Using historical aerial imagery in GDA2020 projects

Introduction

Historical aerial imagery (i.e. imagery collected in 2019 or earlier) is available in a series of 1 km × 1 km rectified images covering the Mackay local government area. The naming convention adopted for some of the tiles was the coordinate of the lower left corner of the 1 km × 1 km square e.g. SW_691000_7657000_1km.tif. As part of the transformation process to GDA2020, these tiles have been reprojected, but, to minimise the amount of rework in GIS databases, the **file names have not changed**.

Prior to GDA2020, it was the practice of some users to insert the 1 km × 1 km images into CAD programs using the naming convention as the insertion point. For example, image SW_691000_7657000_1km.tif would have been inserted at E 691000.000, N 7657000.000. However, with the move to GDA2020, the naming convention for historical imagery no longer has a relationship to the position of the image and inserting a tile in this manner will no longer position it in the correct location. Using our example tile, the correct insertion point into a GDA2020 project will be E 691000.756, N 7657001.430.

These tiles are Georeferenced TIFFs and all the spatial information relating to the image is embedded in the GeoTIFF meaning there would be little benefit in renaming thousands of historical aerial images to match their new position in GDA2020. Important: imagery in the ECW format has not been transformed from GDA94.

The following methods outline best practice for inserting GeoTIFFs into common GIS and CAD software packages used at Mackay Regional Council.

Future aerial images will be provided in GDA2020. Consequently, the naming convention for imagery collected after 1 July 2020 may again correspond to the actual position of the image. However, if this is the case, it is recommended that the following processes continue to be followed because the name of an image is easily changed and should not be relied upon. Always check and remember:

"Know your data, know your datum"

This fact sheet provides some background on the changes made to Mackay Regional Council's aerial imagery due to the adoption of GDA2020. It provides an overview of the steps to follow when importing images georeferenced to GDA2020 into a GDA2020 project.

Further Information

Refer to detailed data transformation flowchart for raster data on the Department of Natural Resources, Mines, and Energy GDA2020 website: <u>https://www.dnrme.qld.go</u> <u>v.au/titles-</u> <u>valuations/initiatives/gda2</u> 020-queensland

General information and resources relating to the datum modernisation – including a simple explanatory animation, frequently asked questions, fact sheets, technical tools and progress updates – are available on the ICSM website: www.icsm.gov.au



Assumptions

- The horizontal datum of the project is GDA2020
- The user is importing a GeoTIFF from Mackay Regional Council's GIS server that has already been reprojected onto GDA2020

Pre-requisites

- 12d Model (no specific version), or
- ArcGIS Desktop 10.6+, or
- AutoCAD Map 3D 2019+

Importing a GeoTIFF into 12d Model

1. In the Strings menu, select Rasters, then Create

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	Label	•					
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2. On the **Source Image** tab, select **TIFF** from the Image Format drop down then browse for the Raster File (i.e. GeoTIFF)

🕡 Create Raster Element —							
Source Image Lo	cation Output Crop						
Image format	TIFF						
Raster file	SW_691000_7657000_1km.tif						
Page	1						
Null colour							
Temporary folder	C:\Users\AppData\Local\Temp\12d						
Width in pixels	10000						
Height in pixels	10000						
Depth in bits	24						
10000 is valid							
Creat	e Finish Help						



3. On the **Location** tab, confirm the format is **GeoTIFF**. The World Location fields should have populated automatically.

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Source Image Location	on Output Crop				
-Location Method					
Data format	GeoTiff				
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-World Location					
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Origin					
X coordinate 6910	00.756		X	4	
Y coordinate 7657	001.43		7		
World width	1000			**	
World height	1000			** <mark> </mark>	
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choice ok					
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4. On the Output tab, add the Model for raster name that the image will be added into

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Source Image Loca	ation Output Crop		
Output Format			
Output size	314680 kb		
Output options			
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Name for raster	SW_691000_7657000_1km		N
Model for raster	aerial 2019 mga2020		
Show border			
Colour for border			
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choice ok			
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5. Click **Create**, then **Finish**



Importing a GeoTIFF into ArcMap

1. In the File menu, select Add Data, then Add Data...

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2. Browse to the GeoTIFF location and select Add

Add Data				×
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SW_692000_	_7658000_1km.tif	SW_693000_7660000_1km.ti	f I SW_69	94000_7662000_
Name:	SW_691000_765	7000_1km.tif		Add
Show of type:	Datasets, Layers	and Results	\sim	Cancel

3. If ArcMap prompts you to create pyramids, select Cubic Convolution, then click Yes



Create pyramids for SW_691000_7659000_1km.tif (10000 x 10000)						
This raster data source does not have pyramids or contains insufficient pyramids. Pyramids allow for rapid display at varying resolutions.						
Pyramid building may take a few moments. Would you like to create pyramids?						
About pyramids Yes	No Cancel					
Pyramid resampling technique	Cubic Convolution ~					
Pyramid compression type	Default ~					
Compression quality 75						
Use my choice and do not show this dialog in the future.						

Importing a GeoTIFF into AutoCAD Map 3D

 Check the coordinate system of the drawing is MGA/20-55. Refer to the *Transforming GDA94* <> GDA2020 using AutoCAD Map fact sheet in this series for more information about setting a coordinate system.



- 2. Under the Application Button > Drawing Utilities > Units, check the Units to scale inserted content is Meters. Refer to the *Transforming GDA94 <> GDA2020 using AutoCAD Map* fact sheet in this series for more information about setting the drawing units
- 3. On the Map Drafting ribbon, select Insert Image





4. Browse to the GeoTIFF location and select Open

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Show Preview						



5. On the **Source** tab, check the units are **Meters**. The Insertion values should have populated automatically.

Image Correlation	×					
Source	Insertion					
Correlation Source:	Image File \sim					
Insertion Values						
Insertion Point:	Rotation:					
X: 691000.756	0 0.0000					
Y: 7657001.42	97 Scale:					
Z: 0.0000	1: 1.0000					
Density 10.0000 x 10.000	0 pixels per unit					
Units for Insertion Point and Density Units: Meters						
File name: \lmages\GeoTIFFs\SW_691000_7657000_1km.tif						
OK	Cancel Apply Help					



6. On the Insertion tab, check the AutoCAD Units are Meters and that the Insertion Values in AutoCAD Units are consistent with the Insertion Values on the Source tab

Image Correlation		
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Insertion Value	es in AutoCAD Units	
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File name: \Image	es\GeoTIFFs\SW_6	91000_7657000_1km.tif
ОК	Cancel	Apply Help

7. Click OK

