

Joining Tables to Spatial Files

Non-spatial information contained in tables/spreadsheets can be incorporated into the attribute table of an existing spatial file (e.g. watershed boundaries, territory, etc.) by joining by a common attribute (e.g. watershed code or name). Topics covered in this tutorial include:

- Formatting tables for import into QGIS
- Importing a spreadsheet as a non-spatial file into QGIS
- Joining a shapefile to a spreadsheet by attribute
- Calculating attribute change over time using the field calculator

Tutorial

1. Format your spreadsheet for import into QGIS

When formatting your spreadsheet for import into QGIS, keep the following in mind:

- Data in the spreadsheet must be organized to how it would look in an attribute table:
 - Attribute headers in the first/top row
 - No floating titles
 - No merged cells (one value, one cell)
 - No empty columns or rows
- Do not mix data types together (e.g. numbers and text) in one column
- Avoid special characters
- Only use one tab per spreadsheet; multiple tabs will not be saved in csv format

Tip: If you are working from a formatted report table, copy the values from the table into a new workbook and format for QGIS integration. Save the new file with a descriptive file name so you know where/when the information was from.

Example of report table:

	A	B	C	D	E	F	G	H	I	J
2	Table 1: Moose Kill Inventory For 2002 and 2007									
3										
4	Year	Watershed Code								
5		1317	1318	1330	1419	1422	1421	1324	1359	1331
6	2002	5	8	11	3	8	4	3	6	10
7	2007	10	7	4	3	6	7	2	5	8
8										
9										
10										

To format into QGIS-compatible table, complete the following:

- a) Copy values into a new workbook
- b) Unmerge merged cells
- c) Transpose the table (copy the cells, right-click paste special > transpose)
- d) Move/paste the table into the top left corner of the spreadsheet (i.e. cell A1)
- e) Adjust column/attribute titles as needed
- f) Delete any leftover values/empty columns or rows

Example formatted spreadsheet:

	A	B	C	D	E
2	Watershed Code	2002	2007		
3	1317	5	10		
4	1318	8	7		
5	1330	11	4		
6	1419	3	3		
7	1422	8	6		
8	1421	4	7		
9	1324	3	2		
10	1359	6	5		
11	1331	10	8		
12					
13					
14					
15					
16					
17					

2. Identify common attribute and ensure name matches exactly and formatting is compatible

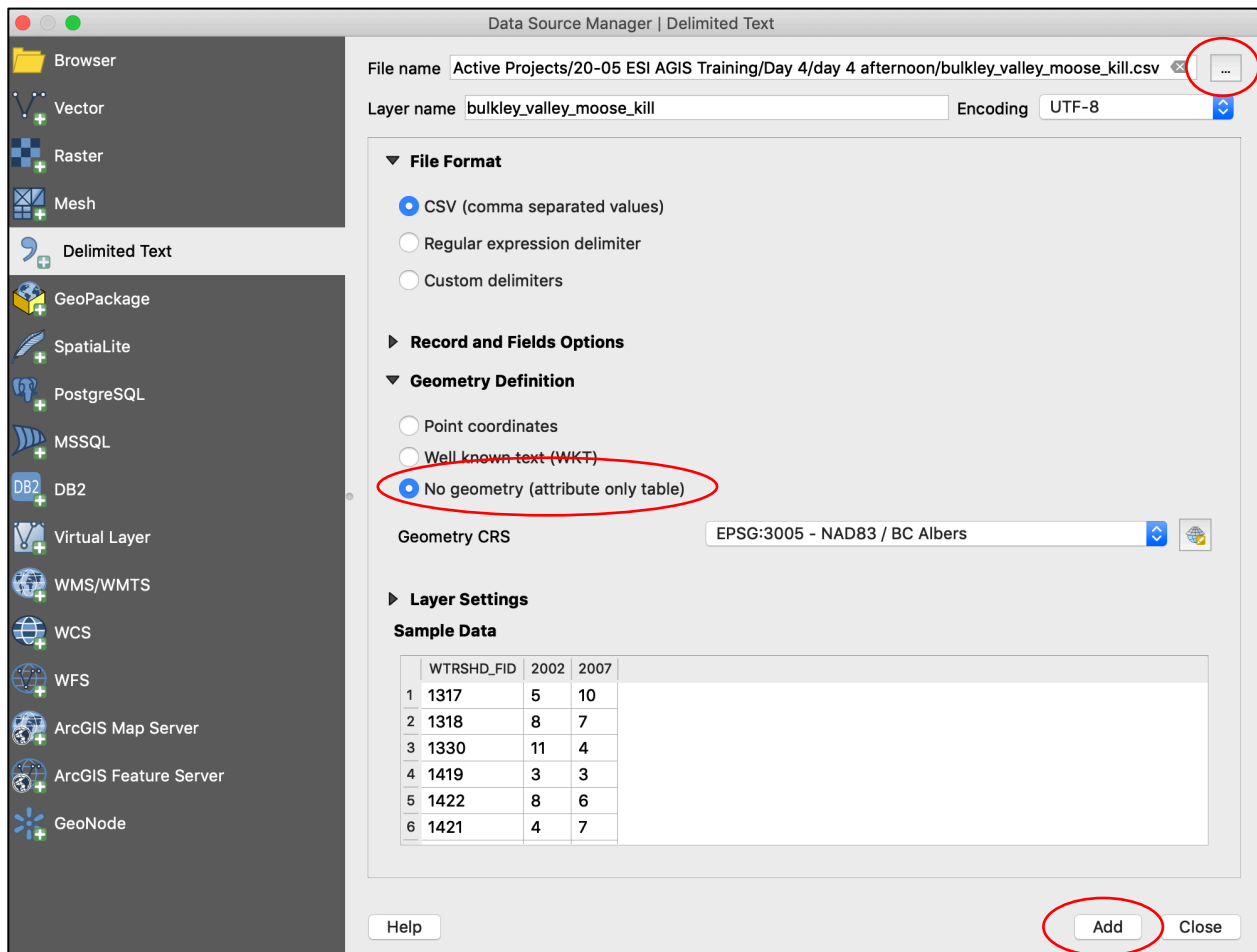
In this example, we are joining the spreadsheet attributes to Freshwater Atlas assessment watersheds by feature code, so we would need to change “Watershed Code” to “WTRSHD_FID” in our spreadsheet.

