# Background Images for OCAD basemaps

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# Background images

There are several significant changes between OCAD 9 and OCAD11. Some of these are the options for handling background images.

OCAD11 – can import and export georeferenced files

OCAD9 – reference files ignored, and image must be adjusted to coordinates gathered from another source.

OCAD11 can handle a wider range of file types

In OCAD11 the background images can be shifted at the same time as the map data is shifted or rotated.

# What is georeferencing

To georeference something means to define its position in physical space.

The convention in georeferencing a raster image is to define the location ( in grid coordinates) of the top left corner, and the size of the pixels in map units along the x and y axes. It is more complicated if the sides of the image are not parallel to the axes.

The georeferencing information is stored in a **world file,** which is in the same directory & has the same name as the raster file, with a modified extension eg ***A.jgw*** is the world file for image ***A.jpg***

# What is georeferencing 2

The projection or coordinate system is not stated in the world file, nor is the unit used for measuring pixel size. These need to be known for the proper georeferencing of the image.

The image file can be cropped and retain the georeference as long as the top left corner is not removed, and the pixel size is not resampled.

Similarly the image can be manipulated in an photo-editor to improve the image, as long as the top left corner and pixel size are retained.

# Sources of georeferenced images

**OCAD 11** can export georeferenced images of anything contained in the file (background &/or map data) in several raster formats – jpg, gif, png, tiff

**LPI** supplies georeferenced digital aerial photography as part of their standard product suite, covering most of NSW.

**Nearmap** is a commercial supplier of aerial photography, covering major urban areas. The planned frequency of coverage varies from 6-9 times per year for Sydney, to every 2-3 years for some major rural centres.

Imagery may also be available from **other contractors**, and though local councils, etc.

# nearmap

ONSW has a licence with nearmap for NSW imagery. There is a tight monthly download limit, and restricted access to the web-site.

Nearmap has a demo web-site, which shows resolution images of central Adelaide. The viewing window can be directed to other areas, where only low resolution images can be seen. The low resolution images show the coverage dates for the area.

Contact me if you want to know if high resolution down-loads are available, or more information about accessing and using nearmap demo.

# Supply of nearmap data

If you request nearmap images I will download the latest or best imagery available and supply as:

- one zipped file on dropbox

- OCAD9 file with georeferenced background image/s

- any other background images I can find quickly

If you are using OCAD 11 I will also supply the world file, with instructions on the best way to use it.

# Issues with nearmap data

Nearmap images are supplied “as-is”

They are compiled automatically from a multiple camera installation on the plane flying the survey, & sometimes there is a mismatch in the join/overlap/merge of images.

There is no control over the timing of flights, so shadow length, sun angle , or local clouding are in the luck of the draw. Nearmap have re-flown some areas where there was significant cloud.

Orthorectification of the images is generally very good – there may be 1 or 2 metres difference in position between images from different flights.

# Issues with nearmap data

The default georeferencing used by nearmap is the Google Mercator projection. This is a coordinate system based on 0,0m at the intersection of the equator and Greenwich meridian (0deg E). The units are metres only along the equator.

This projection can be loaded into OCAD11, and then transformed to MGA for local use, but adds complications.

# Nearmap – Google Mercator

## 1289.7 "metres"  90 degrees

This projection can be loaded into OCAD11, and then transformed to MGA for local use, but adds complications.

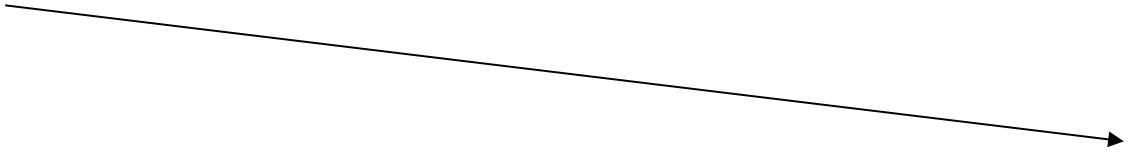
# Nearmap – MGA

**1071.33m,  88.95 degrees**

There is an apparent 20% change in scale because the GM "metres" are not real units – do not use the Google Mercator units for any scaling.

# Nearmap resolution & file name

| Level | pixel size (m) |
|---|---|
| 17 | 1.0 |
| 18 | 0.5 |
| 19 | 0.25 |
| 20 | 0.13 |
| 21 | 0.6 |



epsg_3785_16809523.5170712_-4000003.55035391@19.jpg

projection east north