

Shapefile to GeoJSON: Conversion and Visualization

Welcome to the Essential ArcGIS Task Sheet Series. This series supplements the Iowa State University GIS Geospatial Technology Training Program short course series, “Essential ArcGIS Tutorial Series.” The task sheets are designed to provide quick, easy instructions for performing specific tasks in GIS.

GeoJSON is an open standard data format for encoding geographic data structures using JavaScript Object Notation and supports the following geometry types: point, line, polygon, multi-point, multi polygon. It's a file format supported by many different web mapping and GIS software packages including: Leaflet, OpenLayers, CartoDB, Google Maps API, ArcGIS Online, GitHub, and D3.js. This task sheet will take you through the process of converting a shapefile to GeoJSON using the Ogr ogr2ogr web client and show you how to visualize GeoJSON data. Find more information about the JSON data format in *Web Mapping: Getting started with JSON data* **PM2082-14f**.

1. Download the Data

a. To download the data used in this task sheet, navigate to www.extension.iastate.edu/communities/gis/quicktasksheets/data in a web browser. Click on the publication number **PM2082-15g**. The data for this task sheet originates from the NRGIS and can be found at: <https://programs.iowadnr.gov/nrgislibx/>.

b. Ogr is a web client (service) that translates spatial files into GeoJSON using the ogr2ogr command line tool for use in JavaScript web applications. A variety of formats are supported for transformations, visit <http://ogre.adc4gis.com/> for a full list.

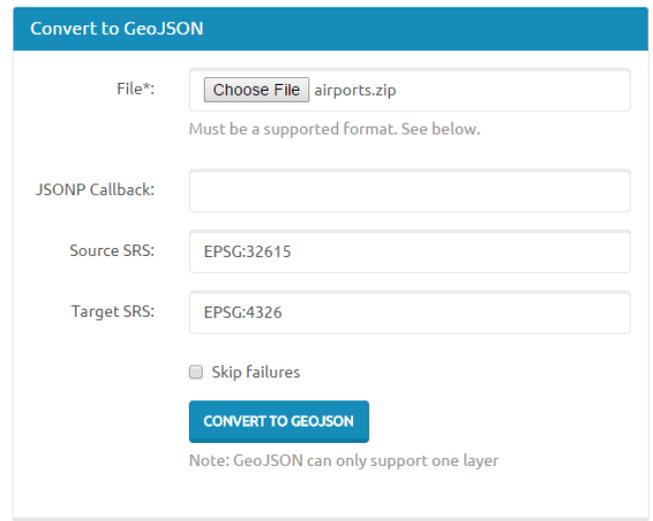


2. Converting a Shapefile

a. In a web browser open <http://ogre.adc4gis.com/>. Under **Convert to GeoJSON** select the **airports.zip** folder downloaded from **step 1a**. The zipped folder requires the following file types to do the conversion, .shp, .dbf, and .shx.

b. Next, fill out the **Source SRS** and **Target SRS** (spatial referencing system) fields. These fields are looking for a European Petroleum Survey Group (EPSG) code that represents a spatial reference. The airports shapefile has a projected coordinate system of NAD_1983_UTM_Zone_15N. The EPSG code for that coordinate system is 32615. We want the output GeoJSON file to be in GCS_WGS_1984 and show latitude and longitude. The EPSG code for that is 4326. Fill in **EPSG:32615** and **EPSG:4326** respectively. *Note: do a web search for Coordinate Systems and EPSG Codes for a full list of codes.*

c. Click **Convert to GeoJson**. The next page you see is the GeoJSON file. Select the text, copy and paste it

