GeoResGlobe Shapefile guide

What is a Shapefile?

A *shapefile* (.shp) is a simple geospatial format regulated by the *Environmental Systems Research Institute* (ESRI), used mainly for digitally storing a location or the features of an area. Shapefiles are the Department's preferred spatial format for permit area descriptions.

As the name suggests, the geometry of a feature or object is stored as a *shape*, with points, lines or areas delineated by GPS coordinates, which plot the permit area.

Key information

- A shapefile is created by inputting coordinates (latitude + longitude) into a corresponding mapping / Geographic Information System (GIS) program, which converts spatial information into a graphical representation, such as a map with plotted GPS points.

- The geometry and location of each feature or 'shape' is plotted, stored as a set of coordinates and represented as points, lines or polygons (areas).

- Shapefiles can be used to represent geographic data such as permit areas, property boundaries, or to delineate features such as roads, rivers or general topography.

- The Department uses shapefiles to ensure the accuracy and integrity of your proposed permit area.

Many customers already use shapefiles to describe their permit areas when submitting their applications to the Department of Resources.

The main advantages between these datasets is that shapefiles now record coordinates in the modern format for digital GPS, which is far less labour intensive and far less prone to user or data entry error.
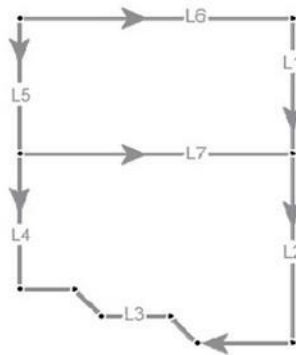
Types of shapefiles

Depending on what you need to do, there are three different types of shapefiles:
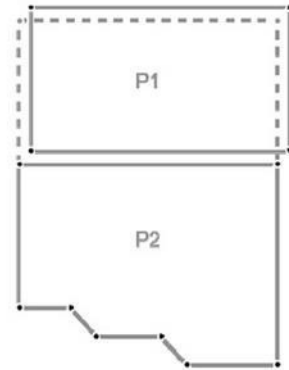
1. **Points** consisting of a pair of double-precision coordinates (X,Y)

2. **Polylines** comprising a set of points of one or more parts, which is a connected sequence of at least two points which may or may not connect or intersect

3. **Polygons** consisting of two or more rings, which is a connected sequence of at least four points forming a closed, non-intersecting loop

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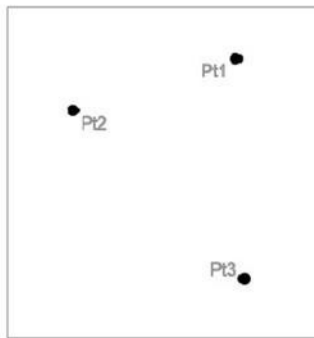
1. Point Shapefile (plotting landmarks) 2. Polyline Shapefile 3. Polygon Shapefile

Using the CSV templates

If you have latitude and longitude coordinates, you can create a shapefile using the Department's *CSV template*.

There are two templates available:

- The **Area coordinates generator** is used for points, polyline and polygon shapes.

- The **Area coordinates generator (degree-min-sec)** is used when your values are in degree, minute and second longitude and latitude coordinates.

Area coordinates generator

Use this template to enter the coordinates.

1.   If you see an Enable Content button at the top of the screen, click to enable you to add and save your coordinates.

2.   Enter the Y and X coordinates.

3.   Click [Generate CSV file] to save the file as a .csv file.

Sample:

Sample result in GeoResGlobe:

Area coordinates generator (degree-min-sec)

Use this template to enter the values for the polygon using degrees, longitude and latitude coordinates.

1. If you see an Enable Content button at the top of the screen, click the button to allow you to add and save your coordinates.

