

Tutorial on extracting GeoJSON/Topojson files

Geo-spatial mapping is a powerful visualization method that can briefly and in intuitive manner convey comparison information about different countries, cities, regions, etc.

1. Download the ESRI Shapefile:

Website: https://gadm.org/download_country.html

Select your country.

You should have a zip file, such as gadm36_USA_shp.zip

If you unzip, you will see several files inside including .shp, .shx, .dbf, .prj, and .cpg files

2. Use the following website to convert shp files to Topojson files

<https://mapshaper.org/>

Upload your shp zip file.

You should be able to see a center icon where you can view level 0, level 1, and level 2 shapes.

Note on Granularity:

- *Level 0* will just the country boundaries.
- *Level 1* gives you a file with the largest administrative regions within the country (eg: The 50 States for the United States of America) as well as the borders.
- If you require more granularity, choose level 2 and beyond if available

After you select the file, mapshaper will offer two import options. Select both.

- ***Detect line intersections:*** this option will identify all of the topological errors such as when lines from different regions intersect or overlap.
- ***Snap vertices:*** this option fixes topological errors by snapping almost identical vertices.
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Select Export and choose GeoJSON/Topojson to download your file.

Step 3: Simplify GeoJSON/Topojson file (optional).

This step is optional but highly recommended. The reason is that the shape file that was initially downloaded provides very fine-grained border information. For most of the visualization purposes, this level of detail is not required and results in large GeoJSON file. This, in turn, has negative outcomes such as long load time. In this step we reduce the size of the GeoJSON file drastically. After this step, the size of gadm36_USA_1.json created was reduced significantly.

1. Simplify your file:

Mapshaper interface provides "Simplify" button on the upper-right corner. Click on it.

2. Select options for Simplification:

After clicking on simplify, you should see a popup.

Choose "prevent shape removal".

Select Visvalingam / weighted area if it was not selected by default, and then click on **Apply**.

This will activate the range slider on the center of the Mapshaper interface. By scrolling the Slider to right you can reduce the granularity of the borders.

Slide it towards the right to reduce amount of detail. Typically you can slide it down all the way to 1-2% without causing significant amount of visual distortion.

3. Export your simplified GeoJSON/Topojson file

Select Export and choose GeoJSON/Topojson to download your file.

Additional Resources:

1. 2GeoJson.com
2. mygeodata.cloud/converter (may charge small fee for conversion!)
3. <https://ogre.adc4gis.com/>
4. <https://www.statsilk.com/maps/convert-esri-shapefile-map-geojson-format>