



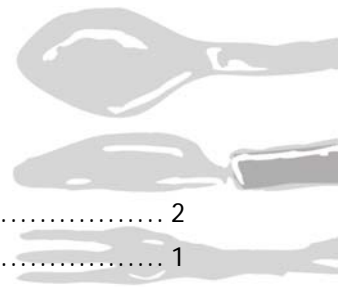
Work exercises

GeoMap.WA Cookbook



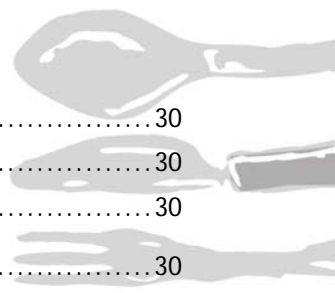
Add various ingredients for
a mouth-watering display

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Introduction

This **Cookbook** provides a series of practical exercises to introduce you to GeoMap.WA, a free Geographical Information Systems (GIS) viewer to view, query and integrate geology and resource information.

GeoMap.WA is supplied on every digital data package released by the Geological Survey of Western Australia (GSWA) and can also be downloaded from the Department of Mines, Industry Regulation and Safety's (DMIRS) Data and Software Centre <<https://dasc.dmirs.wa.gov.au>>.

These exercises have been developed to teach you how to use some of the basic GeoMap.WA functions and tools to work with DMIRS's GIS data.

For access the GeoMap.WA user guide, can be found on the USB under DOCUMENTS\GeoMAP

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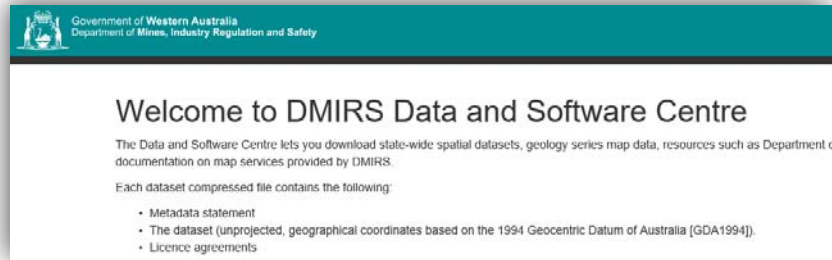
<i>Version</i>	<i>Date</i>	<i>Comments</i>
1.0	Oct 2020	Created by Stephen Bandy
1.1	Feb 2021	Revision by John Kirk
1.2	Nov 2022	Revision by John Kirk (DASC updates)

Exercise 1

Download from the Data and Software Centre

Ingredients

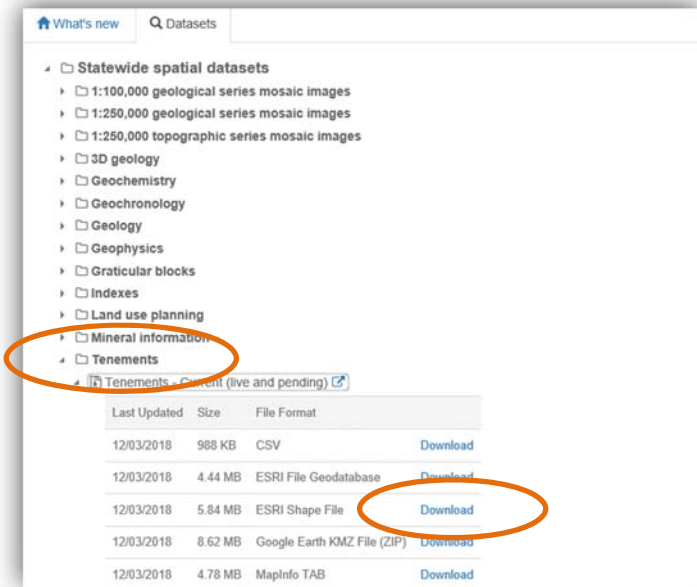
- Access to the Internet



<https://dasc.dmirs.wa.gov.au>

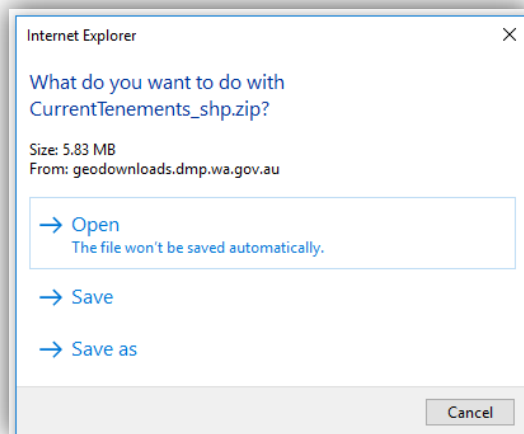
Method

1. Open the Data and Software Centre web page using your internet browser
<<https://dasc.dmirs.wa.gov.au>>.
2. To download a data layer, open a category, select the data layer, click on the 'DOWNLOAD' and select a data format.



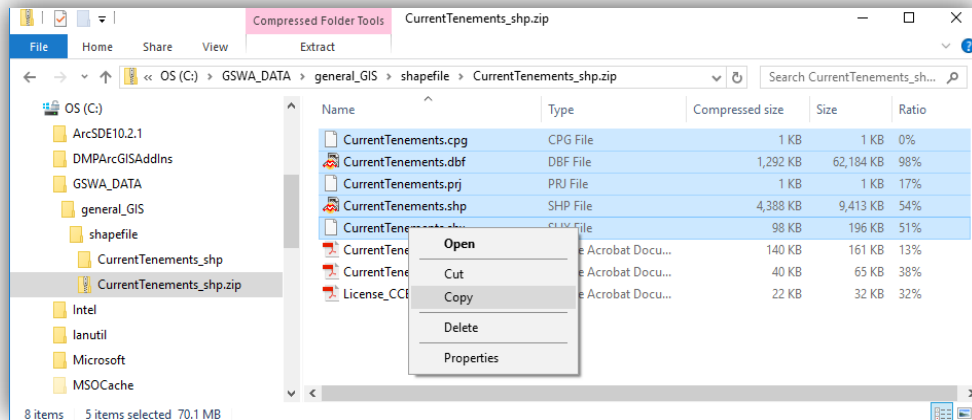
In this example, the category is **Tenements**, the data layer is **Tenements – Current (Live and Pending)** and **ESRI Shape File** format is selected.

- Downloads normally automatically get saved to your Downloads folder on your PC' hard drive. You may be prompted to SAVE a compressed file (ZIP) to a folder on your PC's hard drive.



In this example, current tenements (**CurrentTenements_shp.zip**) is to be saved to the hard drive.

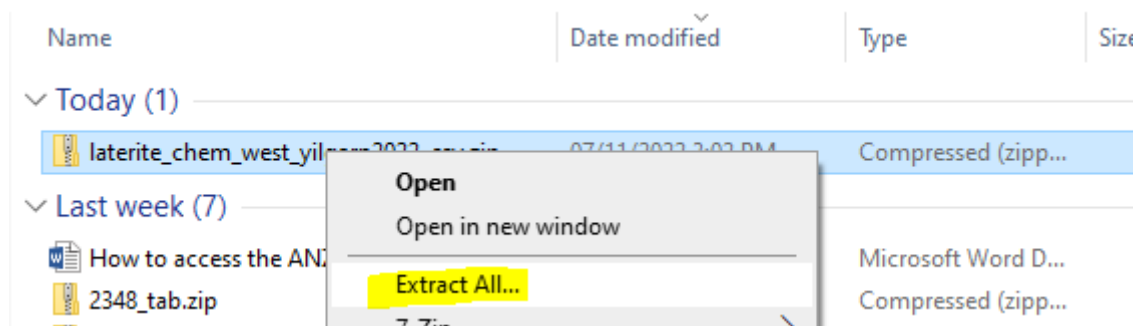
- The next step is to uncompress the ZIP file by copying the contents into a folder. First double click on the ZIP file to open and see the contents. Then copy the files into a folder.



In this example, **CurrentTenements_shp.zip** has been opened to allow the contents to be copied into a folder.

Or

Right click on ZIP file choose Extract All

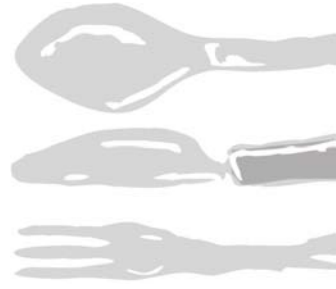


This will prompt you for a directory to hold the extracted files.

- The data layer files are now in a folder and can be loaded into GeoMap.WA (see Section 5.6.1 in the GeoMap.WA user guide).

Exercise 2

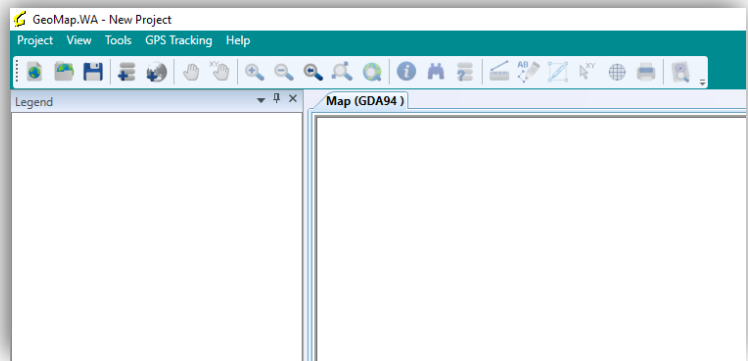
Load live and pending tenements



Ingredients

- GeoMap.WA
- Live and pending tenements data layer

An updated tenements file can be downloaded from Data and Software Centre. See page 1.



Method

1. Open a new Project in GeoMap.WA.



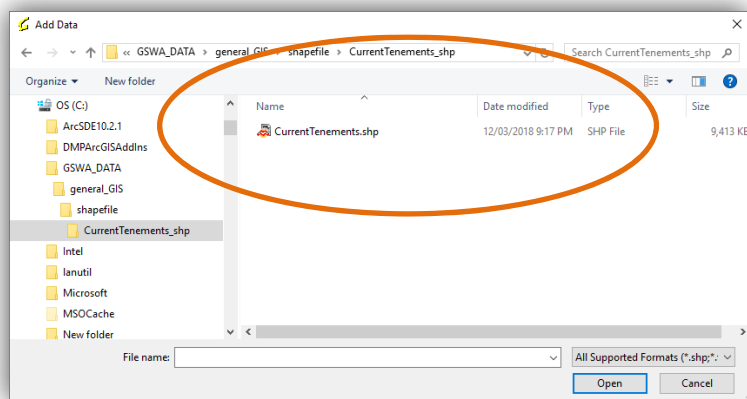
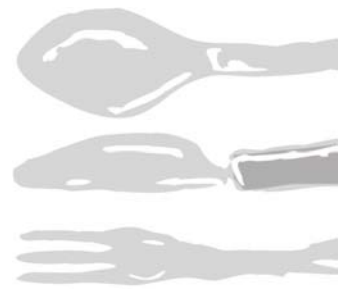
2. Click ADD DATA.