2. Enter the values as per each column heading in the template.

3. Click [Generate CSV file] to save the file as a .csv file.

Sample:

Area coordinates generator
Latitude/Longitude (Degrees, minutes, seconds)

Enter relevant coordinates specific to the permit area being described in this worksheet
Example: (LonDegress: 139, LonMinutes: 29, LonSeconds: 30.09, LatDegrees: 20, LatMinutes: 43, LatSeconds: 28.83)

[Generate CSV]

LonDegrees	LonMinutes	LonSeconds	LatDegrees	LatMinutes	LatSeconds
139	0	20.47	20	0	20
140	0	0.66	19	0	0.47
140	30	0.59	19	30	0.88
139	30	20	20	30	20
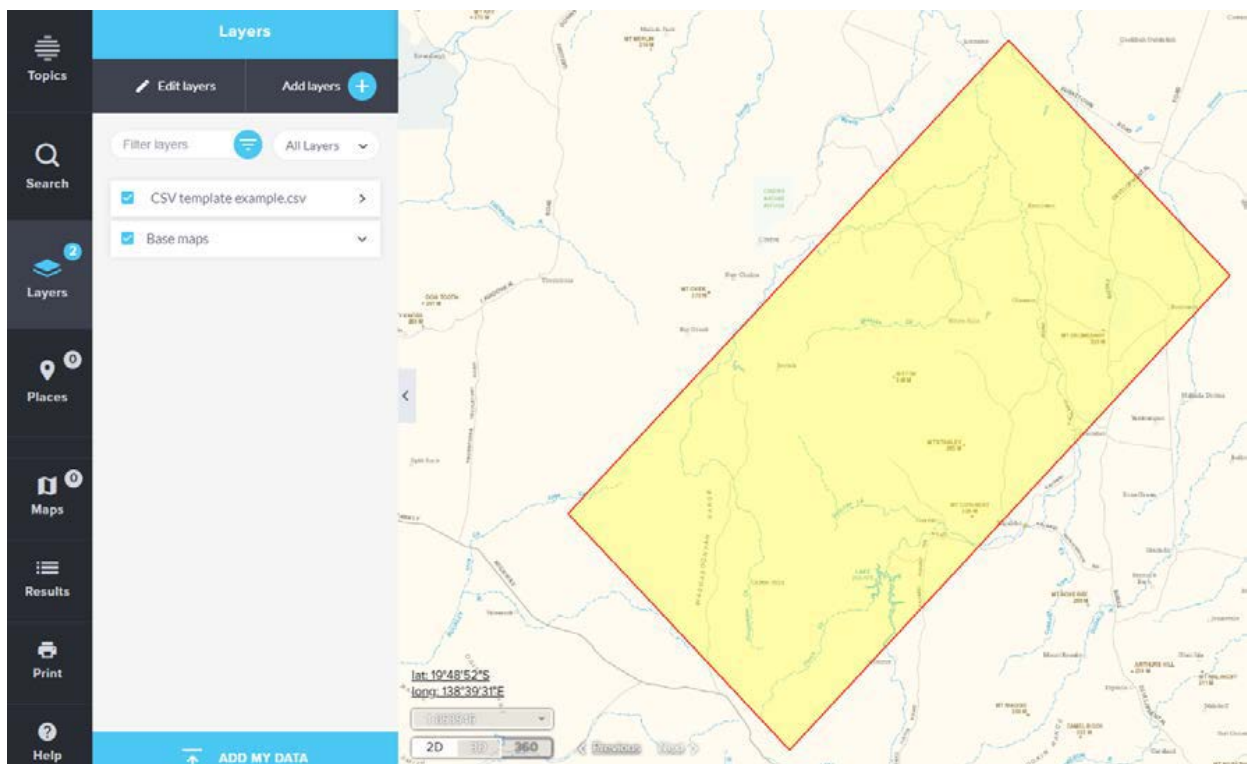
Converting a CSV to a Shapefile using GeoResGlobe

