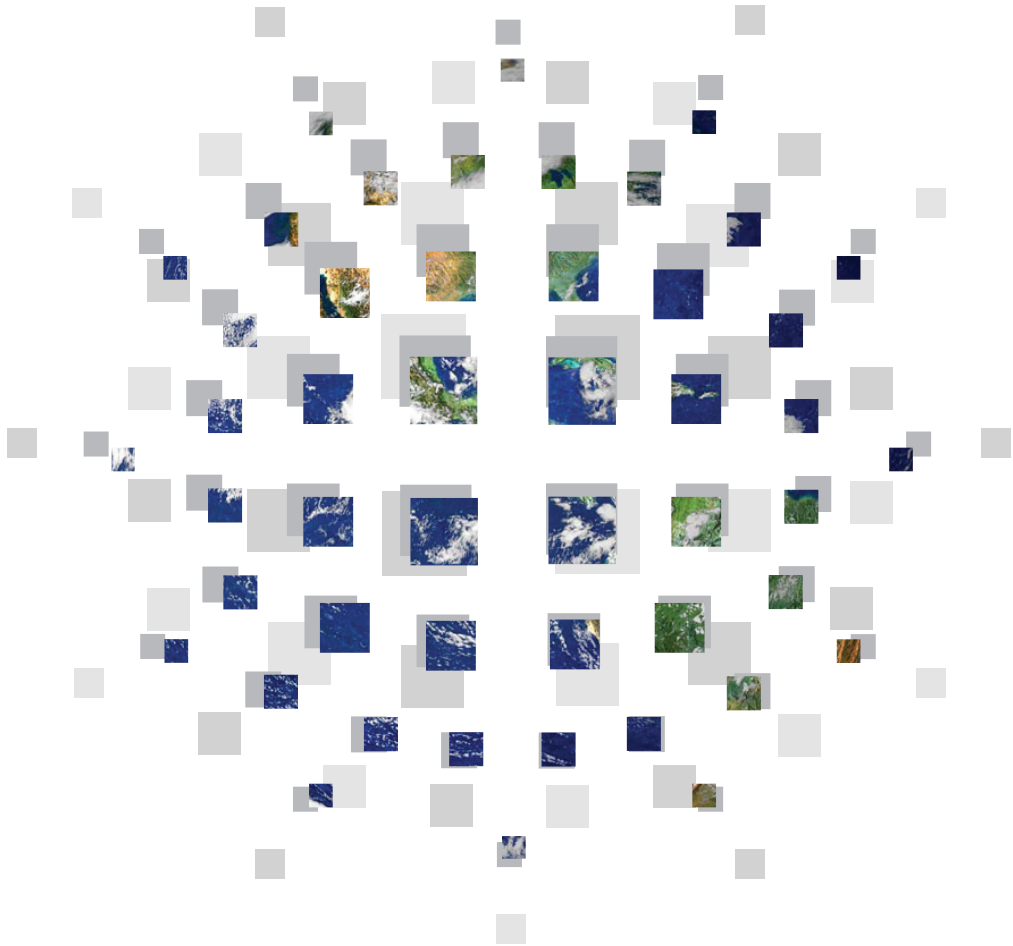


GE GRAPHIC IMAGER[®]

for **Adobe[®] Photoshop[®]**



Tutorial Guide

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Geographic Imager® for Adobe® Photoshop® User Guide for Windows® and Macintosh®.

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Avenza Systems Inc.
124 Merton Street, Suite 400
Toronto, Ontario, M4S 2Z2
Canada
Tel: (+1) 416 487 5116 Toll Free (*North America*): 1 800 884 2555
Fax: (+1) 416 487 7213
Email: info@avenza.com
Web: <http://www.avenza.com>
Support Tel: (+1) 416 487 6442
Support email: support@avenza.com



Tutorial Guide

In this tutorial you will learn the basics of Geographic Imager via a series of tutorial exercises.