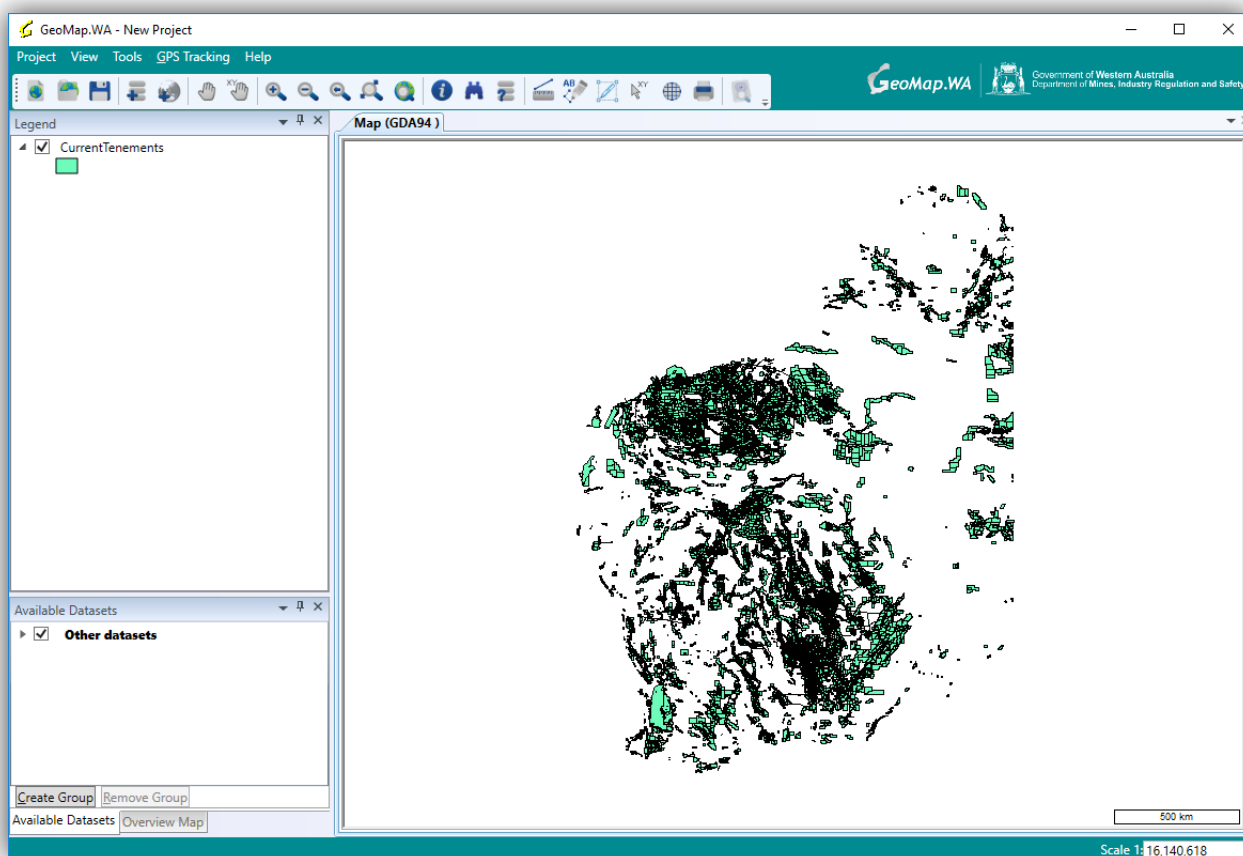
If a vector dataset does not include coordinate system information that GeoMap.WA can interpret, you will be prompted with a message. See Section 5.6.1 of the GeoMap.WA user guide for more details.

3. Browse to the '**CurrentTenements.shp**' spatial data file on your PC. See page 1 for Download from Data and Software Centre recipe.

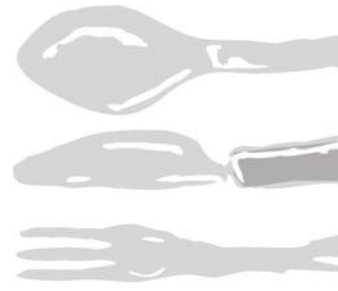
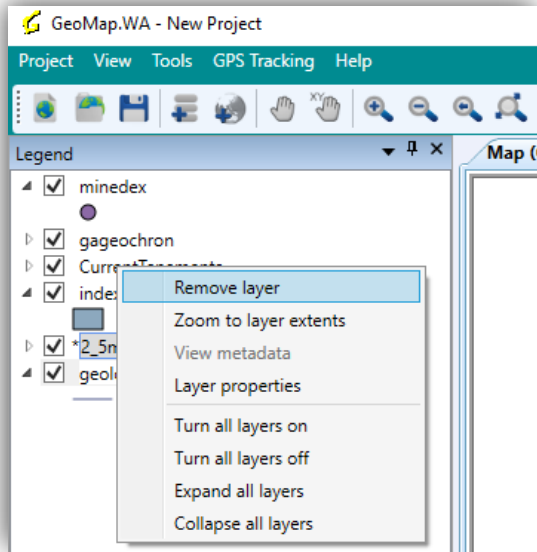
Click on the file name and click OPEN.

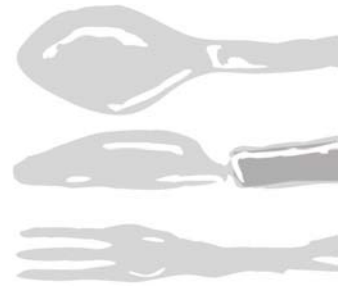


4. GeoMap.WA will prompt you to place the '**CurrentTenements.shp**' dataset into a GROUP. Select the default 'Other Datasets'.
5. The **tenement** data layer is now loaded into GeoMap.WA (for more details see Section 5.6.1 in the GeoMap.WA user guide).



6. To remove **tenement** data layer from a project right click on the layer name in the **Legend**. Click on **Remove Layer** from the menu that pops up.





Exercise 3

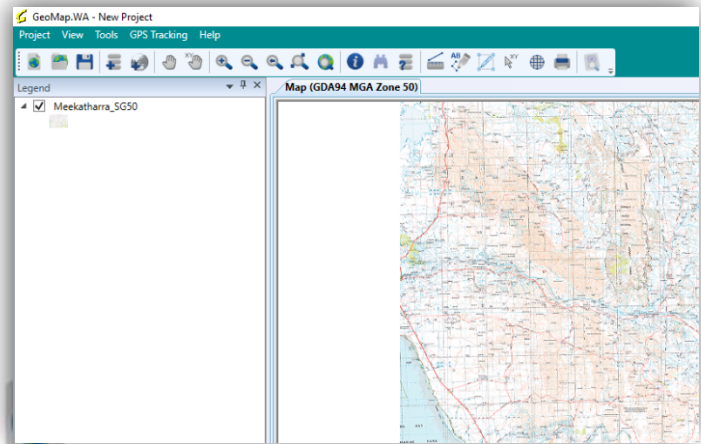
Loading a topographic image

Ingredients

- GeoMap.WA
- Meekatharra_SG50 topo.jp2 image

Method

1. Open a new Project in GeoMap.WA.

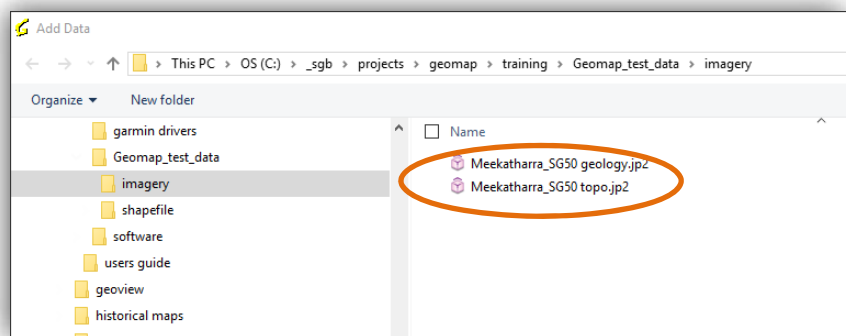


2. Click ADD DATA. 

If a raster dataset does not include coordinate system information that GeoMap.WA can interpret, you will be prompted with a message. See Section 6.6 of the GeoMap.WA user guide for more details.

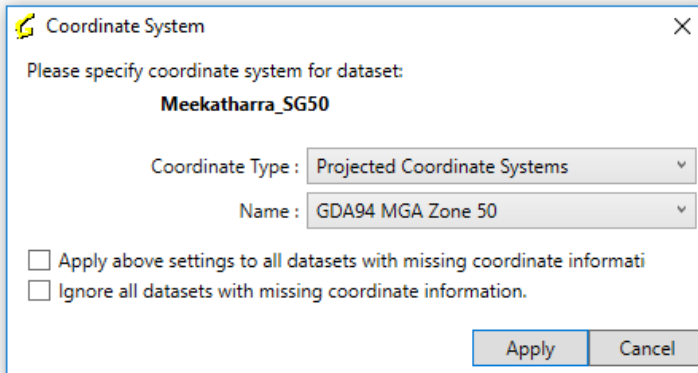
3. Browse to the '**Meekatharra_SG50 topo.jp2**' image data file on your PC. See Exercise 1: download from Data and Software Centre on page 1.

Click on the file name and click OPEN.

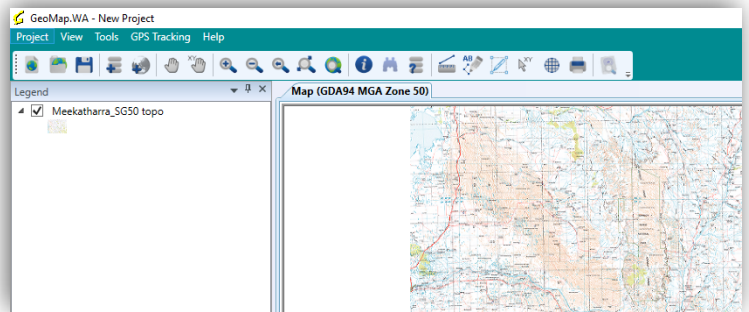


TIP: If your project has both raster and vector data always load the raster data first.

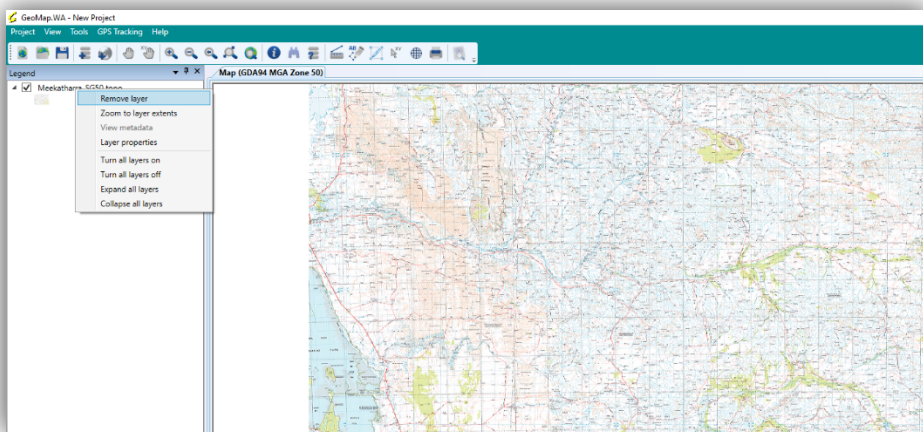
- You will be prompted for a coordinate system. Please specify 'projected coordinate system'
GDAMGA Zone 50



- The '**Meekatharra_SG50 topo.jp2**' data layer is now loaded into GeoMap.WA (for more details see Section 5.6.1 in the GeoMap.WA user guide).

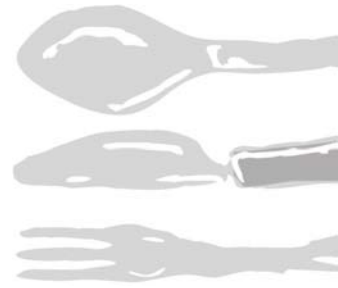


- To remove the '**Meekatharra_SG50 topo.jp2**' data layer from a project, right click on the layer name in the [Legend]. Click on [Remove Layer] from the menu that pops up.