1. Open GeoResGlobe with the link https://georesglobe.information.qld.gov.au/

2. Follow the sign-in procedure

3. Open the Layers tool and select the ADD MY DATA button at the bottom of the layer panel
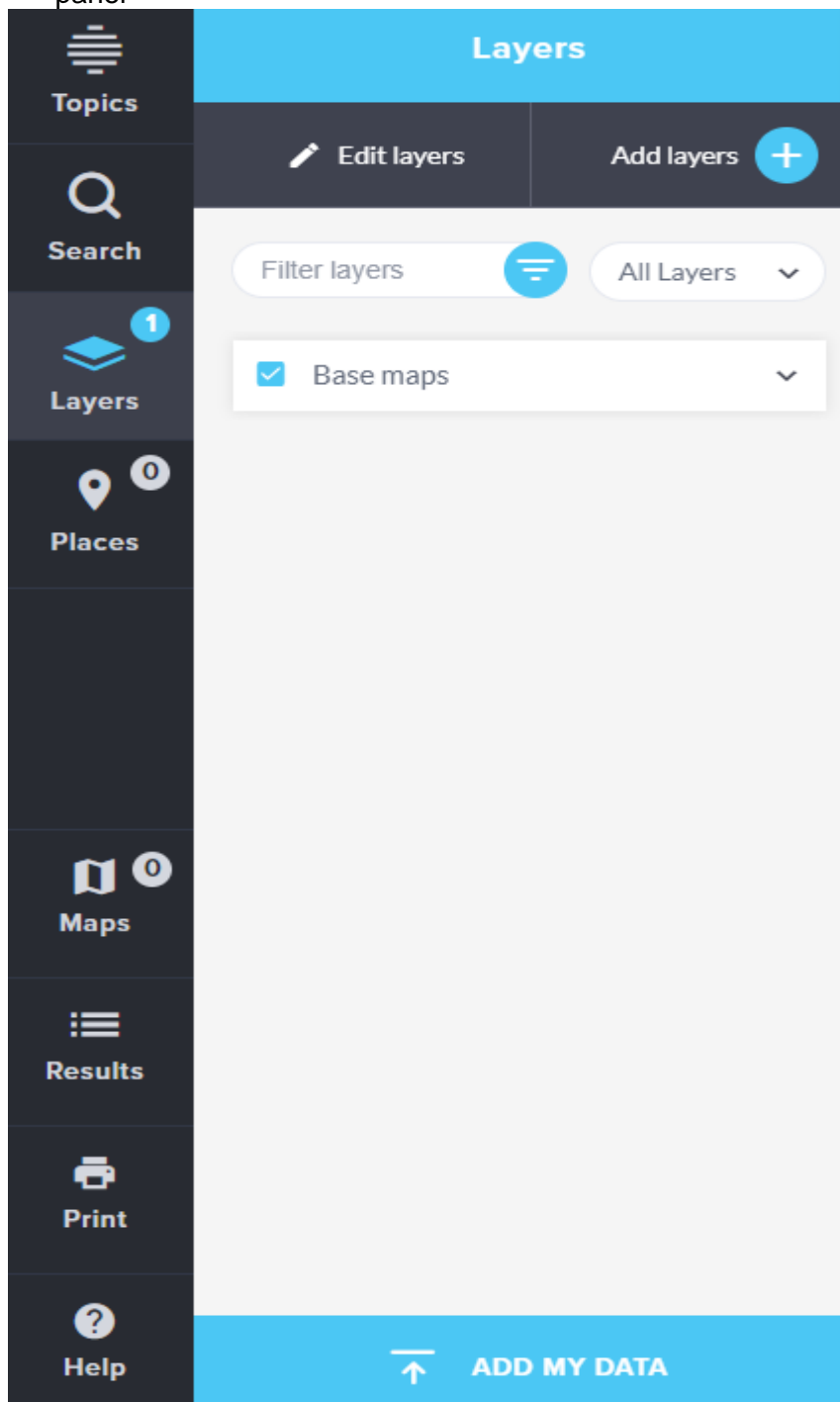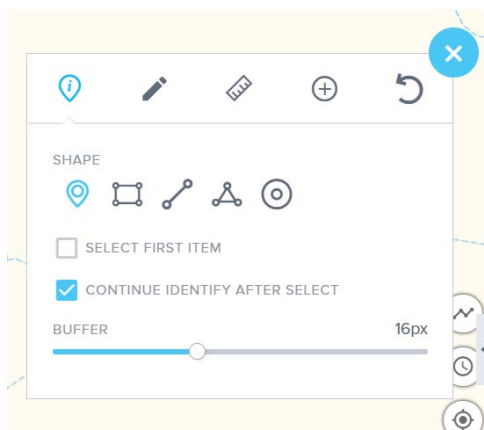
