used to quickly mosaic two images. The seam is automatically defined by the tool. If feathering is ON, you have control over the width of the feathering. • User-Defined: <ul style="list-style-type: none"> In this mode, the seam is attached to the pointer and you have control over the placement of the seam. You can enter as many points as required to position the seam. Once in place, a <i>reset</i> confirms the placement of the seam. The area that will be remove is processed exactly the same way as the Quick mode (see graphic above). Turning ON <i>Feathering</i> will feather the seam, equidistant from the center, using the value from the Width field. Turning ON <i>Save Seam</i> will, after the mosaicking process is executed, convert the seam into a design file element. It is therefore possible to utilize this seam again (see <i>Element Mode</i> below). • Element: <ul style="list-style-type: none"> In this mode, the seam line is defined by selecting a Design File Element. If an invalid seam is detected, it will be rejected and a message will be displayed in the status bar. • The element must not be closed, such as a Line String, and must have 2 intersection points with the overlapping area of the two images. • Smart <ul style="list-style-type: none"> In this mode, the seam line is drawn at the very middle of the overlapping area regardless of the image intersections.

Feathering	When this option is ON, <i>feathering</i> is enabled. <i>Feathering</i> is a “camouflage” technique that allows the seam “cut-line” to fade into the image.
Width	Used to specify the width of the feathering. The width is given in working units and is applied equidistantly on both sides of the seam. A good value for a seam is determined by the scale factor and the resolution of the image. Generally, the seam will be large enough to hide the cut line on the image created by the seam. Nevertheless, you may consider a narrower feather value if objects, such as buildings, are within the feathering area. Feathering can also be used to create aesthetic scenes such as embedding a thumbnail.

To Mosaic Two Images Using Quick Mode

1. From the Tools menu, select *Image>Mosaic*
The Mosaic toolbox opens
2. Select *Define Seam* tool
3. From the Tools Settings box, set:
Seam Type: Quick
Feathering: ON
4. Select the first image to mosaic by moving the pointer over it and enter a data point.
A blue outline surrounds the image.
5. Select the second image as in step 4.
A blue outline surrounds the image. The “Seam” is displayed with the feathering width highlighted.
Zoom in as necessary to see the width of the feathering.
6. Adjust the width as necessary by typing a new number in the width field of the tool settings box, then press Enter to activate the new width.
The Seam will resize automatically.
7. When you are satisfied with the results, enter a data point to begin the mosaicking process.



The images now form a seamless mosaic!