

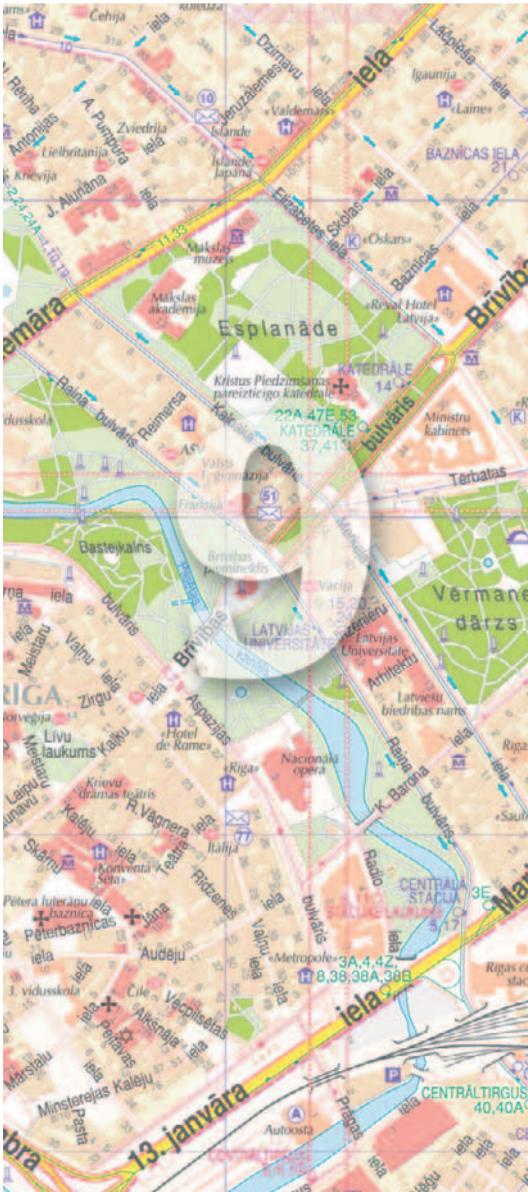
# Chapter 9

## Tutorial

In this chapter 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**
- Projecting a Mosaicked Image**
- Georeferencing**
- Exporting a Reference File**
- Saving a Cropped Image**



# Tutorial

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

Windows: C:\Program Files\Avenza\Geographic Imager\Tutorial Data

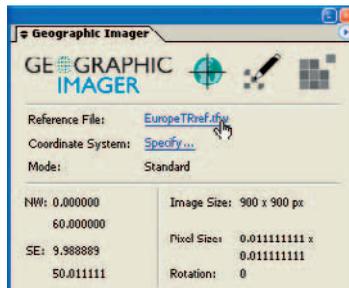
Mac: /Applications/Avenza/Geographic Imager/Tutorial Data

## OPENING AN IMAGE

1. Open the '**EuropeLL.tif**' and '**EuropeTR.tif**' files in Photoshop CS2 via **File>Open**.
2. Ensure that the '**EuropeTR.tif**' file is the active document and view the Geographic Imager palette.  
*If the palette is not open/visible, it may be accessed under the following File > Automate > Geographic Imager.*

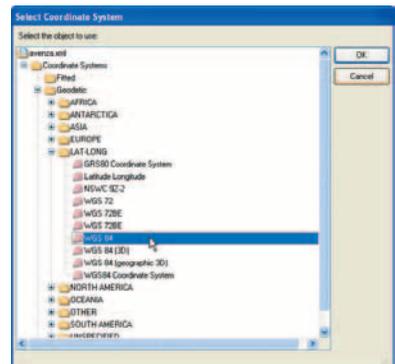
## SPECIFYING A REFERENCE FILE

1. With the '**EuropeTR.tif**' file still the active document, click the '**Specify...**' link for the reference file in the Geographic Imager palette.  
*This allows the user to specify a reference file containing geographic coordinate information for the active image.*
2. Select the '**EuropeTRref.tfw**' file and click the '**Open**' button.  
*Once selected it will be listed in the Geographic Imager palette as the reference file.*