4. Add your CSV file by following the on screen instructions
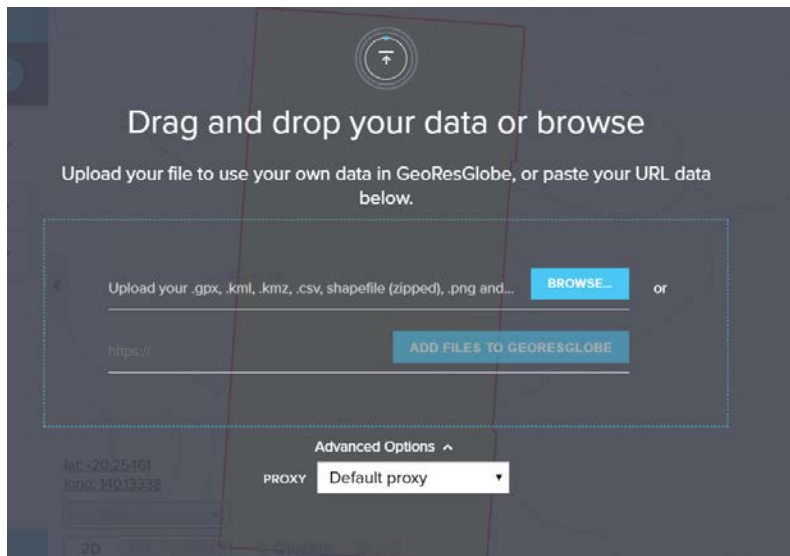
5. Change the dropdown to IMPORT all rows as one polygon; choose the projection of your data from the drop down list; select the IMPORT button
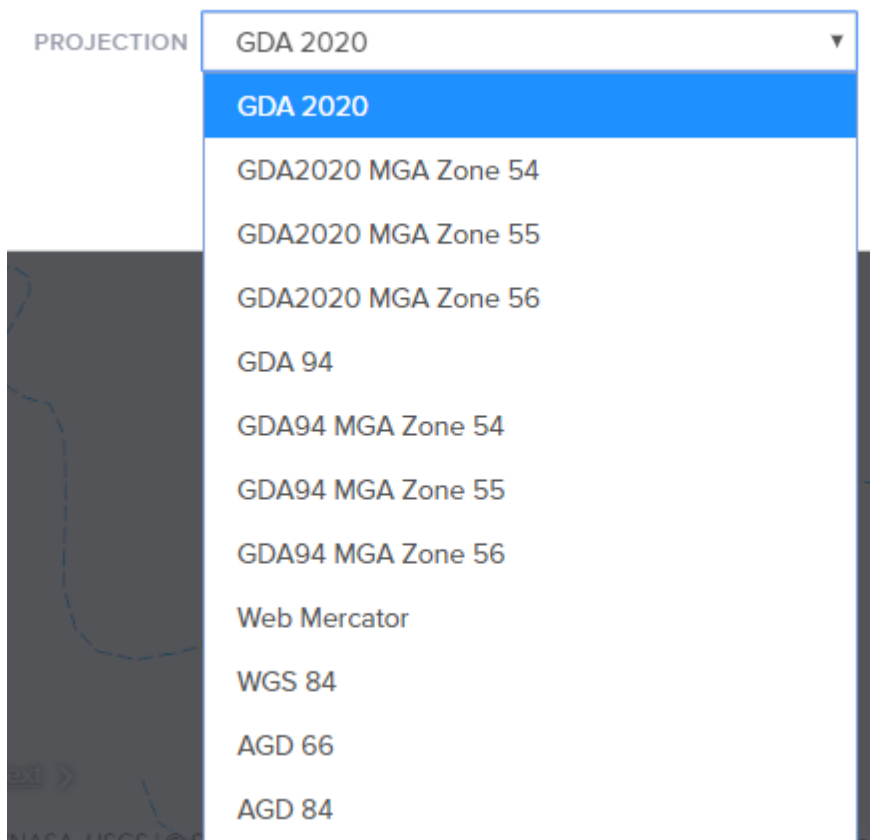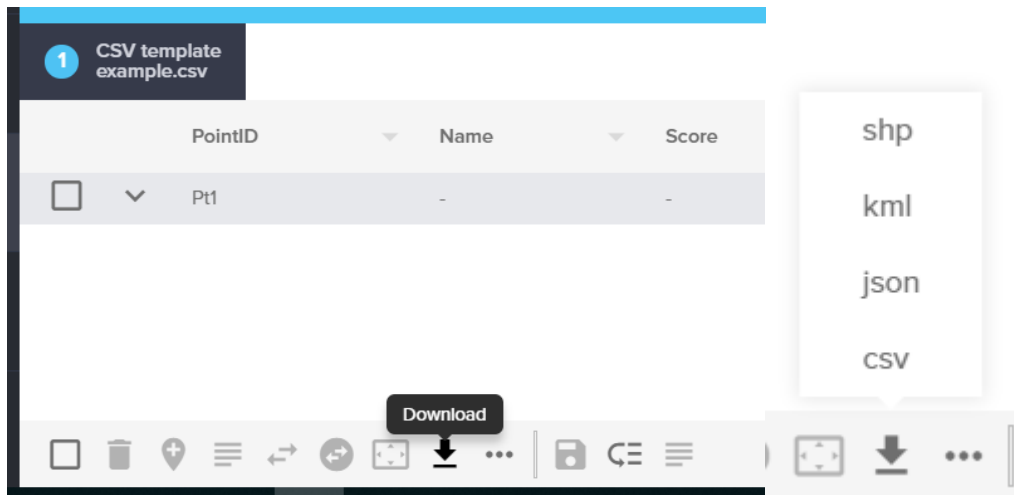