The included exercises cover the following operations:

- Opening a File
- Specifying a Reference File
- Specifying a Coordinate System
- Transforming
- Mosaicking
- Transforming a Mosaicked Image
- Tiling
- Quick Georeferencing
- Exporting a Reference File
- Convert To GeoTIFF
- GeoCrop
- Marquee Crop
- Running a Script

All the data for the tutorial exercises can be found in the following locations:

Windows XP: C:\Program Files\Avenza\Geographic Imager\Tutorial data

Windows Vista: C:\Program Files\Avenza\Geographic Imager\Tutorial data

Mac OS X: /Applications/Avenza/Geographic Imager/Tutorial Data

Tutorial Exercises

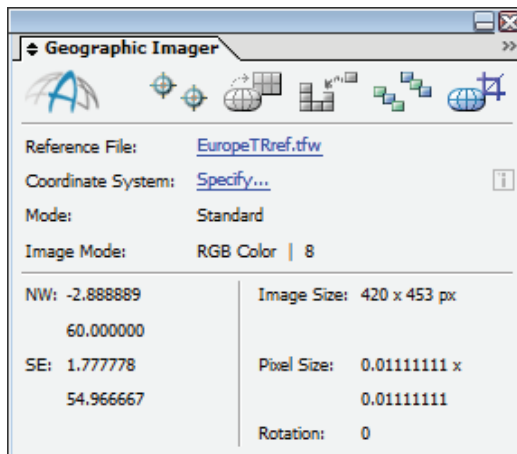
OPENING AN IMAGE

1. In Adobe Photoshop, choose *File > Open*. Browse to the folder location of the images and open the files **EuropeLL.tif** and **EuropeTR.tif**. Select multiple files by holding the Ctrl key and clicking.
2. Make the EuropeTR.tif file the active document and view the Geographic Imager panel. If the panel is not visible, choose *File > Automate > Geographic Imager: Show Panel*.
3. Keep these images open for the next exercise.

SPECIFYING A REFERENCE FILE

A reference file contains coordinates that describes the location, image and pixel size, and rotation of an image file (such as a GeoTIFF). It does not contain actual image data.

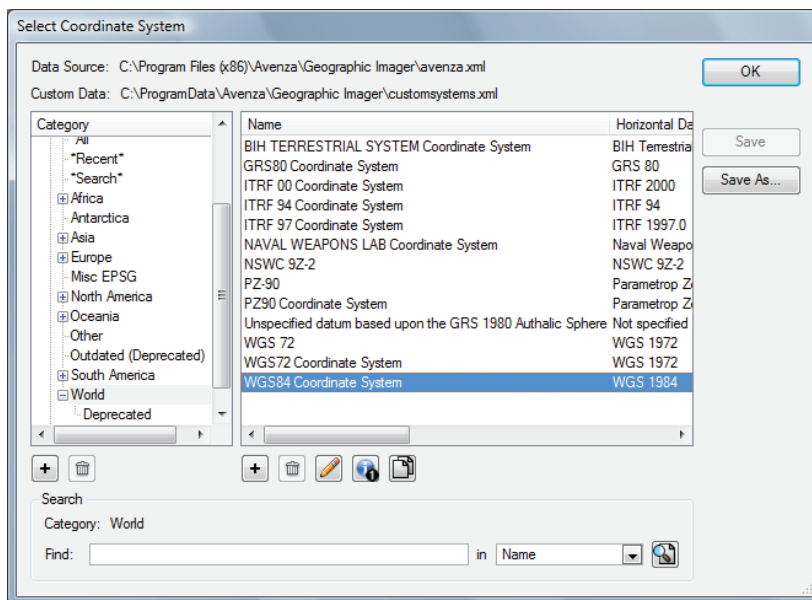
1. With the EuropeTR.tif file the active document, click the Reference File **Specify...** link in the Geographic Imager panel. This specifies a reference file containing geographic coordinate information for the active image.
2. Select **EuropeTRref.tfw** and click the **Open** button. Once opened, it will be listed in the Geographic Imager panel as the reference file.
3. Keep these images open for the next exercise.



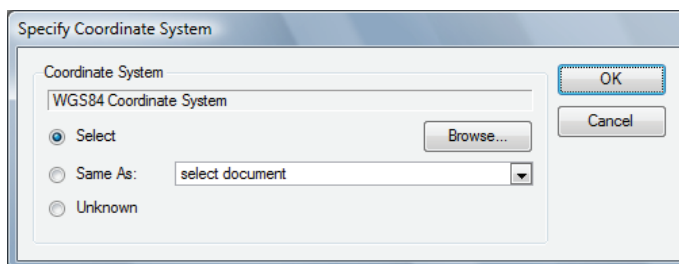
SPECIFYING A COORDINATE SYSTEM

Some reference files do not store coordinate system information. Using a world file as a reference file requires that a source coordinate system be specified. For more information on reference files, see Chapter 2 in the Geographic Imager User Guide.

