Chapter 7

Joining Maps to Other Datasets in ArcGIS Desktop (ArcMap)

Skills you will learn: How to join a map layer to a non-map layer in preparation for analysis, based on a common joining field shared by the two tables.

If you are unfamiliar with the basic functionality of ArcMap, such as how to add map layers and other data tables to the map document, please review the tutorial **A Quick Tour of ArcGIS Desktop**.

Getting started

Add the map layer and the non-geographic layer to the data frame. For the purposes of this illustration, we are using a shapefile of census tracts in Winnipeg, Manitoba, Canada and a dataset of median household income from the census. This is what the attribute table looks like for the map layer.

Table

WinnipegCensusTracts06

FID	Shape *	CTUID	CMAUID	PRUID
0	Polygon	6020001.00	602	46
1	Polygon	6020002.00	602	46
2	Polygon	6020003.00	602	46
3	Polygon	6020004.01	602	46
4	Polygon	6020004.02	602	46
5	Polygon	6020005.00	602	46
6	Polygon	6020006.00	602	46
7	Polygon	6020007.00	602	46
8	Polygon	6020008.00	602	46
9	Polygon	6020009.00	602	46
10	Polygon	6020010.00	602	46
11	Polygon	6020011.00	602	46
12	Polygon	6020012.00	602	46
13	Polygon	6020013.00	602	46
14	Polygon	6020014.00	602	46
15	Polygon	6020015.00	602	46
16	Polygon	6020016.00	602	46
17	Polygon	6020017.00	602	46
18	Polygon	6020018.00	602	46
19	Polygon	6020019.00	602	46
20	Polygon	6020020.00	602	46

1 (0 out of 168 Selected)

WinnipegCensusTracts06

And this is the data table:

Table

householdincome2006wpg.csv

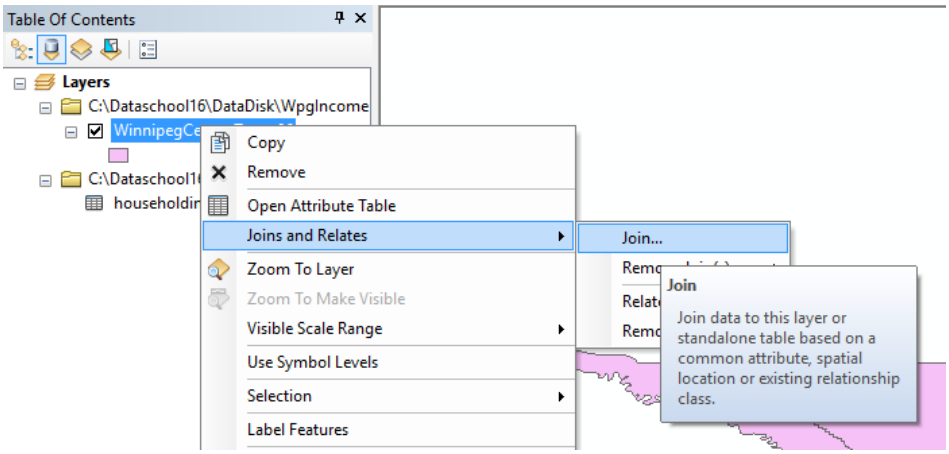
Tract	Total_Private_households	Median_2005_household_income	Median_2005_aftertax_household_income	Average_
6020001.00	1850	53436	45133	
6020002.00	2400	41184	36694	
6020003.00	2630	39250	34345	
6020004.01	2305	45270	39247	
6020004.02	1700	36937	33134	
6020005.00	2335	75475	60342	
6020006.00	2630	43616	37830	
6020007.00	1595	52045	43546	
6020008.00	1140	91369	70850	
6020009.00	1225	90350	71015	
6020010.00	2410	62693	51968	
6020011.00	4025	47899	39792	
6020012.00	2975	28865	25643	
6020013.00	915	19108	17393	
6020014.00	3855	30029	27163	
6020015.00	3395	20486	18965	
6020016.00	1070	32861	27868	
6020017.00	1450	52400	44766	
6020018.00	1260	46977	41392	

1 (0 out of 167 Selected)

householdincome2006wpg.csv

Making the join

Right click on the name of the map layer in the table of contents, and from the menu that appears choose Joins and Relates>Join.

