Getting Your Data on a Map

Fall 2022

SCHOLARS' LAB

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Taking tabular coordinate data from a GPS or other sources is an excellent way to create features for use in ArcGIS. Site locations can be mapped as points. Point data can be made into lines and polygons.

The main ArcGIS tool we will use is called Display XY Data (or Add XY Data depending
on how you access the tool). ESRI's ArcGIS Help has a good description of the process:

https://pro.arcgis.com/en/pro-app/latest/help/mapping/layer-properties/add-x-y-coordinate-data-as-a-layer.htm

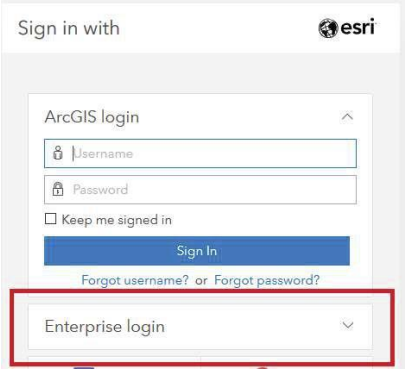
The first dataset we will work with is a list of all the swimming holes in Virginia. Most of them are located in the mountains in the western part of the state.

Open a browser and go to our GIS Workshop page:

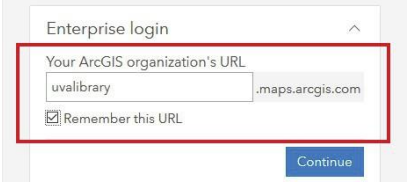
> http://guides.lib.virginia.edu/gis
> Click Teaching Resources > Fall 2022 Workshops

Download Getting Data On A Map Data from the link on the workshop page and EXTRACT to a local directory.

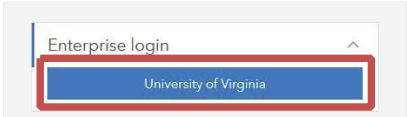
Open ArcGIS Pro, and login using the appropriate credentials.



If you have Netbadge credentials, click Enterprise Login.
For the organization URL, type "uvalibrary", and click Continue. Click University of Virginia. You will be directed to NetBadge where you will login as normal. If you do not currently have an ArcGIS Online account, this process will create one for you.

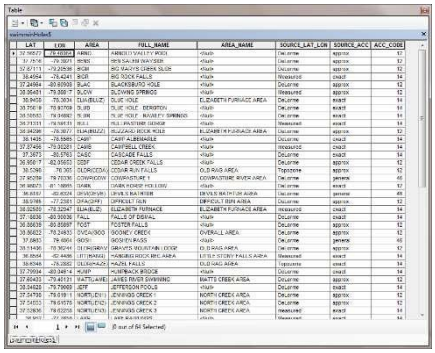


If you Do Not have Netbadge credentials, please contact us.



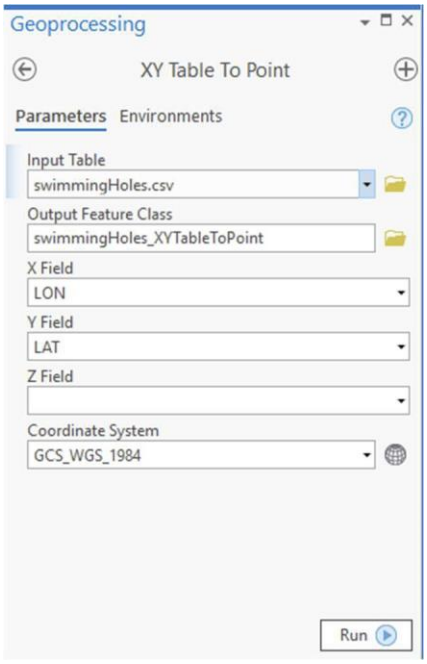
1. Click the Map template under New, Blank Templates. Give the new project a meaningful name, accepting the default location. Be sure the box for “Create a new folder for this project” is checked.

2. Click the Add Data button, on the Map ribbon. Navigate to the directory you downloaded and unzipped. Select swimmingHoles.csv and click OK.