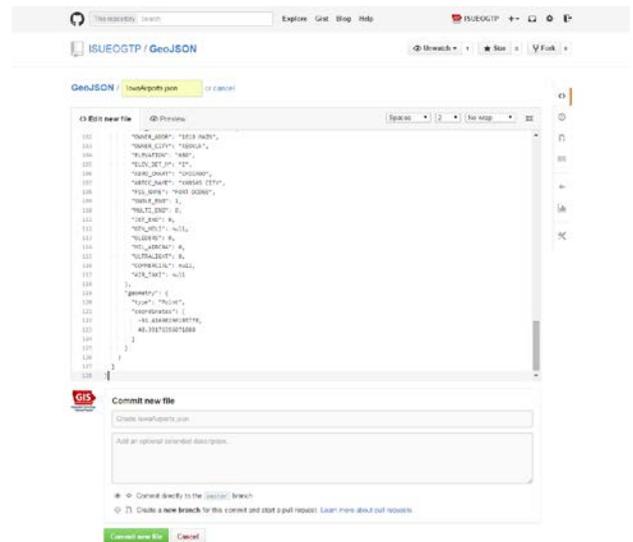
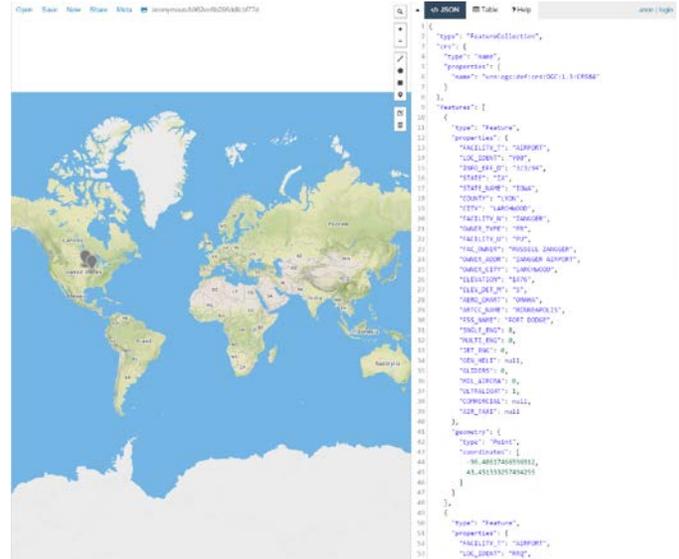


into a text editor and save it as **airports.json**. *Note: For Windows you can use Notepad, Sublime, or Notepad++ . For a Mac you can use TextEdit, TextWrangler, or Brackets.*

- d. The **airports.json** file will be referenced and used in *Mapping APIs: Leaflet - GeoJSON Layer PM2082-15h* and will show you how to add a GeoJSON file to a leaflet map. Two other ways of visualizing GeoJSON data are below.

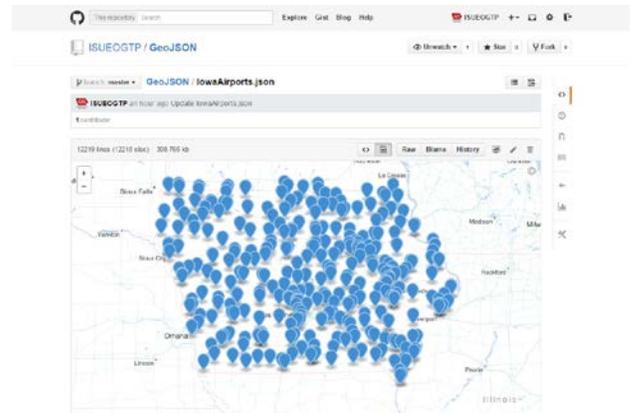
3. Visualize GeoJSON with geojson.io

- a. geojson.io is a quick, simple tool for creating, viewing and sharing maps. We will use it to view and test the airports_test.json file. *Note: The full airports.json file is too large for the geojson.io tool.*
- b. In a web browser go to geojson.io. You will see a blank world map. Click **Open > File** and select the **airports_test.json** file (downloaded in step 1a).
- c. You should see three points added to the map. Zoom in to get a closer look. *Note: if you didn't get the GeoJSON layer to show up in the map you may have an issue with the file's JSON format or the coordinates being used.*



4. Visualize GeoJSON with GitHub

- a. GitHub supports rendering GeoJSON files within repositories. You can do this from the GitHub website by adding a new file with the extension .geojson or .json. Paste the GeoJSON text into the text box and click **Commit new file**.
- b. When you view the file you will see the point locations rendered on the map. To see the actual GeoJSON file, click **Raw**.
- c. If you don't have a GitHub account you can check out the IowaAirports.json on our GitHub account at: <https://github.com/ISUEOGTP/GeoJSON/blob/master/IowaAirports.json>.



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