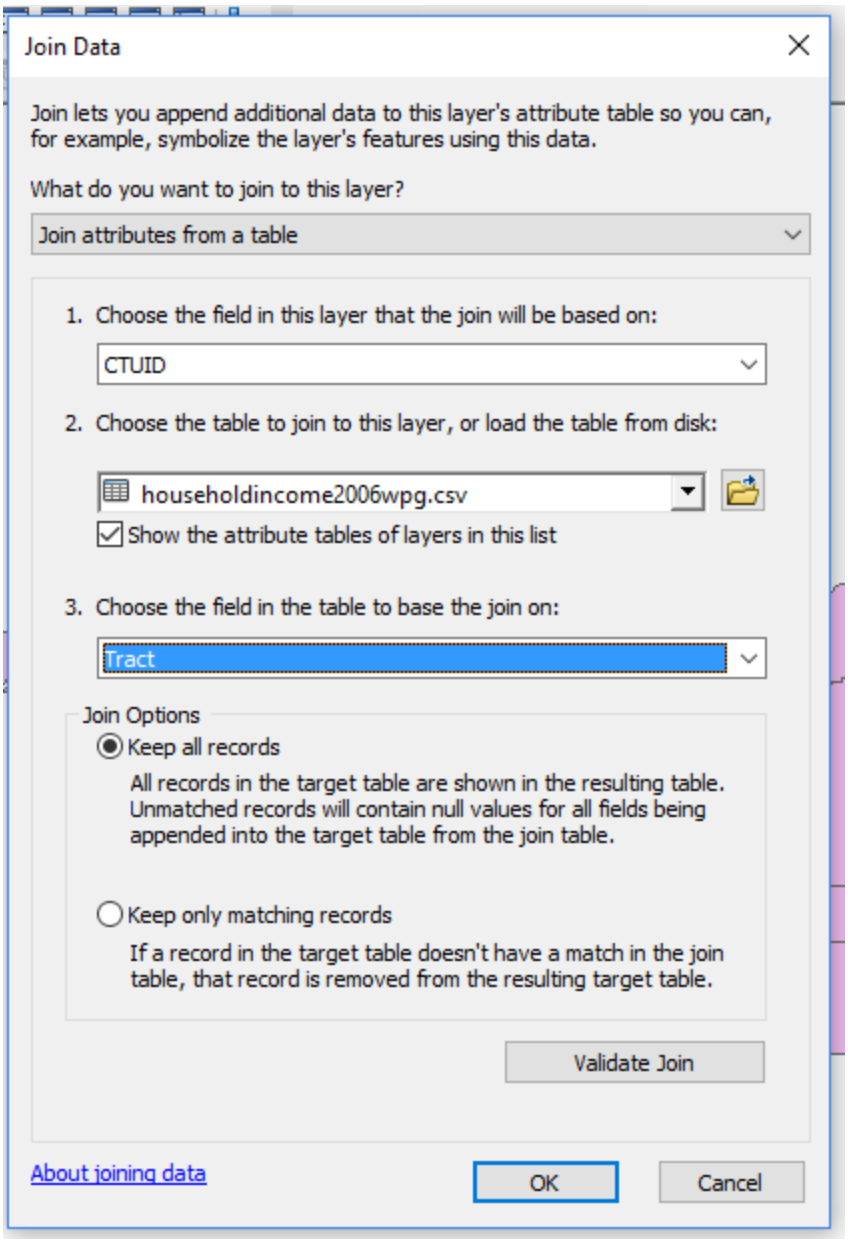


In the join dialogue that opens, choose the field in the map layer that will be used to join to the data table. Just as in a join in a relational database, this must contain data identical to the matching rows in the data table. In this case, the join field is the census tract ID number, or CTUID.

Next, choose the data table to join to, if there is more than one.