3. Look at the attributes for swimmingHoles by right-clicking on swimmingHoles.csv in the Table of Contents (TOC) Open. You will see eight columns of data including the latitude and longitude. LAT and LON will be used to map the data. Later, we will use other columns to symbolize points.

4. Close the attribute table.



5. To begin the process of getting the points on the map, right-click swimmingHoles.csv > Display XY Data.

6. Since only one file is available, that choice is made in the dialog box. Ensure that Pro guessed the X Field and Y Field correctly.

7. The tools defaults to WGS 84 because it uses latitude and longitude as its coordinate system. Most GPSs use WGS 84 by default as well. Click Run.

8. You now have data in map form. Notice also a new layer in the TOC named swimmingHoles_XYTableToPoint.

Looking at the points against the basemap, does it look like our data are in the right place?

9. We can now symbolize the data based on an attribute. Right-click on swimmingHoles_XYTableToPoint > Symbology.

10. Select Unique Values.

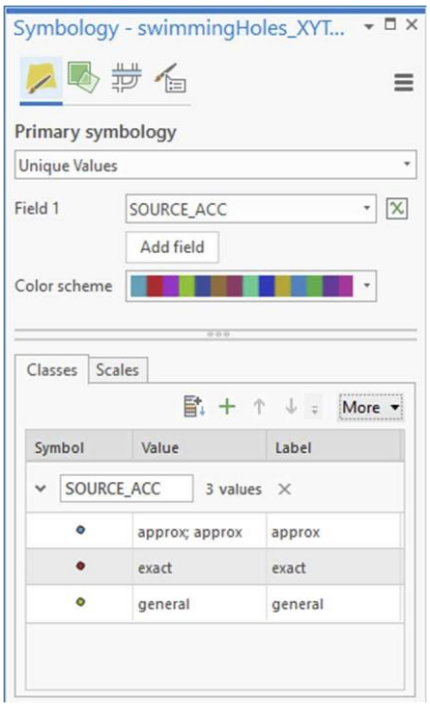
11. Select SOURCE_ACC for Field 1.

12.Click the Add All Values button.

13. You will notice there are two “approx” items. We can group them together by selecting each item while holding down the Shift key > Right-Click > Group Values.

14. There are no Null or “other” values, so let’s remove the <all other values> symbol by clicking More and unchecking Show all other values.

15. To save the changes to your project, click the Save button in the top left corner.



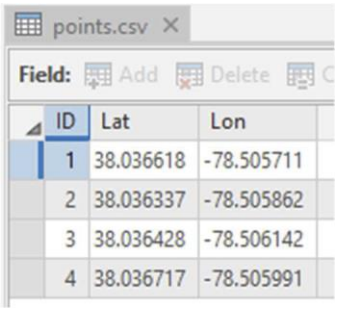
In the next map, we have GPS surveyed some points for the terrace on Clemons Library. We will add the points to the map and then make a boundary polygon for the terrace using Geoprocessing Tools.

1. The first step is to start with a new map. Click Insert tab > New Map > New Map.

2. Add points.csv by clicking Map tab > Add Data.

3. Open the new table by right-clicking points.csv > Open.

Notice the columns here. We only have an ID and coordinates.

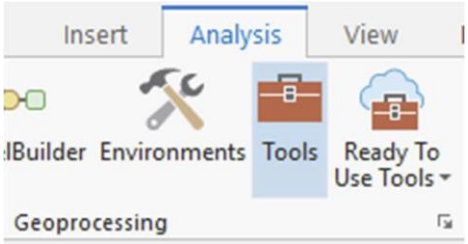


4. Right-click on points.csv in the TOC > Display XY Data.

5. Ensure Pro got the columns correct and that the coordinate system is set to WGS 84. Click Run.

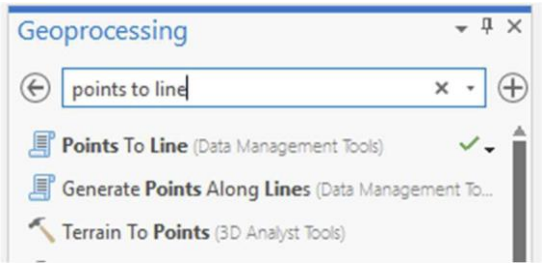
6. Switch to the Imagery basemap by clicking Basemap > Imagery.