Exercise 4

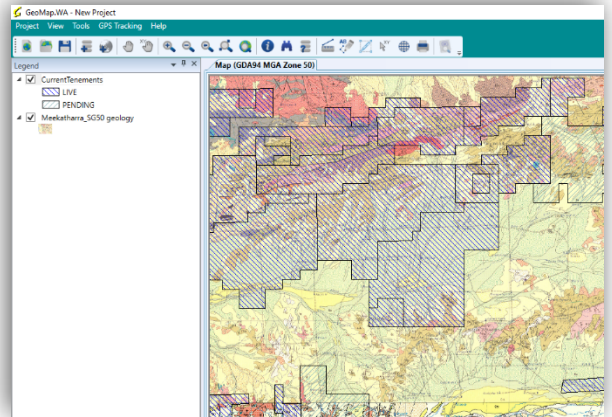
Load 1:250 000 geology mosaic image



Ingredients

- GeoMap.WA
- 1:250 000 'Meekatharra_SG50 geology.jp2' geology mosaic image
- Live and pending tenements data layer

Updated versions of these can be downloaded from Data and Software Centre. See page 1.



Method

1. Open a new Project in GeoMap.WA.



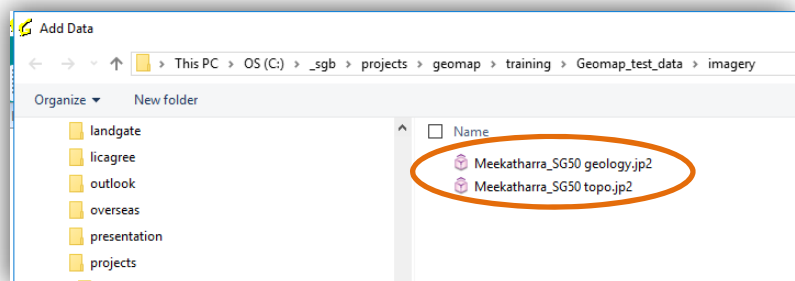
2. Click ADD DATA.



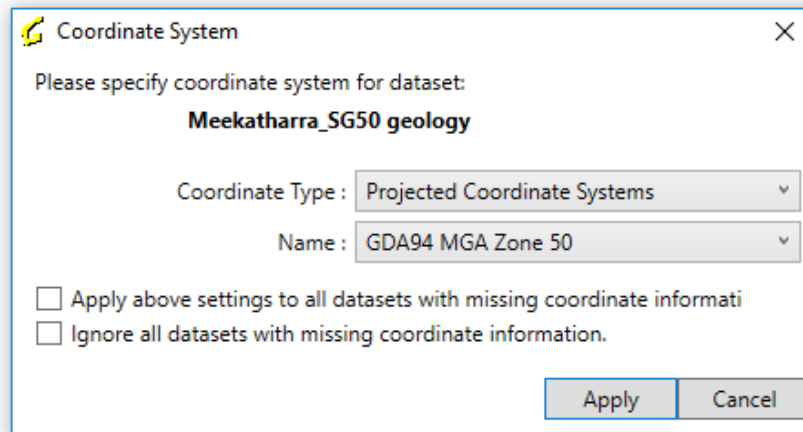
If a raster dataset does not include coordinate system information that GeoMap.WA can interpret, you will be prompted with a message. See Section 6.6 of the GeoMap.WA user guide for more details.

3. Browse to the 'Meekatharra_SG50 geology.jp2' image data file on your PC. See page 1 for download from Data and Software Centre recipe.

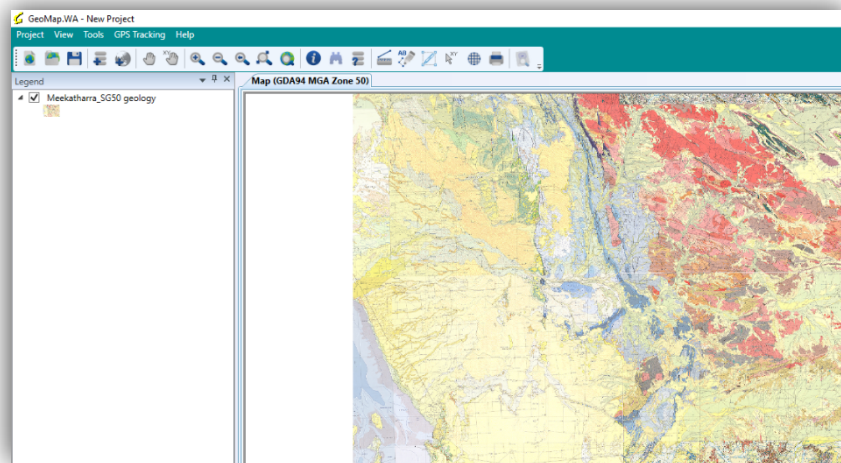
Click on the file name and click OPEN.



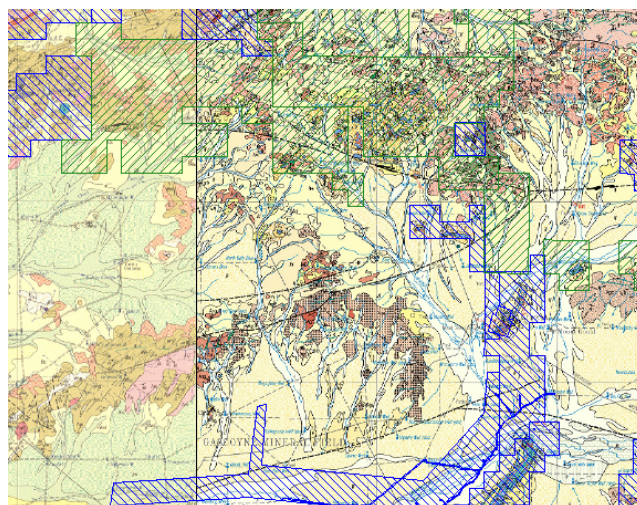
4. You will be prompted for a coordinate system. Please specify 'projected coordinate system' GDAMGA Zone 50



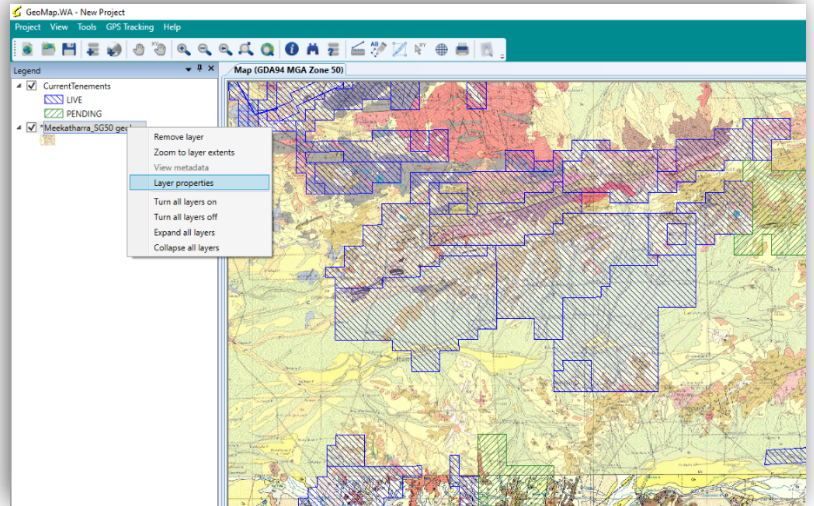
5. The **'Meekatharra_SG50 geology.jp2'** data layer is now loaded into GeoMap.WA (for more details see Section 5.6.1 in the GeoMap.WA user guide).



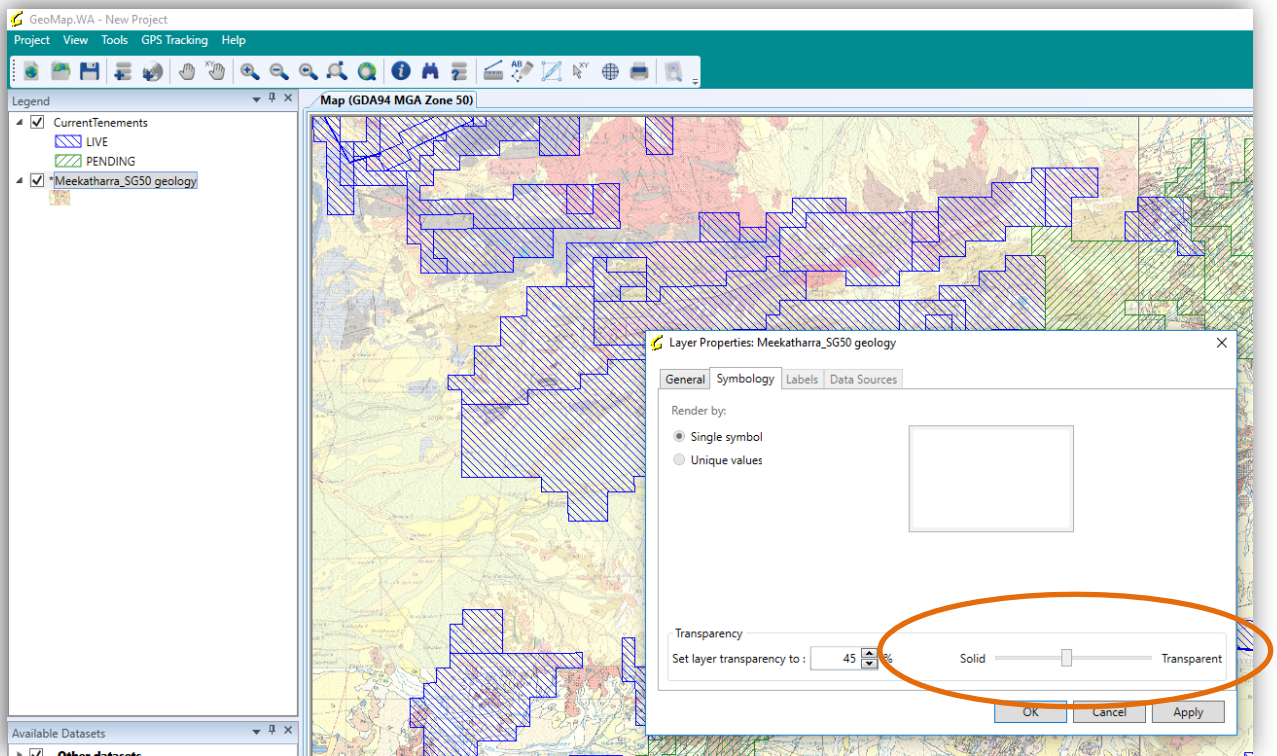
6. Add other data layers for a richer, fuller flavour. See Exercise 2: add **'pending and live tenements'**



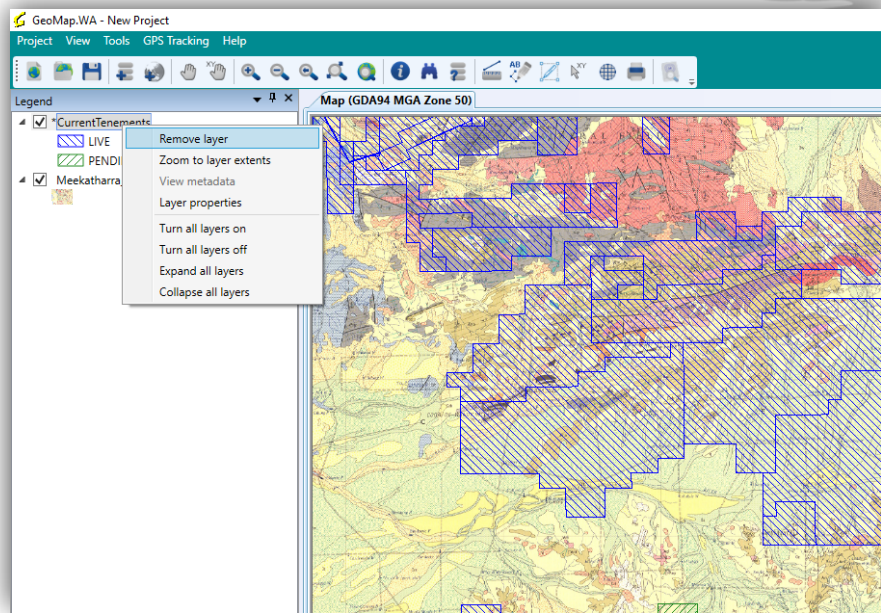
7. In this incidence the tenements are difficult to see with the imagery underneath. We will now apply transparency to the image. Right click on 'Meekatharra_SG50 geology' data layer and select 'layer properties'



Select 'Symbology' and apply a 50% transparency



- To remove 'Meekatharra_SG50 geology' or 'pending and live tenements' data layer from a project, right click on the layer name in the **Legend**. Click on **Remove Layer** from the menu that pops up.