6. Open the Tools menu in the top right hand corner and select the Identify point tool
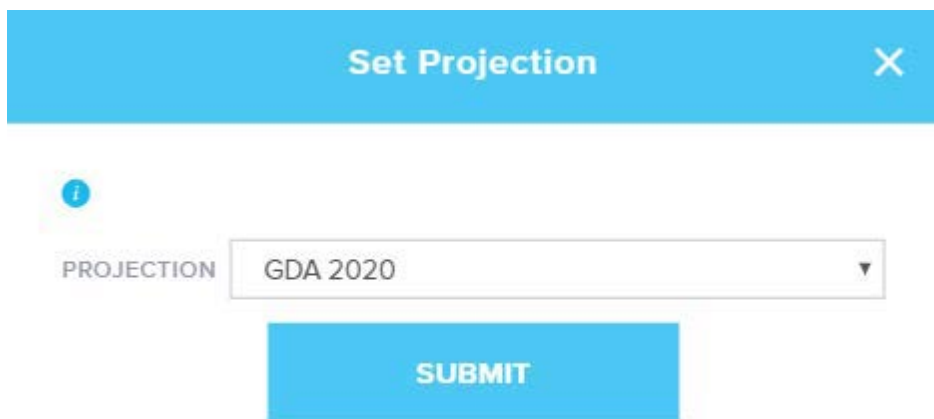
7. Click somewhere in the newly created shape to return results in the Results window. Click on the Tab to display the data
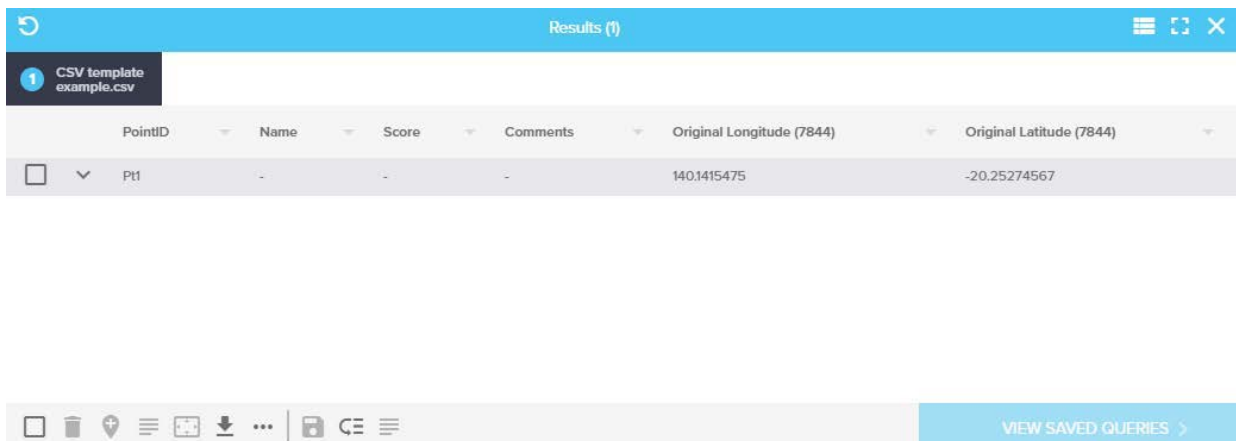
8. Select the Download button from the bottom of the window and select the **shp** option