1. With the EuropeTR.tif file still the active document, click the **Specify...** link to set the Coordinate System in the Geographic Imager panel.
2. In the Specify Coordinate System dialog box, click the **Browse...** button.
3. Expand the *Coordinate Systems > Geodetic > World* category, select **WGS84 Coordinate System** and click **OK**.




4. Click **OK** in the Specify Coordinate System dialog box to finalize the selection. This assigns the WGS84 Coordinate System to the active image.

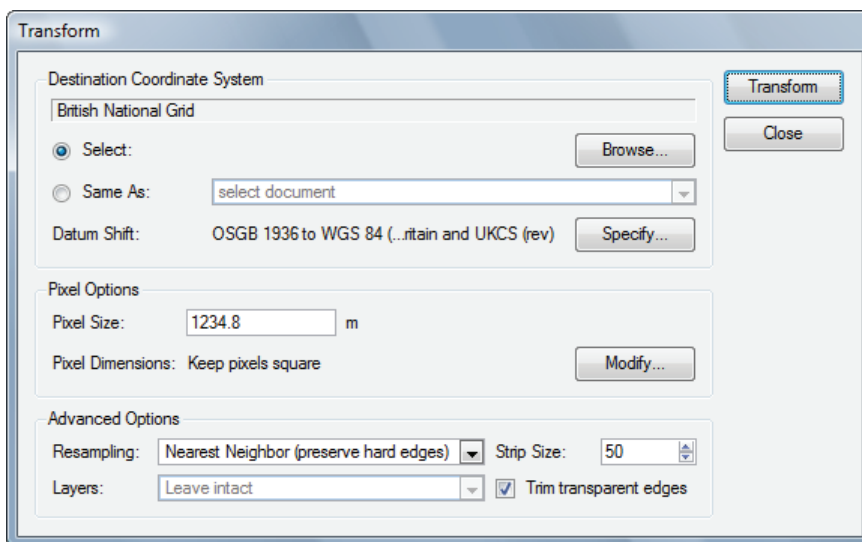


5. Keep these images open for the next exercise.

TRANSFORMING A COORDINATE SYSTEM

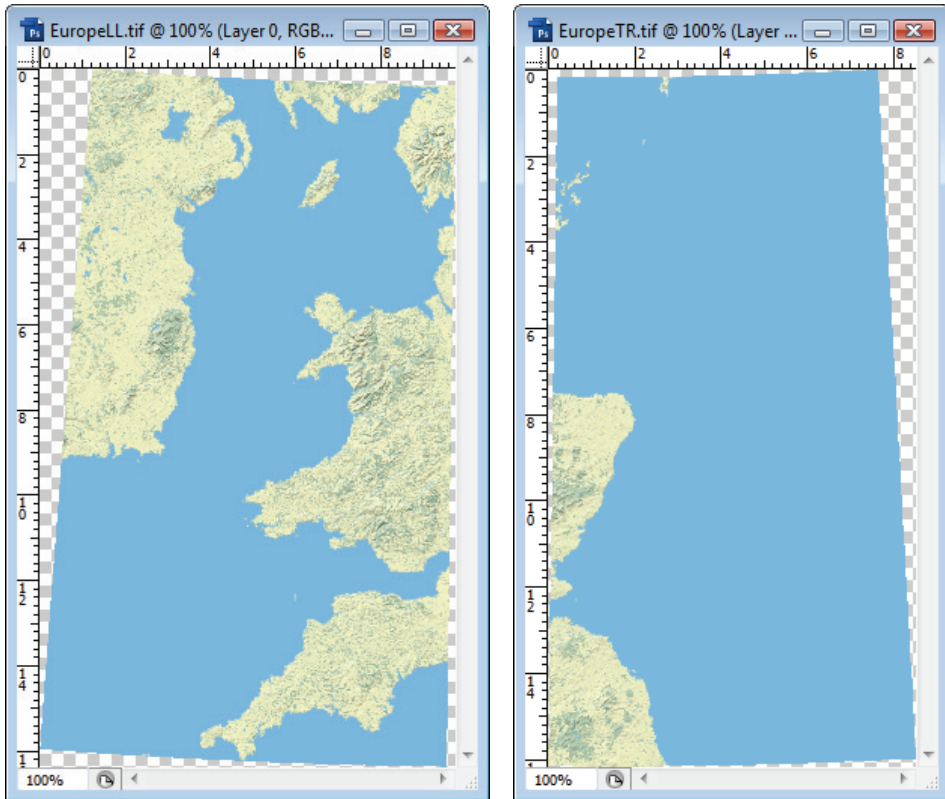
Transforming a coordinate system creates a destination georeferenced image in a different coordinate system from a geographically referenced source image. In this exercise, the image will be transformed from WGS 84 Coordinate System to British National Grid coordinate system.