Exercise 5

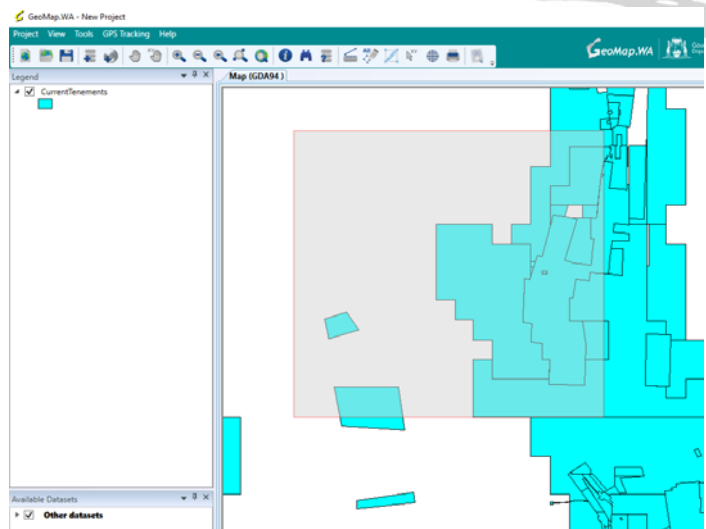
Search by area


Ingredients

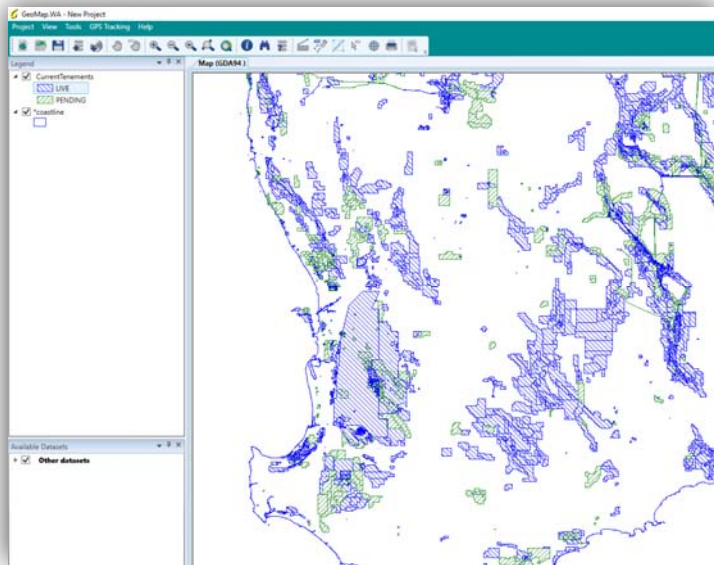
- GeoMap.WA
- Live and pending tenements data layer

An updated tenements file can be downloaded from Data and Software Centre. See page 1.

Method

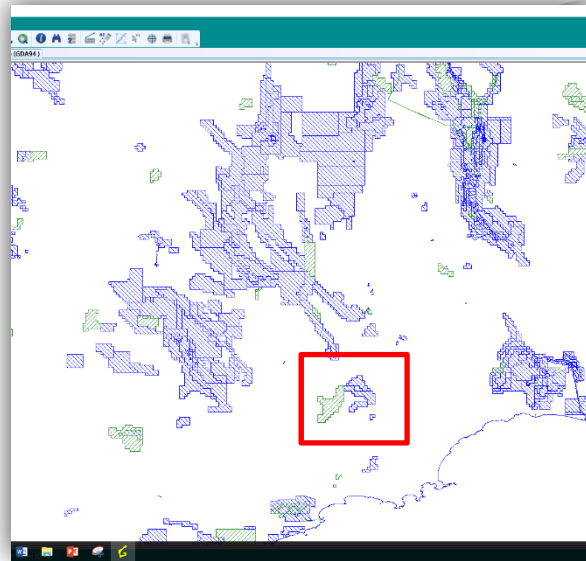


1. Load the **tenement** data layer into GeoMap.WA (for details see Exercise 2, page 3 or Section 5.6.1 in the GeoMap.WA user guide).
2. Zoom to an area of interest and Click on IDENTIFY.  IDENTIFY displays information about selected map features.

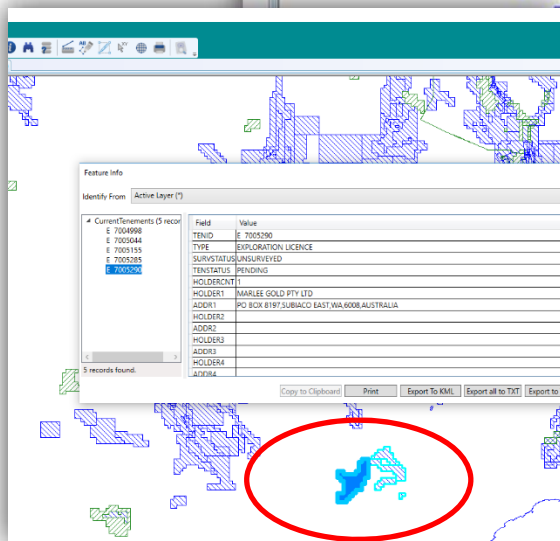
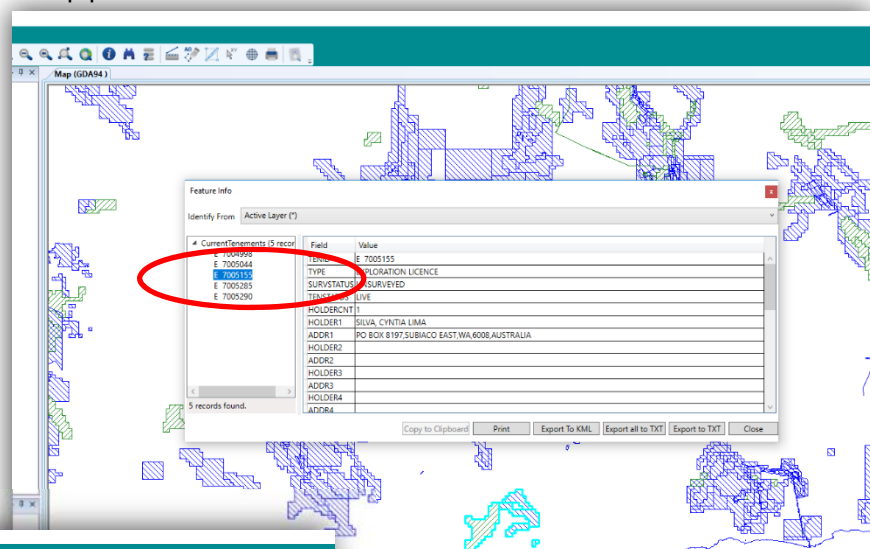


3. Draw the cursor over the specific map feature you want identified. By default, the information displayed will be about features **from the active layer**.

In this example, the area search will return results from the **Tenements, Live and Pending** that overlap.

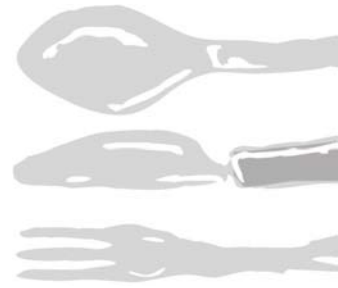


- Click on a record to display details in the table on the right. When you click on a new site in the left-hand panel, its location will be highlighted briefly in blue. Right click on the record to zoom to its location in map panel.



5. Use the EXPORT To CSV to save the results of the search to a file.

For more details see Section 9.5 of the GeoMap.WA user guide.



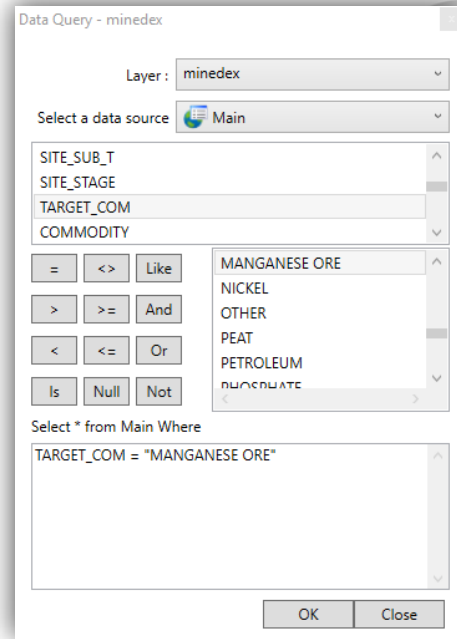
Exercise 6

Search by text value

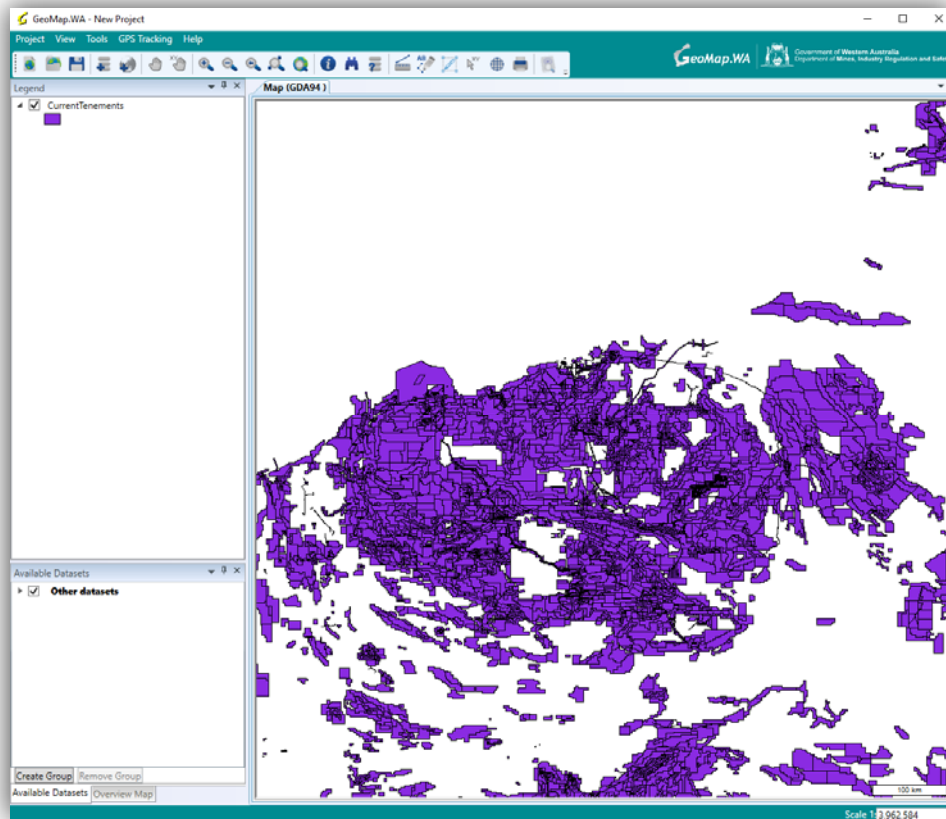
Ingredients

- GeoMap.WA
- Live and pending tenements data layer

An updated tenements file can be downloaded from Data and Software Centre. See page 1.