	WTRSHD_MAG	L_WTRSHD_O	L_WTRSHD_M	AREA_HA	F_CODE	OBJECTID	FEAT_AREA	FEAT_LEN	WTRSHD_FID
1	12			3670.86172...	WA2510000	1716838	36708617.2...	29014.9328	1359
2	264			3310.26588...	WA2510000	1716762	33102658.8...	38583.8320	1324
3	12478			3620.07398...	WA2510000	1716859	36200739.8...	68949.2413	1421
4	12157			3545.44705...	WA2510000	1716860	35454470.5...	81807.5161	1422

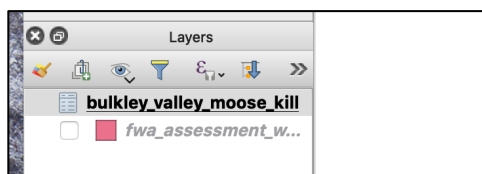
3. Save the spreadsheet as a .csv (Comma-Separated Value)
4. Open QGIS and add the desired spatial file (watershed boundaries in this case)
5. Import the csv file

From top ribbon, Layer > Add Layer > Add Delimited Text Layer

Select csv file. It should import as “No geometry (attribute table only)”. Click “Add” and “Close”.

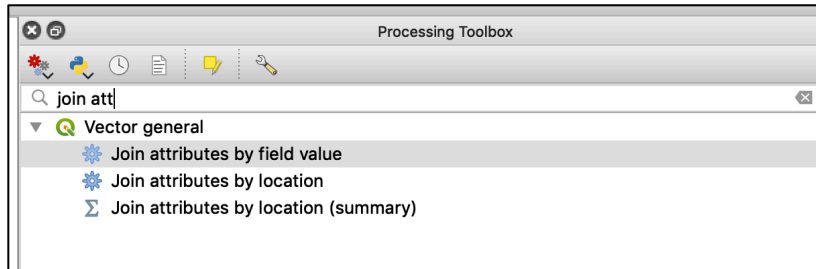


You should see the layers in the layer panel:



6. Use the “Join attributes by field value” function to join the spatial file with the table

From top ribbon, Processing > Toolbox > Join attributes by field value



Complete the input fields:

First input layer needs to be the spatial file

Input layer 2 is the spreadsheet

Both Table Fields need to be the same

Check if this makes sense with your data

A new layer with the spatial layer geometry and a combined attribute table should be created.

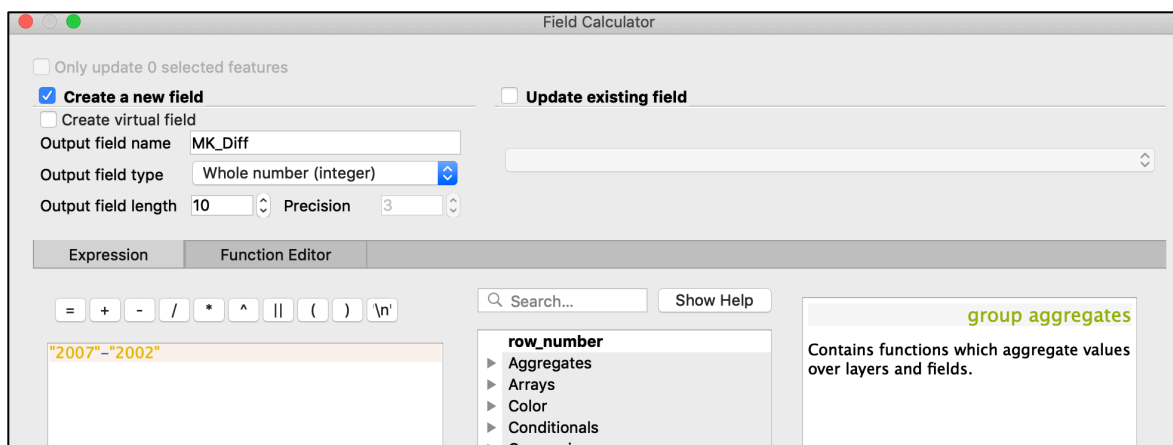
FEAT_LEN	WTRSHD_FID	WTRSHD_FID_2	2002	2007
38583.8320	1324	1324	3	2
68949.2413	1421	1421	4	7
81807.5161	1422	1422	8	6
38338.9198	1330	1330	11	4
33590.3246	1318	1318	8	7
50137.8610	1317	1317	5	10
29014.9328	1359	1359	6	5
25859.5139	1331	1331	10	8
56698.7484	1419	1419	3	3

Note: If you get an error message saying the common attributes are incompatible, check that the name of the attribute and the data types in Table Field and Table Field 2 are the same (e.g. integer, decimals, etc.). You may need to create a new attribute with the same data type in order to complete the process.

**You may choose to delete unwanted attributes. Make sure you complete a metadata form for your new layer. If you have many attributes with years, you may want to consider renaming the year attribute to MK_2002 for “moose kill 2002”.

7. Calculate change over time in moose kills between 2002 and 2007

Open the Field Calculator and create a new attribute for the calculation of the difference between the two years:



8. Use a graduated style to style the layer by change in time