9. Leave the projection as GDA2020 and press the SUBMIT button

10. This will download a zip file containing a shapefile.

11. This zip file will not load into GeoResGlobe or MyMinesOnline. To create a zip file suitable for loading into these applications, extract the zip file and navigate to the folder containing the four files that make up the shapefile.

Name	Type	Date modified
CSV template example.csv_wkid_GDA 2020_POLYGON_Sk-h6vVpU.dbf	DBF File	15/06/2020 3:40 AM
CSV template example.csv_wkid_GDA 2020_POLYGON_Sk-h6vVpU.prj	PRJ File	15/06/2020 3:40 AM
CSV template example.csv_wkid_GDA 2020_POLYGON_Sk-h6vVpU.shp	SHP File	15/06/2020 3:40 AM
CSV template example.csv_wkid_GDA 2020_POLYGON_Sk-h6vVpU.shx	SHX File	15/06/2020 3:40 AM

12. Select the four files and create a new zip file containing these files. Ensure that the name of this zipped folder does not include any full stops '.'.

13. This .zip file will load into GeoResGlobe or MyMinesOnline.

Tips and tricks to remember

When capturing corner point locations for permits and accesses, inaccuracies can occur. This may result in the shapefile not displaying correctly in the GeoResGlobe application. It is important to define where the corner points and boundaries are located.

Tips to ensure accuracy of your shapefile

- Ensure coordinates are captured on GDA
- One second of latitude or longitude is approximately 30 metres
- Use the permit and satellite information held in GeoResGlobe as a reference to confirm your application's location
- Use GeoResGlobe to assist in locating positions along tracks on the satellite imagery for accesses
- The number of points used to define an access should be relative to the amount of twists and turns.

Key items to identify in a sketch or diagram and attach with your shape file

- The technique used to capture point locations, for example, mobile phone GPS, differential GPS, scaling from a map.
- If any part of the permit aligns or abuts with other mining or exploration permits
- If the permit excludes other mining permits
- If any part of the permit aligns or abuts with cadastral boundaries
- If the permit excludes any cadastral parcels
- If any part of the permit aligns with the block and sub-block grid
- If the permit includes or excludes any natural features such as creeks, ridges, hills
- If the permit includes or excludes infrastructure such as roads, rail, buildings, dams or pipelines
- If any part of the access/s follow an access visible on satellite imagery used in GeoResGlobe (see tip above)
- Location of the datum post to reinforce descriptions of small claims and leases
- If any part of the permit aligns with information on a survey plan.

More information

Coal Hub Phone: (07) 4936 0169
Email: CoalHub@resources.qld.gov.au

Mineral Hub Phone: (07) 4447 9230
Email: MineralHub@resources.qld.gov.au.

Petroleum Hub Phone: (07) 3199 8118
Email: PetroleumHub@resources.qld.gov.au.

For technical support contact the MyMinesOnline
Helpdesk Telephone: +61 7 3199 8133
Email: MyMinesOnline@resources.qld.gov.au
For technical support for GeoResGlobe, email opendata@resources.qld.gov.au

8.30am – 4.30pm (AEST) Monday to Friday on Queensland business days.