1. Load the **tenement** data layer into GeoMap.WA (for details see Exercise 2, page 3 or Section 6.6 in the GeoMap.WA user guide).

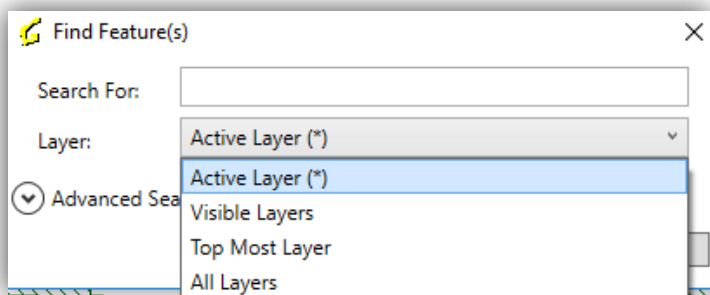


Method 1: Search by Find Feature

2 Click on FIND FEATURE.



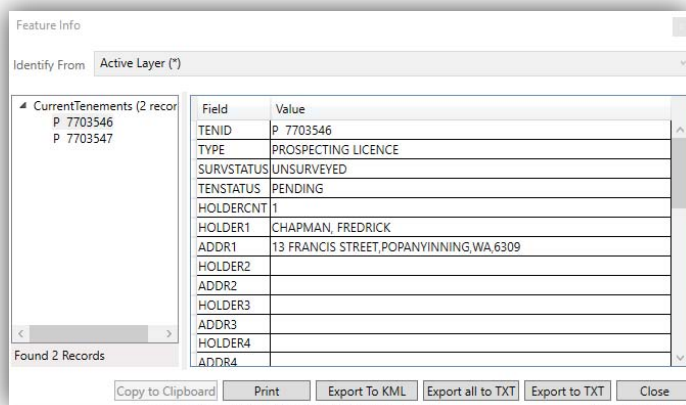
Find Feature button allows you to do a text search across a layer or multiple layers.



To find a feature, add the text into **Search For**. *In this example, 'pop' is entered.*

Note: anything containing the text 'pop' will be selected even if it is only part of the text.

Then select the layer or layers to search. *In this example, the active layer is selected.*



The search results in two features. Note the text 'pop' is in the field ADDR1.

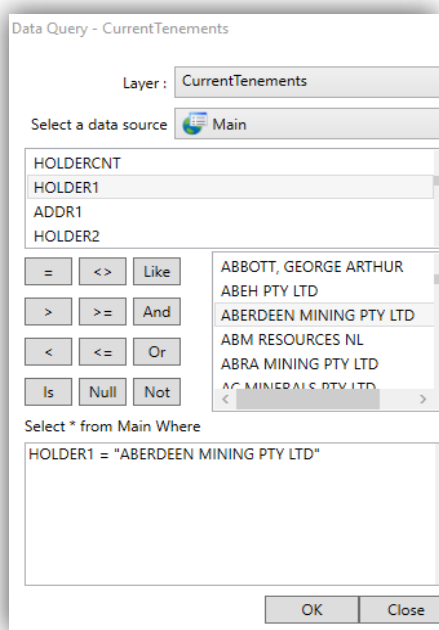
You can limit the search to a particular field by click on **Search only this field**.

Method 2: Search by Data Query



1. Click on DATA QUERY.

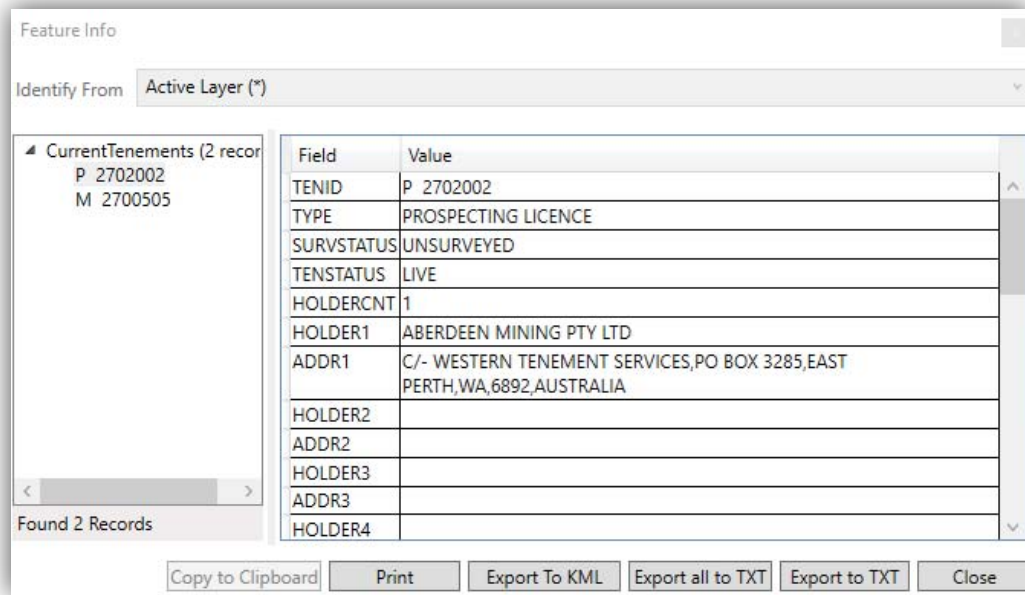
Data query button opens a dialogue that helps you create a query to find and display information about features.



2. To set up a query
 - To select the data Layer, click the arrow beside the **Layer:** field to display the available layers and then choose a layer to query. *In this example, **CurrentTenements** is selected.*
 - To select a data source, click the arrow beside the **Select a data source:** to display a list of available fields for the chosen layer to be displayed. *In this example, **Main** is selected.*
 - Double click on the field you want to query. The field name will be added to the **[Select * from Main (Attribute Table) Where]**. The range of possible values for that field will be displayed beside the function icons. *In this example, **HOLDER1** is selected.*
 - Click the function icon to build the query. The function will be added to the **[Select * from Main (Attribute Table) Where]**. *In this example, **=** is selected.*
 - Next double click the value you are querying against. *In this example, **ABERDEEN MINING PTY LTD** is selected.*

The complete query is now built and displayed in the **[Select * from Main (Attribute Table) Where]**. *In this example, **HOLDER1 = \"ABERDEEN MINING PTY LTD\"** is selected.*

3. Click OK to execute the text query.



In this example, two results are returned.

4. Click on a record to display details in the table on the right. When you click on a new site in the left-hand panel, its location will be highlighted briefly on the map in blue. Right click on the record to zoom to its location in map panel.
5. Use the EXPORT To CSV to save the results of the search to a file.

For more details see Section 6.6 of the GeoMap.WA user guide.

Exercise 7

Changing Layer Properties

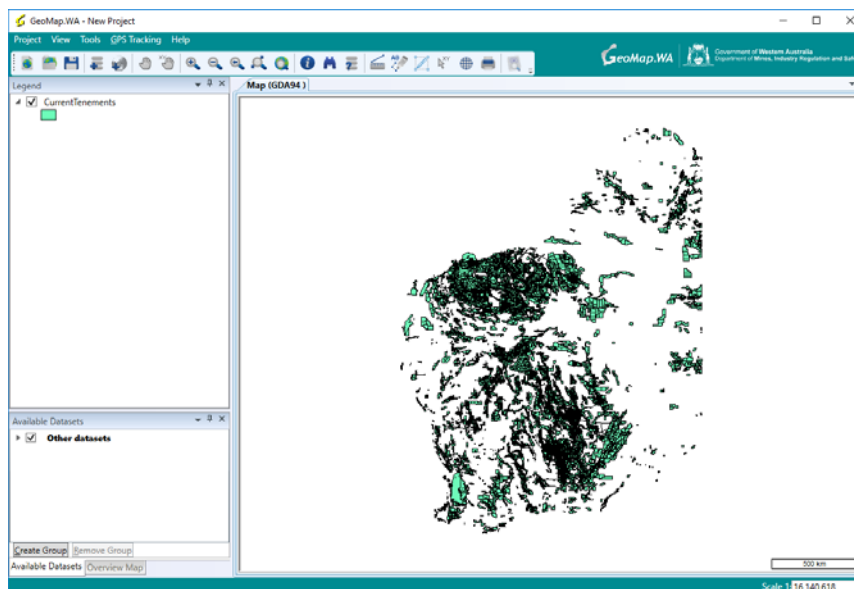
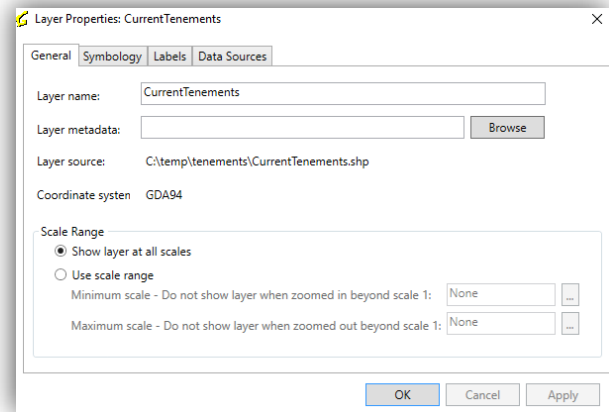
Ingredients

- GeoMap.WA
- Live and pending tenements data layer

An updated tenements file can be downloaded from Data and Software Centre. See page 1.

Method

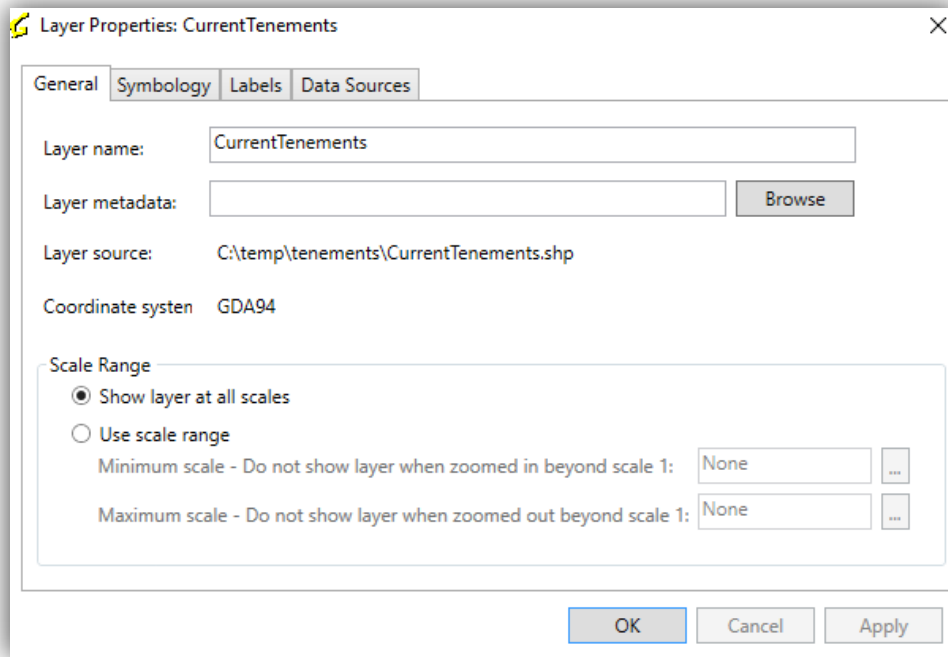
1. Load the **tenement** data layer into GeoMap.WA (for details see Exercise 2, page 3 or Section 5.6.1 in the GeoMap.WA user guide).