1. With EuropeTR.tif still the active document, click the **Transform** button  in the Geographic Imager panel.
2. In the Transform dialog box, click the **Browse** button to select a destination coordinate system. This is different than specifying a source coordinate system. A destination coordinate system is the coordinate system of the image *after* it is transformed.
3. Expand the *Coordinate Systems > Projected > Europe > United Kingdom* category, select the **British National Grid** coordinate system and click **OK**. This sets the coordinate system that will be used during the transformation. At this point, Geographic Imager automatically selects an appropriate datum shift to be performed during the transformation process. If this datum shift needs to be changed, click the Specify button to open the Specify Datum Shift dialog box and select the desired datum. *See page Geographic Imager user guide for an explanation of datum shift.*
4. Change the Pixel Size to **1234.8**, leave the other options as the defaults. The pixel size can be changed to any user specified value. This essentially changes the size of the image as each pixel represents a geographic unit. In this instance, the value was chosen to be near the original value.
5. Now click the **Transform** button in the Transform dialog box. The image will be transformed.



6. Make the **EuropeLL.tif** file the active document and click the **Transform** button.
7. Click the Same As option and select **EuropeTR.tif (British National Grid)** from the Same As drop-down list.
8. Click **Yes** when prompted to update the pixel size and central latitude to match the selected document (e.g. for the purpose of mosaicking).

9. Click the **Transform** button in the Transform dialog box to confirm these settings. The image will be transformed into the British National Grid coordinate system.
10. Both images are now in the same projected coordinate system (British National Grid).

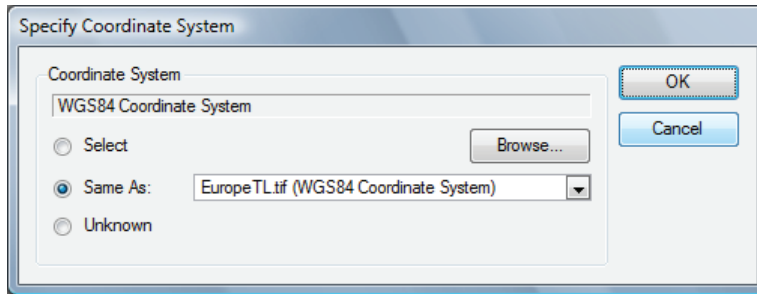


11. Close all images without saving before proceeding to the next exercise.

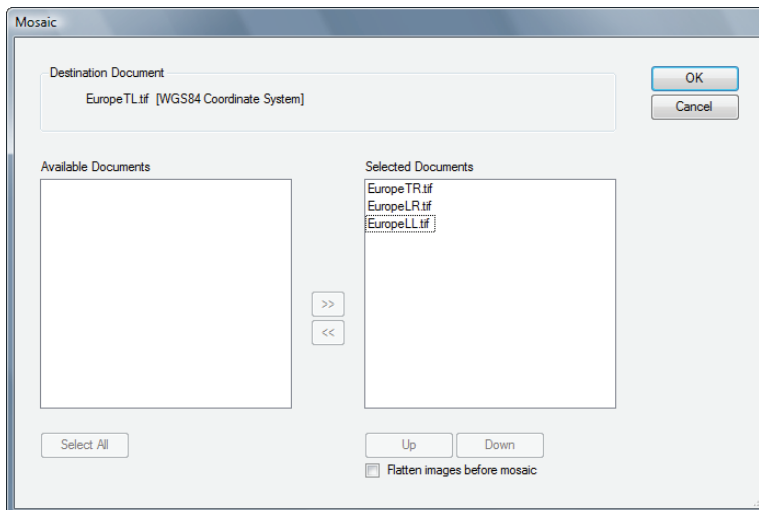
In the next set of exercises, several images will be mosaicked together, transformed as one image, and exported as multiple image tiles. When mosaicking images together, they must share the same coordinate system, referencing information and pixel scale.