## SPECIFYING A COORDINATE SYSTEM

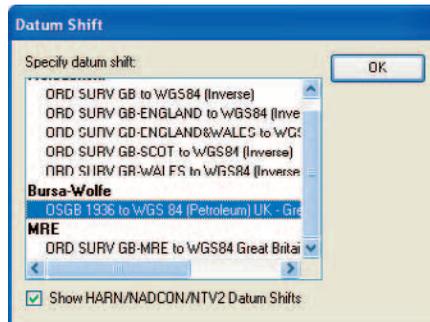
1. With the '**EuropeTR.tif**' file still the active document, click the '**Specify...**' link for the Coordinate System.
2. Click the '**Select**' radio button.
3. Click the '**Browse**' button.
4. Expand the '**Coordinate Systems > Geodetic > LAT-LONG**' folder, select the '**WGS 84**' coordinate system and click the '**OK**' button.
5. Click the '**OK**' button in the '**Specify Coordinate System**' dialog to finalize the selection.  
*This allows the current known coordinate system to be assigned to the active image.*
6. Make the '**EuropeLL.tif**' file the active document and click the '**Specify...**' link for the Coordinate System.
7. Click the '**Same As**' radio button, select the '**EuropeTR.tif**' from the '**Same As**' dropdown list and click '**OK**'.  
*This allows a coordinate system to be assigned to an image based upon that of another image.*



## TRANSFORMING

1. With the '**EuropeLL.tif**' file still the active document, click the '**Transform**' button in the Geographic Imager palette (middle button).
2. Click the '**Select**' radio button and then click the '**Browse**' button.
3. Expand the '**Coordinate Systems > Projected > EUROPE > United Kingdom**' folder, select the '**British National Grid**' coordinate system and click '**OK**'.

*This allows the image to be projected to the chosen projection selection. At this point the '**Specify Datum Shift**' dialog will open in order that the desired datum may be selected for the subsequent reprojection allowing a datum shift to be performed during the transformation process.*



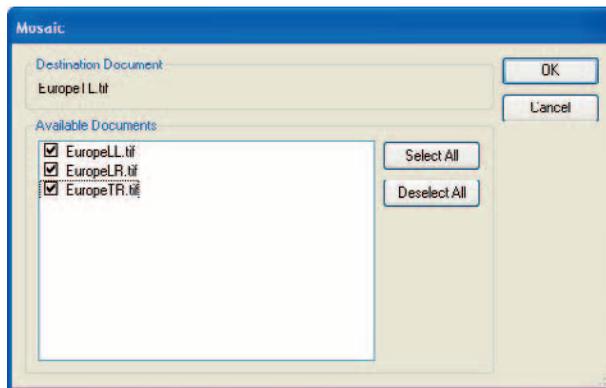
4. Specify the datum shift as '**OSGB 1936 10 WGS84 (Petroleum) UK - Great Britain and UKCS (Inverse)**'.
5. Click the '**OK**' button in the Specify Datum Shift list box.
6. Change the Pixel Size to '**1234.8**'.
7. Now click the '**Transform**' button in the '**Transform**' dialog.  
*The image will be reprojected.*
8. Make the '**EuropeTR.tif**' file the active document and click the '**Transform**' button.
9. Click the '**Same As**' radio button and choose the '**EuropeLL.tif**' file from the '**Same As**' dropdown list.
10. Specify the datum setting the same as in step 4: '**OSGB 1936 10 WGS84 (Petroleum) UK - Great Britain and UKCS (Inverse)**'.
11. Click the '**OK**' button in the Specify Datum Shift list box.
12. Change the Pixel Size to '**1234.8**'.
13. Click the '**Transform**' button in the '**Transform**' dialog.  
*The image will be reprojected.*

Close all images before proceeding to the next exercise.



## MOSAICKING

1. Open the '**EuropeTL.tif**', '**EuropeLL.tif**' and '**EuropeLR.tif**' and '**EuropeTR.tif**' files.
2. Make the '**EuropeTR.tif**' the active document and specify the '**EuropeTRref.tif**' file as the reference file.  
*The images to be mosaicked must all have referencing information and pixel scale.*
3. Make the '**EuropeTL.tif**' the active document and click the '**Mosaic**' button (right button).  
*A list of available documents for mosaicking will be displayed in the '**Mosaic**' dialog. Select the desired documents you wish to combine or click the '**Select All**' to enable all those listed. Any open documents that do not satisfy the mosaicking criteria will be included in the list however these will be greyed out and a reason will be displayed alongside the file name.*