2. Double click or right click a layer name and select **Layer Properties** to open the Layer Properties dialog box.

Layer Property settings are different between vector and raster datasets (much more limited for raster datasets).

General tab

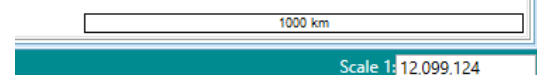


1. The General tab in the dialogue box lets you change the:
 - **Layer name:** to change the name of a layer, type in a new name.
 - **Layer metadata:** click Browse to find and select the appropriate metadata file.
 - **Coordinate system:** this information is provided for reference only.
 - **Use scale range:** some layers are not suitable for display at all scales. Select the **Use scale range** option in the **Scale Range** section.

Do not show layer when zoomed in beyond scale 1: type a value in place of [None] or click to the right of the scale box. The layer will not be displayed in the map panel when the map is zoomed above that scale, and will be greyed-out in the [Legend].

Do not show layer when zoomed out beyond scale 1: type a value in place of None or click to the right of the scale box. The layer will not be displayed in the map panel when the map is zoomed below that scale, and will be greyed-out in the **Legend**.

Click to replace **None** with the scale at which the map is currently displayed. The current scale is shown in the bottom right-hand corner of the screen.



[Show layer at all scales] Select this option to display the layer at every scale.

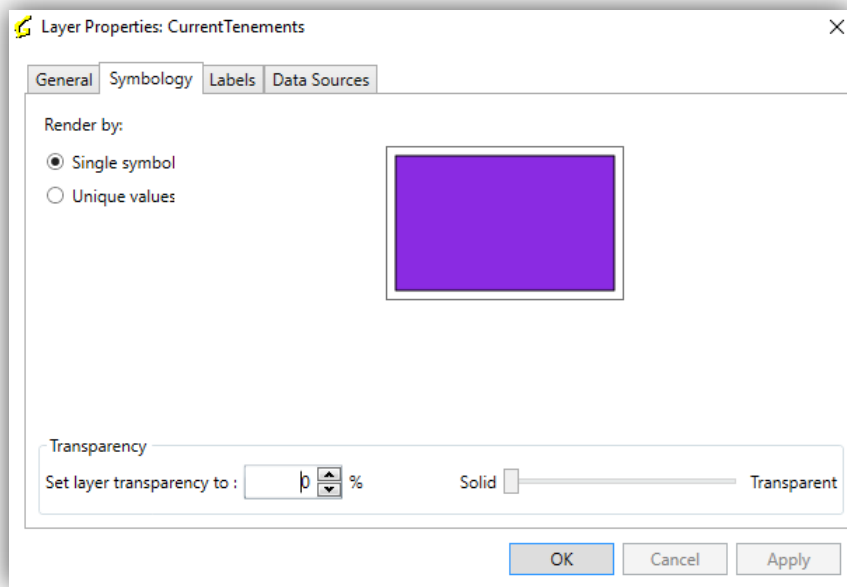
2. Click either **OK** or **Apply** to save changes to the **Layer name:**, **Layer metadata:**, or **Scale Range**.
3. Click 'Cancel' to restore **Layer name:**, **Layer metadata:**, or **Scale Range** settings to what they were before the last **OK** or **Apply**.

See Section 8.3 of the GeoMap.WA user guide for details.

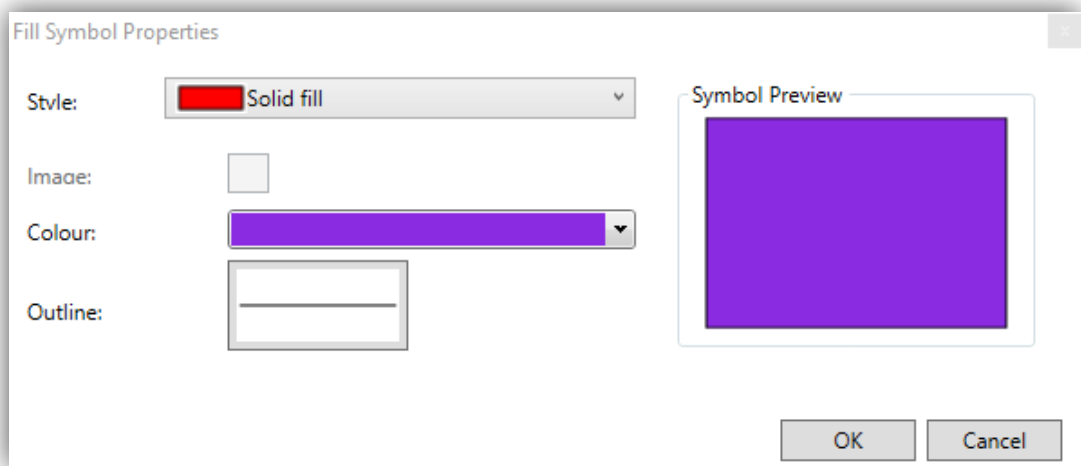
Symbology tab

Single symbol

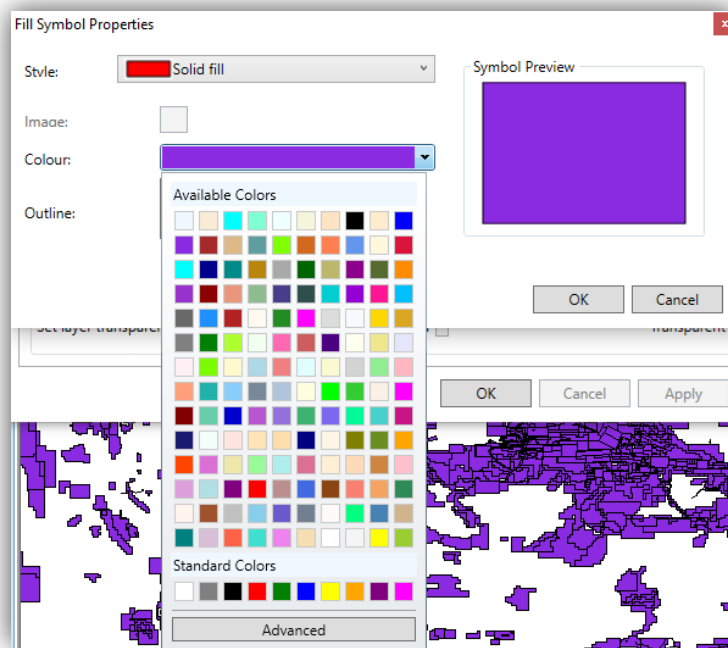
The **Symbology tab** lets you change the layers symbology. The default setting is **Single symbol** for newly added datasets.



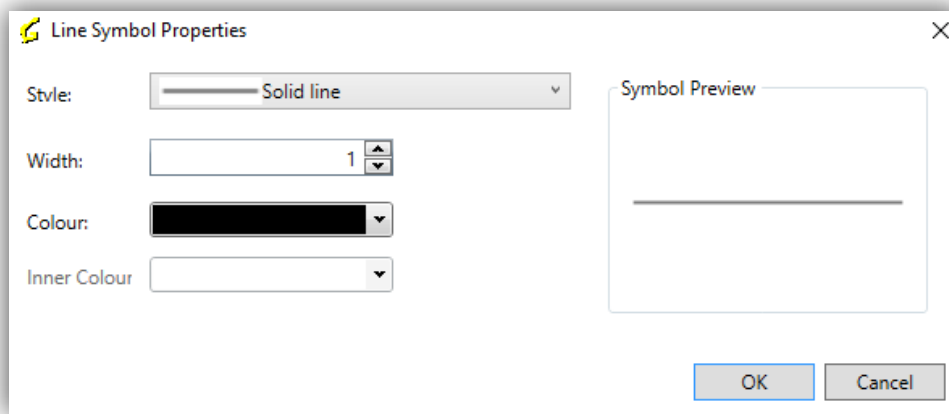
1. To change the symbology click on the colour square, in this case 'purple'.



2. Change the colour fill by clicking on **Colour:** and selecting a colour.



3. To change the outline colour, click on the Outline: and select line symbol and colour.

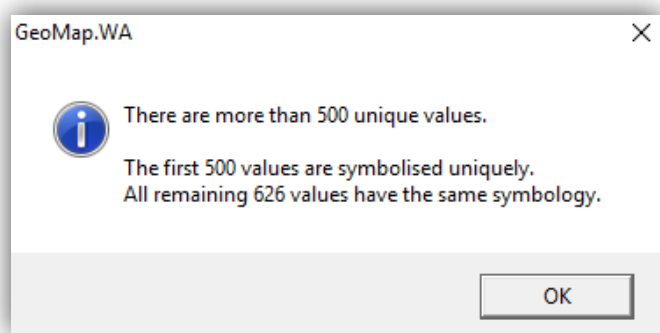


In this example, the line style is 'solid line' and the colour is black.

See Section 8.3 of the GeoMap.WA user guide for details.

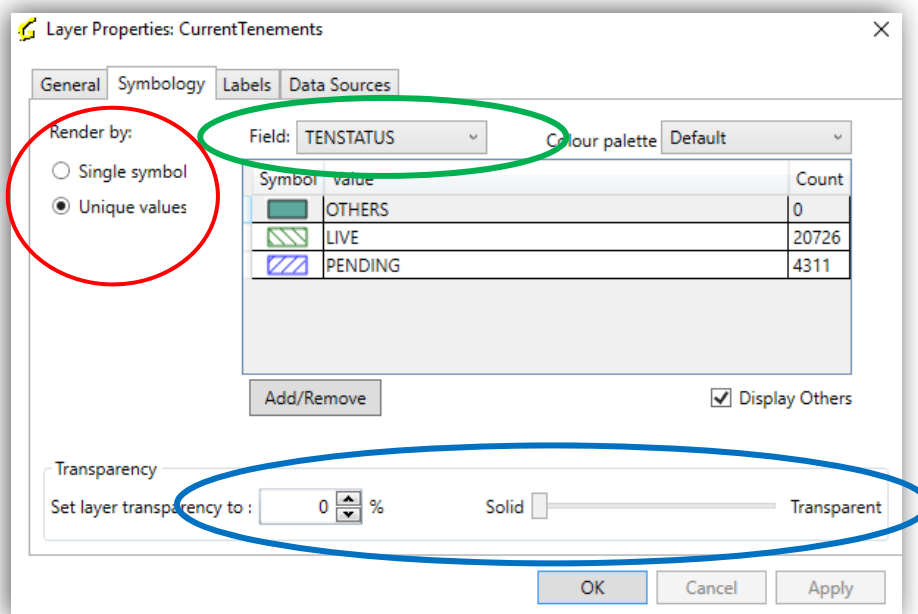
Unique values

1. To display distinct values or features as different symbols, select the **Unique values option**. If there are too many values for the available colour and symbol variations, you will receive a message like the one below.



Message displayed when there are too many values to be symbolized

2. To display different symbols for features in a layer, select **Unique values**, and then select **Field:**, **Colour palette:**, and **Transparency**.