MOSAICKING IMAGES

1. In Adobe Photoshop, choose *File > Open*. Open the **EuropeTL.tif**, **EuropeLL.tif** and **EuropeLR.tif** and **EuropeTR.tif** files.
2. Make the **EuropeTR.tif** file the active document, click the Reference File **Specify...** link in the Geographic Imager panel, and choose **EuropeTRref.tifw** as the reference file.
3. Specify the same coordinate system as the other documents. Click the Coordinate System **Specify...** link in the Geographic Imager panel and select one of the other images in the Same As drop-down list.



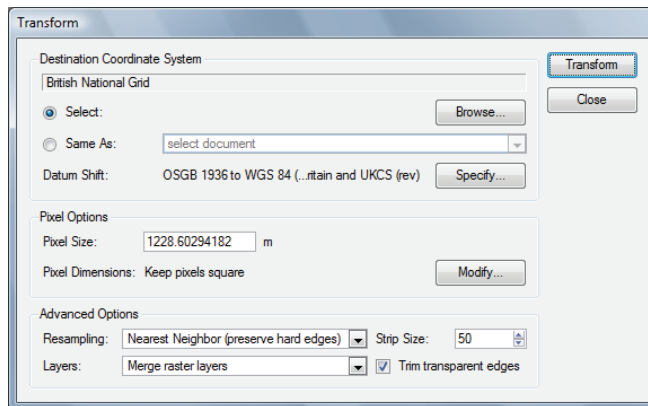
4. Make the **EuropeTL.tif** the active document and click the **Mosaic** button.
5. A list of available documents for mosaicking will be displayed in the Available Documents list of the Mosaic dialog box. Click the **Select All** button to select all available images and click the double right arrow button to move them into the Selected Documents list.



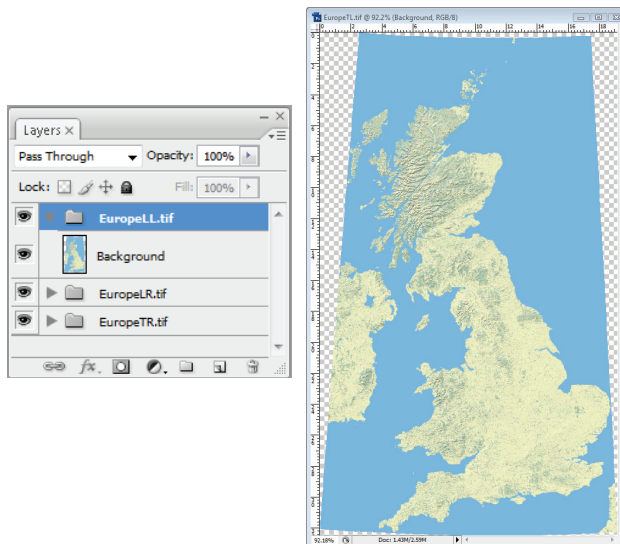
6. Click **OK** to close the dialog box. The images will be mosaicked in the EuropeTL.tif document window. A new layer is created for each image that is included in the mosaic. The order of the Selected Documents can be rearranged to change the order of layers created. These layers can be independently adjusted or modified.
7. Keep these images open for the next exercise.

TRANSFORMING A MOSAICKED IMAGE

1. With the mosaicked image as the active document, click the **Transform** button in the Geographic Imager panel.
2. In the Select Destination Coordinate System, click the **Browse** button.
3. Select the **British National Grid** coordinate system under *Coordinate Systems > Projected > *Recent** and click **OK**. Default Advanced Options are set to Merge raster layers. This will merge all raster layers together, however this can be changed to leave layers intact or flatten the image.