7. We will now turn the points into a polygon. To do this we need to use Geoprocessing tools. ArcGIS Pro has a large set of Geoprocessing tools, so it is often easiest to search for the tool you want using the Search dialog. To open the Geoprocessing Search, click the Analysis tab > Tools.



8. Type “points to line” in the Find Tools text box and hit

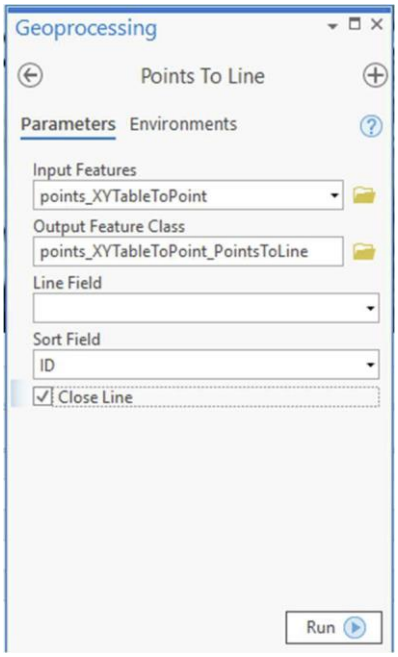
9. Click the Points to Line tool in the results.

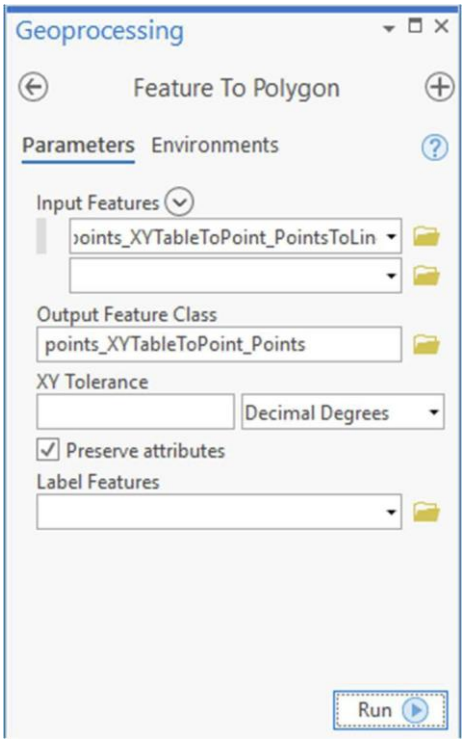


10. Select points.csv for Input Features in Points To Line.

11. Select ID for Sort Field.

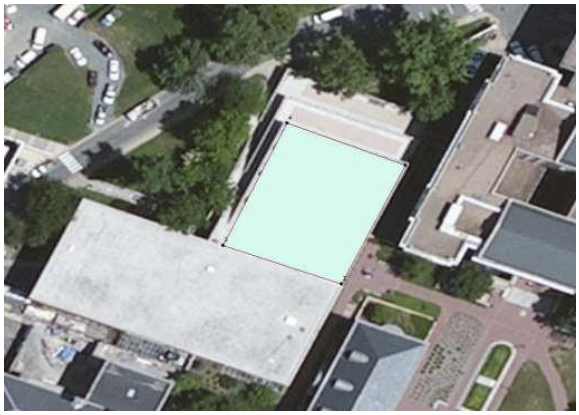
12.Click box next to Close Line. The Close Line option makes
the output polyline “closed” so that it can be used to make a
polygon later. Click Run.





13. Now, search for the Feature to Polygon tool in the Geoprocessing Tools Search and open the tool.

14. Select your polyline layer for Input Features and give Output Feature Class a meaningful name. Click Run.



Nice work! You created a polygon feature from a table of coordinates.