*In this example, **Unique values** has been selected using the **Field** 'TENSTATUS'. **Values** for this are only 'LIVE' and 'PENDING'. A diagonal line, blue left and green right, has been applied. No transparency has been set.*

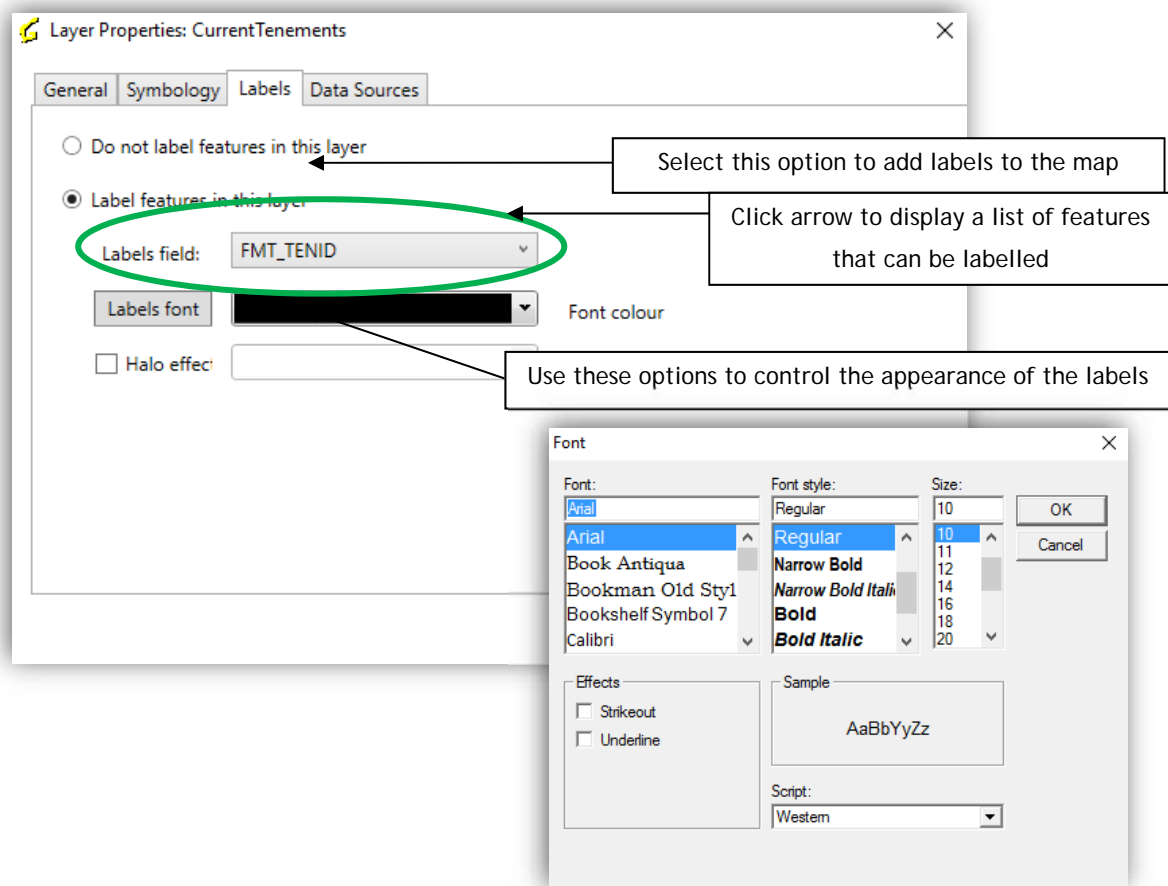
- Settings apply to the whole layer and all the symbols in the layer.
- Click **Apply** or **OK** to save the new settings, or **Cancel** to return to the original settings.

See Section 8.3 of the GeoMap.WA user guide for details.

Labels tab

The **Labels** tab in the dialogue box lets you display a **Label features in this layer**.

- Click in the **Labels field:** to choose the field to be labelled. *In this example, FMT_TENID, the formatted tenement identifier, has been selected.*
- The values in this field will be used to label features. This dialogue box also allows you to modify the **Labels font** and **Font colour**, and choose whether to apply a **Halo effect** and **Halo colour** to labels. *In this example, ARIAL, regular, 10 point has been selected.*



See Section 8.3 of the GeoMap.WA user guide for details.

Data sources tab

The linking of external data sources is complex. See Section 8.3 page 50 of the GeoMap.WA user guide for details.

Exercise 8

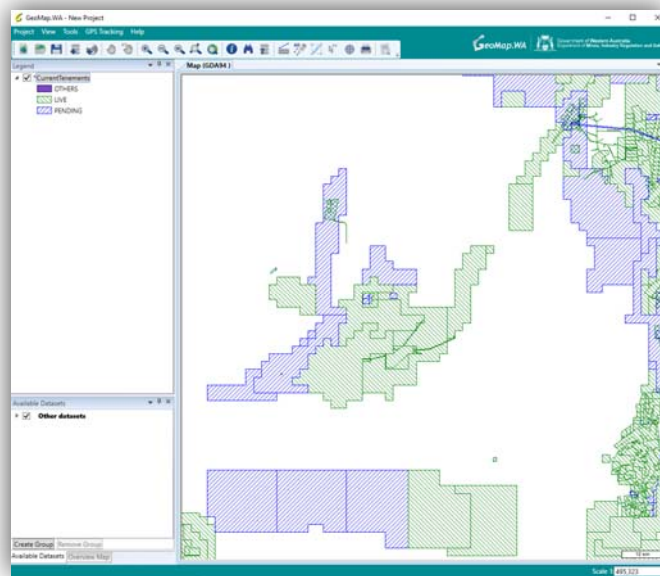
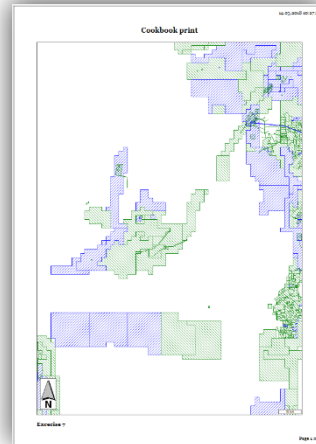
Making a print

Ingredients

- GeoMap.WA
- Live and pending tenements data layer

Updated versions of these can be downloaded from Data and Software Centre. See page 1.

Method



1. Load the **tenement** data layer into GeoMap.WA (for details see Exercise 2, page 3 or Section 5.6.1 in the GeoMap.WA user guide).

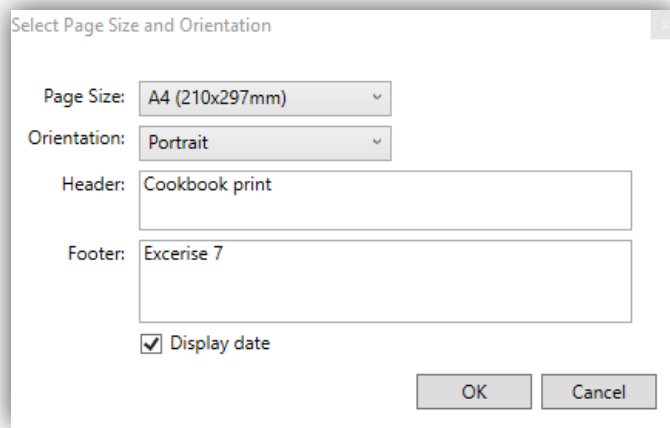
In this example, the tenements have been symbolized on unique value 'TenStatus'. See Exercise 6 for more details.

2. Click on the Print Button.



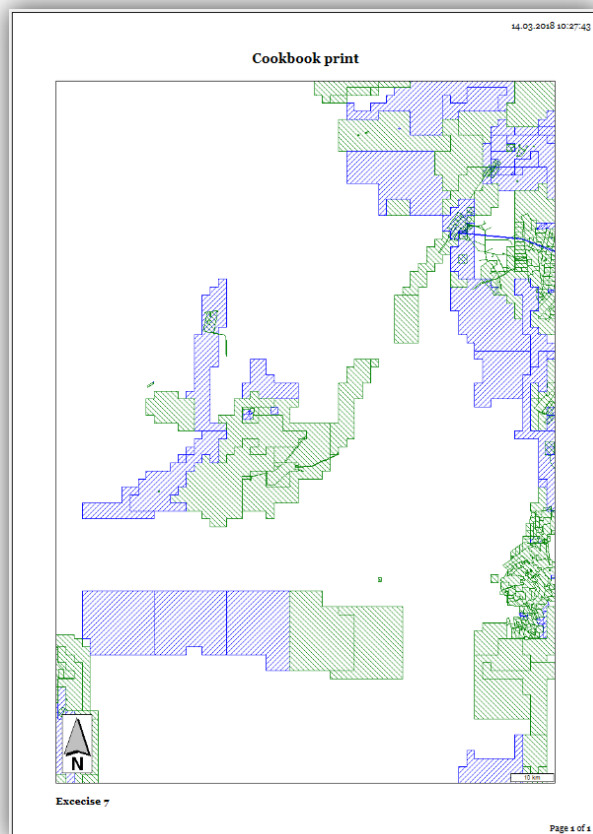
The Print button prints the map as it is currently displayed in the main map panel.

3. Click the **Print** button to open the print window, which allows you to choose the **Paper Size:**, **Orientation:**, **Header:** and **Footer:** text. Tick **Display date** to show the date on the printout.

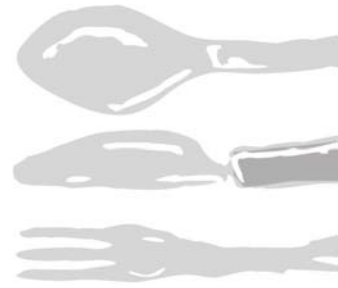
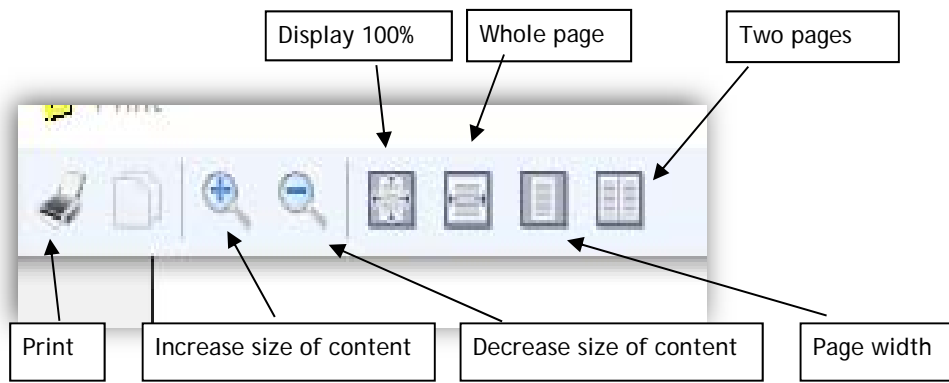


In this example, the page size is A4 and orientation is portrait.