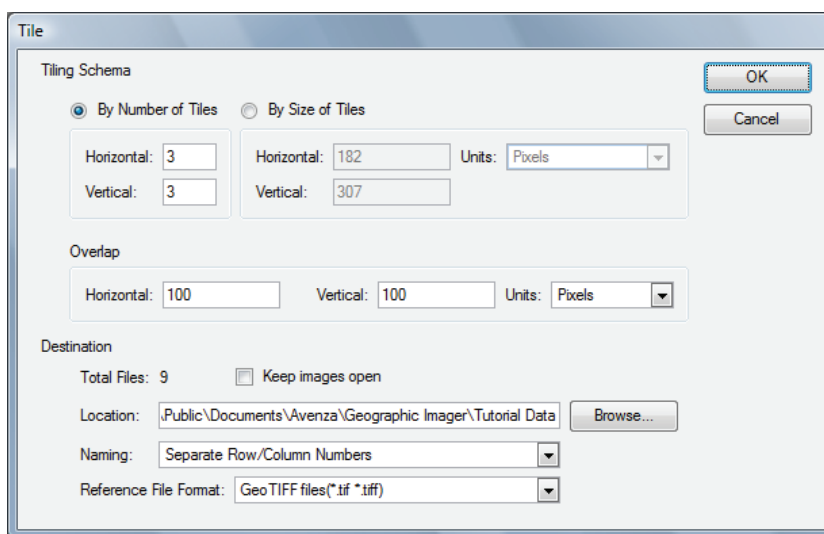
4. Click the **Transform** button to close the Transform dialog box. The image will be transformed into the British National Grid coordinate system.



5. Keep these images open for the next exercise.

TILING IMAGES

1. With the mosaicked image the active document, click the **Tile** button  in the Geographic Imager panel.
2. In the **Tile** dialog box, select the **By Number of Tiles** option, and type **3** into both the Horizontal and Vertical text boxes. This will result in the creation of nine new images.
3. In the Overlap frame, type **100** into both Horizontal and Vertical text boxes. Ensure **Pixels** is chosen in the Units drop-down list. This will result in each image having a 100 pixel overlap with each of its adjacent images.
4. In the Destination section, provide a path to a location (directory) where the tiled images will be saved. This path can be the default Tutorial data working path.
5. In the Naming drop-down list, select **Separate Row/Column Numbers**. Each image will contain the name of the original image plus a reference to the row and column to which it represents.
6. Select **GeoTIFF files** from the, Reference File Format drop-down list and click **OK**.




7. When the process has completed, navigate to the destination directory and view the images. The naming format displays its order. For example, the tile EuropeTL_1_1.tif belongs in the first row and first column; EuropeTL_1_2.tif in the first row and second column; and EuropeTL_1_3.tif in the first row and third column.
8. Close all open images without saving.



QUICK GEOREFERENCING

Quick Georeference is a fast method to georeference an image. This method requires two conditions as follows:

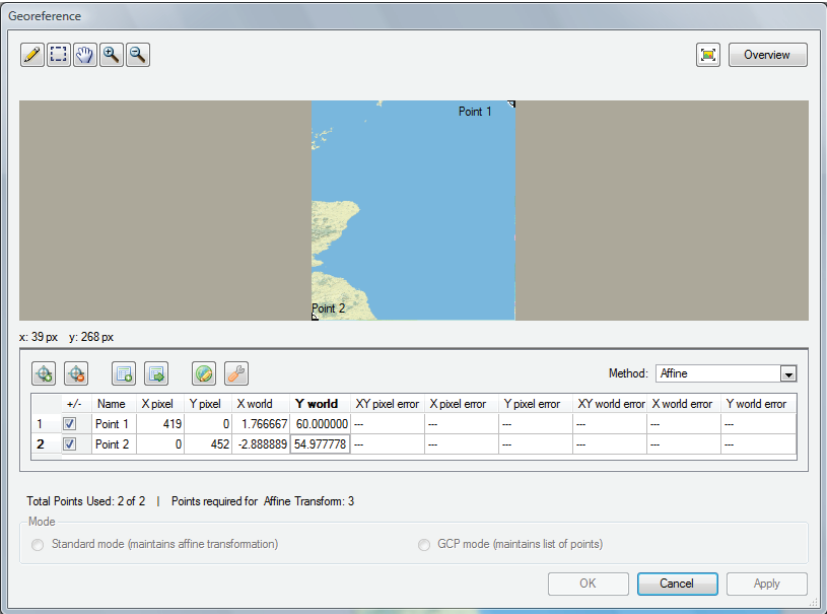
- The image is not rotated (image aligned to True North).
 - Only two points are needed to georeference, however these points must not contain the same coordinate in either the X or Y pixel or world unit (i.e. two points cannot be aligned on the same X or Y axis on either the image or world system).
1. In Adobe Photoshop, open **EuropeTR.tif**. The image is not rotated and is aligned to True North.
 2. In the Geographic Imager panel, click the **Georeference** button. 
 3. In the Georeference dialog box, click the **Add Points** button twice. In the table below, type the coordinates of two points located at the Northeast and Southwest corners of the image.