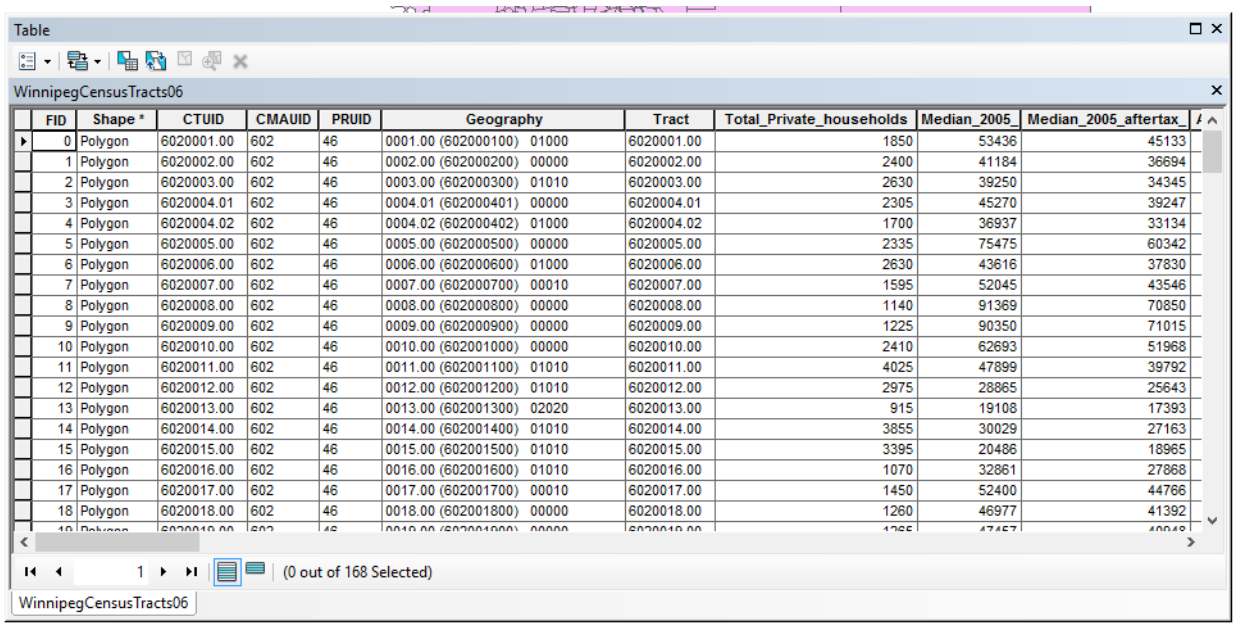
Third, pick the field in the data table to be used to join to the map table. Again, the data has to be identical to that in the matching fields in the map layer table.

In join options, choose the first option if you would like to see all features on the map, even if there is no matching record in the data table. The second option will drop features that don't have a match.



To test out your join, click on Validate Join. You will be given a message indicating how many records matched. Click Close, and if you are satisfied with the result, OK. If you want to start over after modifying or changing the tables, click Cancel.

Once the join is completed, data from the data table will be added to the attribute table for the map layer, and can be used to perform further analysis. You can see this by opening the layer's attribute table:



FID	Shape *	CTUID	CMAUID	PRUID	Geography	Tract	Total_Private_households	Median_2005_	Median_2005_aftertax_
0	Polygon	6020001.00	602	46	0001.00 (602000100) 01000	6020001.00	1850	53436	45133
1	Polygon	6020002.00	602	46	0002.00 (602000200) 00000	6020002.00	2400	41184	36694
2	Polygon	6020003.00	602	46	0003.00 (602000300) 01010	6020003.00	2630	39250	34345
3	Polygon	6020004.01	602	46	0004.01 (602000401) 00000	6020004.01	2305	45270	39247
4	Polygon	6020004.02	602	46	0004.02 (602000402) 01000	6020004.02	1700	36937	33134
5	Polygon	6020005.00	602	46	0005.00 (602000500) 00000	6020005.00	2335	75475	60342
6	Polygon	6020006.00	602	46	0006.00 (602000600) 01000	6020006.00	2630	43616	37830
7	Polygon	6020007.00	602	46	0007.00 (602000700) 00010	6020007.00	1595	52045	43546
8	Polygon	6020008.00	602	46	0008.00 (602000800) 00000	6020008.00	1140	91369	70850
9	Polygon	6020009.00	602	46	0009.00 (602000900) 00000	6020009.00	1225	90350	71015
10	Polygon	6020010.00	602	46	0010.00 (602001000) 00000	6020010.00	2410	62693	51968
11	Polygon	6020011.00	602	46	0011.00 (602001100) 01010	6020011.00	4025	47899	39792
12	Polygon	6020012.00	602	46	0012.00 (602001200) 01010	6020012.00	2975	28865	25643
13	Polygon	6020013.00	602	46	0013.00 (602001300) 02020	6020013.00	915	19108	17393
14	Polygon	6020014.00	602	46	0014.00 (602001400) 01010	6020014.00	3855	30029	27163
15	Polygon	6020015.00	602	46	0015.00 (602001500) 01010	6020015.00	3395	20486	18965
16	Polygon	6020016.00	602	46	0016.00 (602001600) 01010	6020016.00	1070	32861	27868
17	Polygon	6020017.00	602	46	0017.00 (602001700) 00010	6020017.00	1450	52400	44766
18	Polygon	6020018.00	602	46	0018.00 (602001800) 00000	6020018.00	1260	46977	41392

If you would like to create a new map layer that permanently includes the new data, export the map layer to a new shapefile or feature class in a file geodatabase.

Relates

You can also create what is called a relate, which is similar to a join but the data from the data table is not added to the map layer. This feature is not typically used in journalistic workflows.