4. Click **OK** to view a print preview with title, date, time, scale, and north arrow.

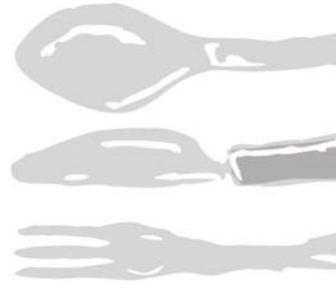


5. The preview has buttons for controlling the way the map is displayed.



Exercise 9

Creating a shape file

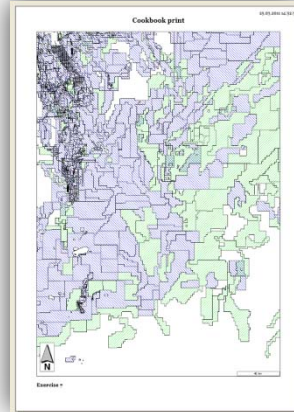


Ingredients

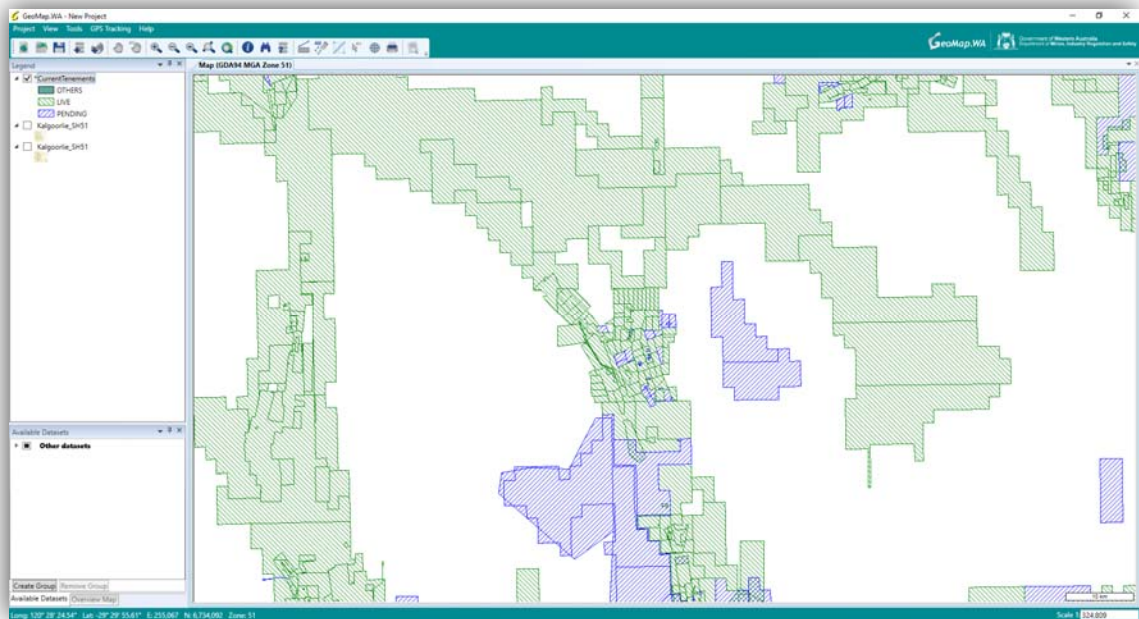
- GeoMap.WA
- Live and pending tenements data layer

Updated versions of these can be downloaded from Data and Software Centre. See page 1.

Method



1. Load the **tenement** data layer into GeoMap.WA (for details see Exercise 2, page 3 or Section 5.6.1 in the GeoMap.WA user guide).



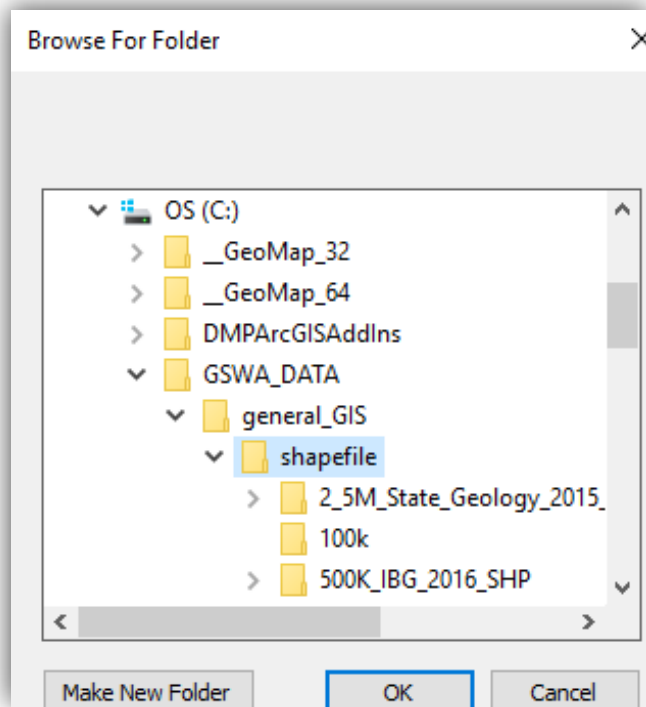
2. Click the New Shape file button



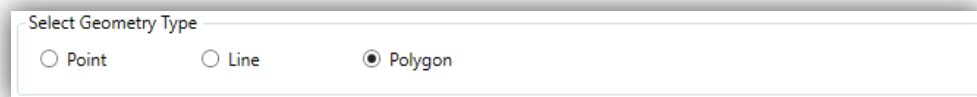
This opens a box to fill in some details of you shape file.

- i) Add a name of the shape file to the field called shape file name

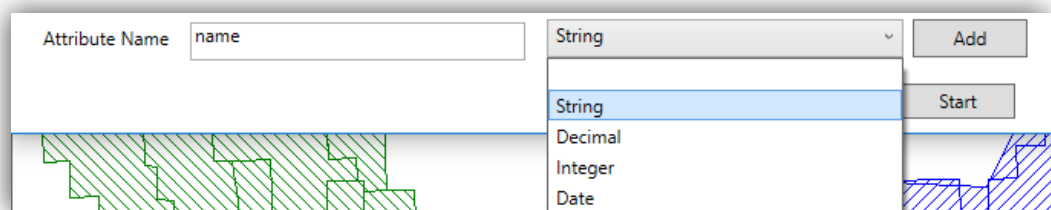
- ii) Select a location you want to save the shape file to in the shape file location. You can do this by selecting the browser button and navigate to a location on you pc and select ok.



- iii) Select what type of geometry you would like your shape file to be. You have three options, a point file, a line file or a polygon file. We are going to choose a polygon file.



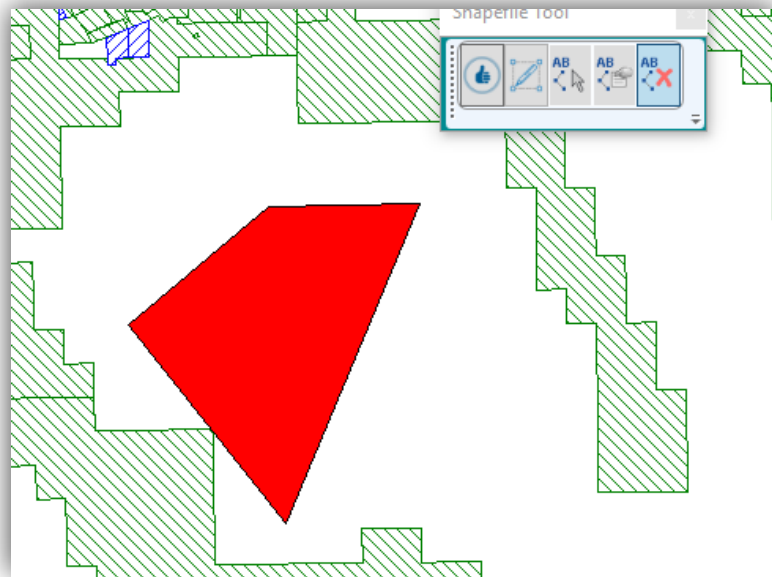
- iv) Add any fields you would like to add to the shape file. Please note that you may add more than one but they can only be 8 characters long. In the example below, we are adding two fields, comment, name and location. Both are string types, then click on start.




- This will open up a new box with some tools in it.
We need to click on the second tool which is "Add Polygon"



Click on the map and create you polygon, remember to double click on the last corner to end



the polygon shape.

- Then click on the fourth tool across which is the "edit attributes" tool.  This is the location to add values to fields you created earlier. In this example we will add the name of an applicant as the name and the comment felid will be "New tenement application". Then we will click the "save" button.

Attribute Name	Attribute Value
name	John Dow
location	25 kilometre North North East of Kalgoorlie
comment	Banded greenstone

- When this is done we can click "Finalise Shapefile" button. The new shape file will be added to the layers. NOTE: The shape file you just created, cannot be edited further.



Exercise 10

Saving a Project

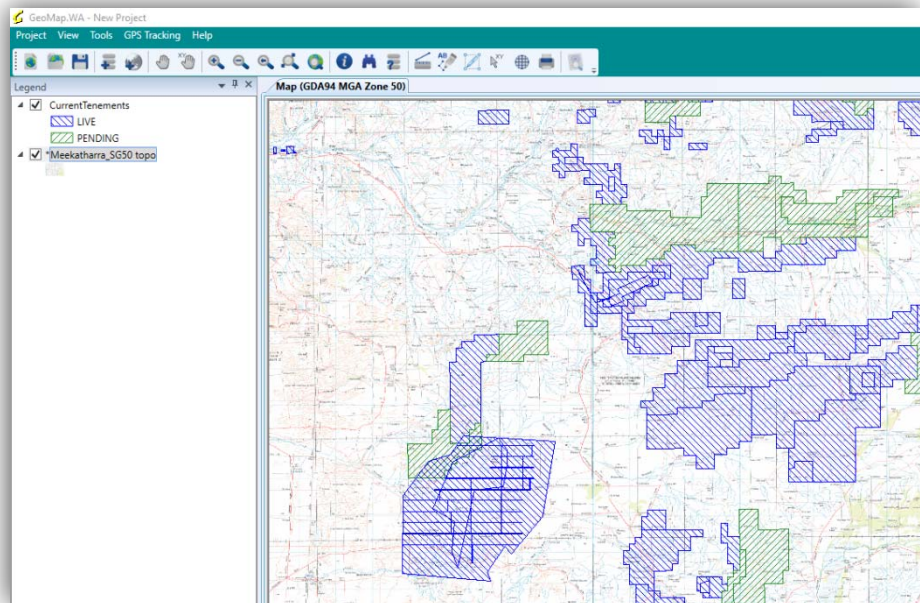
Ingredients

- GeoMap.WA
- **Meekatharra_SG50 geology.jp2** image
- Live and pending tenements data layer

Updated versions of these can be downloaded from *Data and Software Centre*. See page 1.

Method (save)

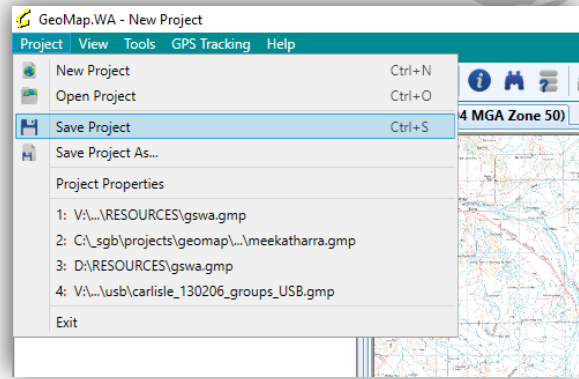
1. Load the **Meekatharra_SG50 geology.jp2** image and **Tenement** data layer into GeoMap.WA (for details see Exercise 3 and 4).
2. Apply symbology to Tenement data and transparency to **Meekatharra_SG50 topo** data layers (for details see Exercise 4).
3. Zoom to an area of interest



To save your Project click SAVE PROJECT icon



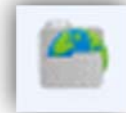
Or under PROJECT tab use SAVE PROJECT AS



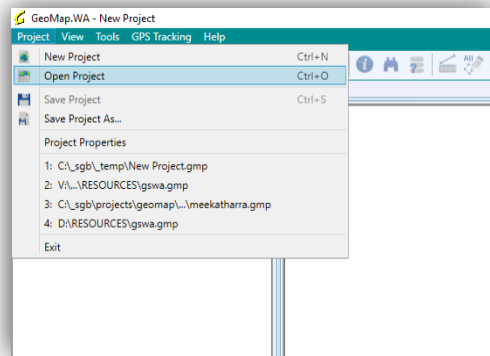
Follow the prompts and select somewhere on your hard drive to save the GMP file.

Method (open)

4. To open a previously saved project click on OPEN PROJECT icon



Or under PROJECT tab use OPEN PROJECT



Follow the prompts and select the GMP file you wish to open.