FACT SHEET
Importing a geo-referenced image into AutoCAD®*

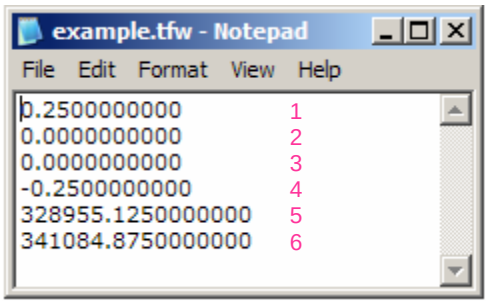
*AutoCAD® is a product from Autodesk®. CENTREMAPS® in no way represents Autodesk® and holds no responsibility for ensuring the correct use of image based data or for the quality or security of data from alternative sources.

For this example:

Software	AutoCAD® LT 2005
Units	1 drawing unit = 1 metre
Mapping from	CENTREMAPS*live*®
Map type	25cm Getmapping® aerial imagery
Map format	TIFF plus tfw file
Resolution	1 pixel represents a 25×25 cm area
Co-ordinates	Ordnance Survey® National Grid

STEP 1: Using information from the geo-reference file

The georeference file can be opened using Notepad:



The numbers 1 to 6 are added here for reference only.

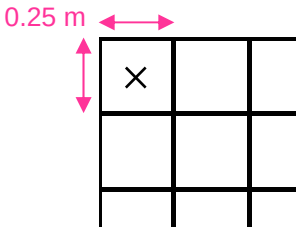
Lines 1 and 4 confirm that each pixel represents 0.25 metres (the units being used here).

For images, position is relative to the top left corner and so the +0.25 is to the right of the starting point and –0.25 indicates that The image is to the south of the origin.

Lines 5 and 6 tell us the centre co-ordinates of the pixel at the top left corner. The absolute top corner is at the top left of that pixel:

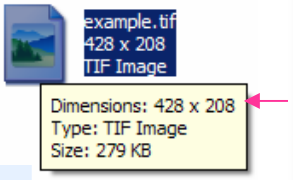
Easting = 328955.125 - (0.25 / 2)
= 328955

Northing = 341084.875 + (0.25 / 2)
= 341085



STEP 2: Image size

The size (in pixels) of an image can be seen in Windows Explorer by hovering a mouse over the image or by selecting the image (as shown to the right).



STEP 3: Image bottom left co-ordinates.

We now have enough information to calculate the bottom left co-ordinates of the image as required in AutoCAD:

Easting = 328955

Northing = Top left - (image height in pixels × pixel size)
= 341085 - (208 × 0.25)
= 341033

What is a georeference file?

Geo-reference files offer a way of defining the geo-graphical position of an image so that other information may be overlain for comparison or improved under-standing.

All images are made up of a series of pixels which be-come apparent when zooming in as an image becomes more 'blocky' until individual colour blocks (pixels) can be seen.

A georeference file simply records the position of one corner of the image and the size (in the real world) that each pixel would represent on the ground.

Images can be created with information embedded or with an associate file to contain this detail:

Image Type	Example	Georeference File Type
TIFF	*Map*.tif	*Map*.tfw
JPEG	*Map*.jpg	*Map*.jgw
GIF	*Map*.gif	*Map*.gfw

Most Geographical Information Sytems automatically look for and interpret georeference files.

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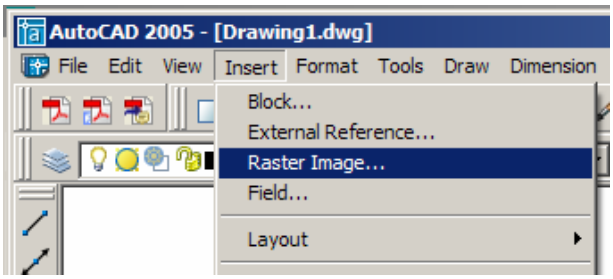
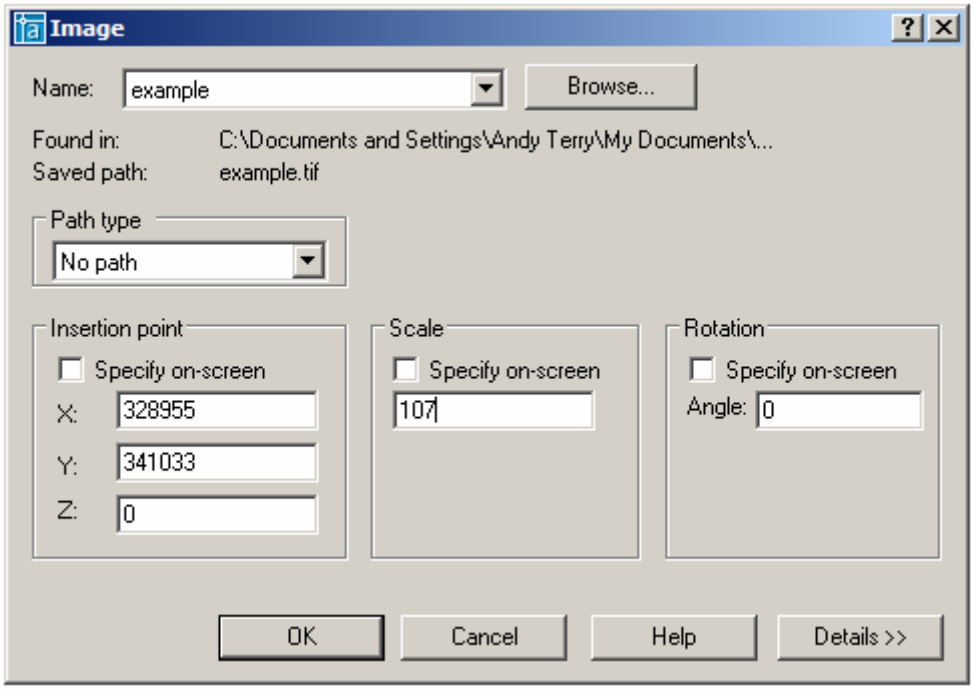
STEP 4: Inserting the image into AutoCAD



- Before starting, the image should be unzipped.
- Open AutoCAD, preferably on a blank drawing
- Choose Insert>>Raster Image…
- Select the required image

The following dialog box will appear:



Simply insert the bottom left Easting and Northing as calculated

The remaining value ‘Scale’ is the width of the image in metres: 428 pixels × 0.25 m per pixel = 107 metres

- On clicking OK, the image is inserted
- It may be necessary to zoom to extents to reveal the data as the window is initially looking at the co-ordinate 0,0.
- If the imagery is to be overlain with data such as mapping derived from Ordnance Survey’s OS MasterMap database, you may find that the imagery is slightly offset to the mapping by up to a couple of metres. This is due to the aerial imagery being correctly fitted to Ordnance Survey Land-Line data which has since undergone some Positional Accuracy Improvements. To fine tune, the user may optionally move the imagery visually until it is positioned as required.
- TIP: Always keep images in the same folder as the AutoCAD drawing. If the drawing is sent to another user, the image must also be sent as the image is not embedded in the file