Northeast point (Point 1)

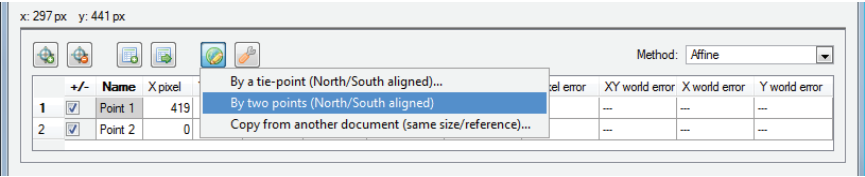
X pixel = 419, Y pixel = 0
X world = 1.766667, Y world = 60

Southwest point (Point 2)

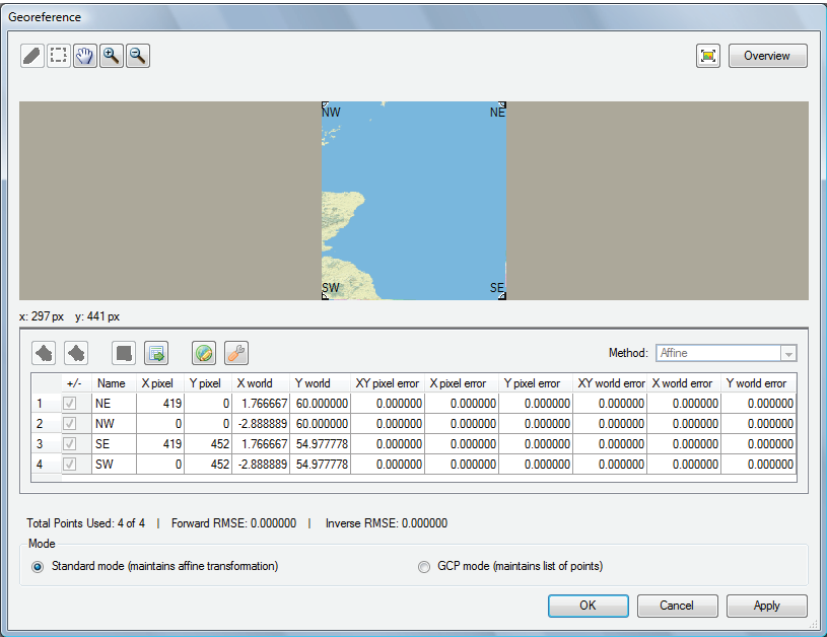
X pixel = 0, Y pixel = 452
X world = -2.888889, Y world = 54.977778



4. Click the **Quick Georeference** button  and select the option **By two points (True North only)**.



5. The image is now georeferenced and two additional reference points are added. Leave the Mode option as Standard mode and click **OK**.




- Specify the coordinate system to **WGS84 Coordinate System**.
- Transform the image to **British Nation Grid**, specifying the pixel size as **1234.8**. Leave the other options as default.
- Keep this image open for the next exercise.

CONVERT TO GEOTIFF

1. With the EuropeTR.tif file as the active document, open the Geographic Imager panel options menu and select **Convert to GeoTIFF**. The panel options menu button is located at the top-right corner of the panel. >>
2. In the Convert dialog box, specify the name and location for the GeoTIFF. Specify the name of the image as **EuropeTRCrop.tif** and click **Save**. Now the reference file for the image has been changed to reflect the newly created reference file.
3. Keep this image open for the next exercise.