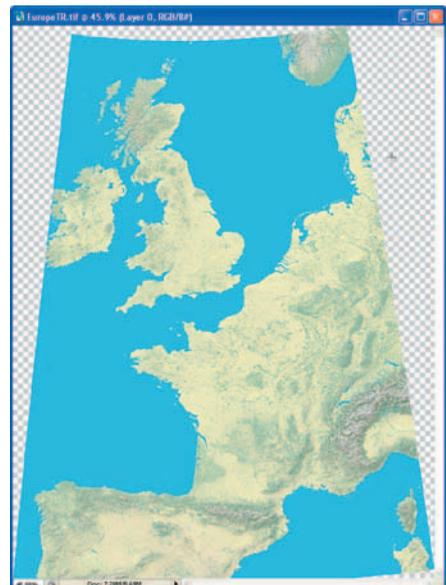


4. Click the '**OK**' button to close the dialog and perform the mosaic operation.

Continue and project the mosaicked image as follows:

## PROJECTING A MOSAICKED IMAGE

5. Flatten the mosaicked image by selecting **Layer > Flatten Image**.  
*Only flattened images may be transformed.*
6. Specify the coordinate system of the mosaicked image as '**WGS 84**'. See previous section.
7. Using the Transform function, select the '**British National Grid**' coordinate system with the '**OSGB 1936 10 WGS84 (Petroleum) UK - Great Britain and UKCS (Inverse)**' datum as the destination coordinate system. See previous section.
8. Click the '**Transform**' button in the '**Transform**' dialog to complete the transformation.  
*The image will be reprojected.*



## GEOREFERENCING

1. Select the '**Preferences**' option in the Geographic Imager palette.
2. Ensure that the '**Default Reference Format**' is set to '**World Files**' and the '**Use GeoTIFF for referencing**' checkbox is unchecked.
3. Change the '**Reference Point Precision**' to '**5**'. Then click the '**OK**' button.
4. Open the '**EuropeTR.tif**' file.
5. With this image active, open the GCP dialog (left button).
6. Select the '**Add Points**' tool (pencil, top left) and add 2 points at random locations by clicking on the image in the Preview window.
7. Edit the Pixel Coordinates for both points in the table.  
Give '**Point 1**' a pixel coordinate of  $X_{px} = '0', Y_{px} = '0'$   
Give '**Point 2**' a pixel coordinate of  $X_{px} = '899', Y_{px} = '0'$
8. Click the '**Add**' button in the table twice and enter Pixel Coordinates for the 2 new points in the table.  
Give '**Point 3**' a pixel coordinate of  $X_{px} = '0', Y_{px} = '899'$   
Give '**Point 4**' a pixel coordinate of  $X_{px} = '899', Y_{px} = '899'$
9. Enter Geographical Coordinates for all 4 points.  
'**Point 1**':  $X_{world} = '0', Y_{world} = '60'$   
'**Point 2**':  $X_{world} = '9.98889', Y_{world} = '60'$   
'**Point 3**':  $X_{world} = '0', Y_{world} = '50.01111'$   
'**Point 4**':  $X_{world} = '9.98889', Y_{world} = '50.01111'$
10. Select the '**Add Points**' tool and add 1 more point at a random location in the Preview Panel.
11. Highlight row 5 in the Table and click the '**Delete**' button.  
*This allows the removal of points that may adversely affect referencing and/or transformation.*
12. Click the '**OK**' button to continue.
13. Specify the coordinate system as '**WGS 84**'.
14. Transform the image to '**British National Grid**', specifying the same datum and pixel size as in the previous examples.
15. Flatten the image.



Keep this image open for the next exercise.

## EXPORTING A REFERENCE FILE

1. Make the '**EuropeTR.tif**' the active document and select the '**Export Reference File**' option in the Geographic Imager palette options menu.
2. Leave the format listbox at '**World Files**', rename the file to be saved '**EuropeTRX.tif**' and click the '**Save**' button.
3. Select **File > Save As** to save the image itself. Specify a location and rename the file '**EuropeTR3.tif**'.
4. Close '**EuropeTR3.tif**'.
5. Open the '**EuropeTR3.tif**' file.
6. Specify the reference file as the '**EuropeTRX.tif**' which was created in step 2.  
*The saved image now has the referencing information of the newly created .tif file.*

## SAVING A CROPPED IMAGE

1. With the '**EuropeTR3.tif**' file open as the active document select the Crop tool from the Photoshop toolbar.
2. Select an area near the centre of the image to define the extents of the post-cropped image and press the '**enter**' key on your keyboard to complete the crop.  
*The Geographic Imager palette will not reflect the new image extents and dimensions.*
3. Select **File > Save As** to save the image itself. Specify a location and name as desired.