GEOCROP

1. With the EuropeTRCrop.tif file as the active document, click the **GeoCrop** button  in the Geographic Imager panel.
2. In the GeoCrop dialog box, click the **Geodetic** option in the Top-left corner and Bottom-right corner sections and type in the following values:

Top-left corner

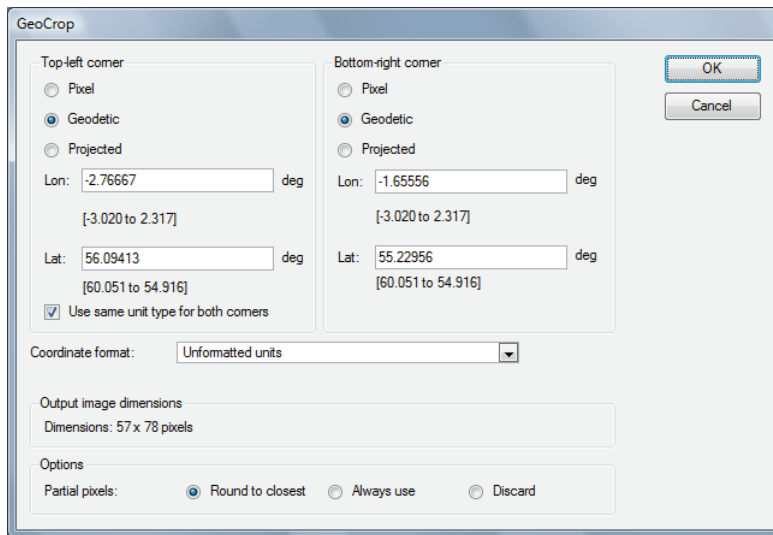
X: -2.76667 deg

Y: 56.09413 deg

Bottom-right corner

X: -1.65556 deg

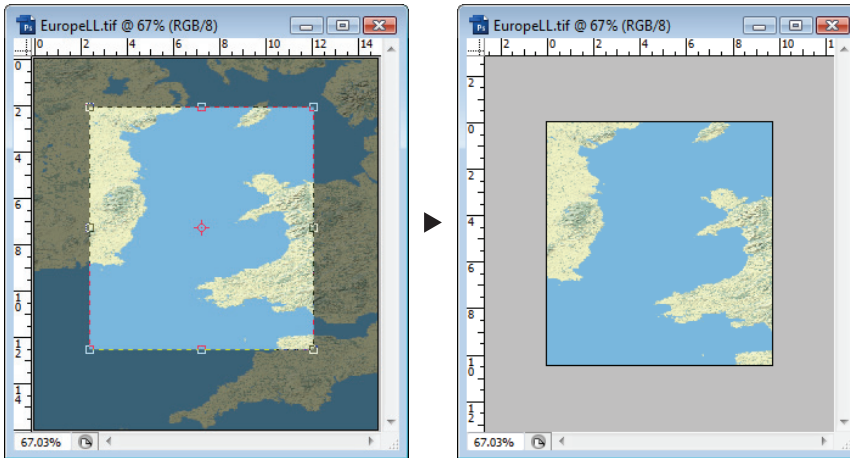
Y: 55.22956 deg



3. Leave the Coordinate Format as Unformatted units. In the Options frame, leave the option as **Round to closest** and click **OK**.
4. Select **File > Save** to save the image. The cropped image and new extents along with the georeference information will be saved.
5. Close the image file.

MARQUEE CROP

1. Open the **EuropeLL.tif** file and select the **Crop Tool** from the Photoshop Tools panel.
2. Draw a rectangular marquee near the centre of the image to define the extents of the post-cropped image.
3. Press the Enter key on your keyboard to complete the crop.



4. Choose *File > Save As* to save the image. Specify a location and file name. The cropped image and new extents along with the georeference information will be saved.

RUNNING SCRIPTS

1. Ensure that all images are closed.
2. Choose *File > Scripts > Browse*.
3. Locate the **ScriptBatchProcessingExample.jsx** in the following locations:
 - Windows XP: C:\Program Files\Avenza\Geographic Imager\SampleScripts
 - Windows Vista: C:\Program Files\Avenza\Geographic Imager\SampleScripts
 - Mac: /Applications/Avenza/Geographic Imager/Geographic Imager Plug-In/SampleScripts
4. In the Load dialog box, select the file and click **Load**.

Watch how the script opens all four tutorial images, sets the source coordinate system, transforms to the British National Grid coordinate system and then rotates the canvas 45 degrees.

5. Click the **Mosaic** button, select all images and click **OK**.
6. Close all images without saving.

Congratulations, you have completed the Geographic Imager Tutorial Guide. For more in-depth information on Geographic Imager tools and features, please see the Geographic Imager User Guide.