

Joining and Mapping U.S. Census Bureau Data

ArcGIS 10.4+

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.

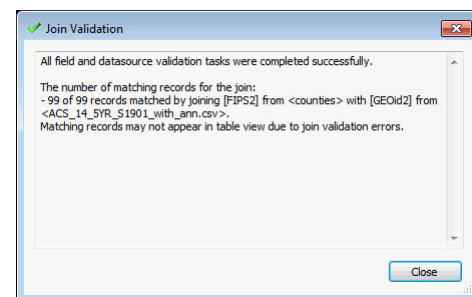
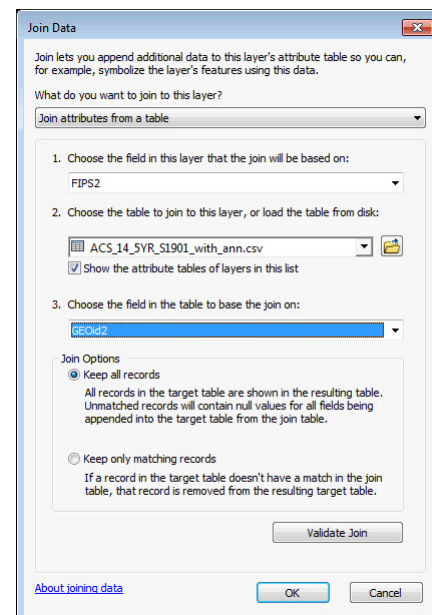
The U.S. Census Bureau provides many different datasets on topics such as population, and demographics. The American Community Survey (ACS) is a nationwide survey carried out by the U.S. Census Bureau that measures and describes the social, economic, housing, and demographic characteristics of the U.S. population, including states, regions, counties, and local areas. This task sheet builds on the *Downloading and Preparing U.S. Census Bureau Data for Mapping* task sheet, and will take you through the steps of joining U.S. Census Bureau data to a shapefile for mapping and displaying data at the county level.

1. Getting Started

- Begin this task sheet after you have completed the steps from *Downloading and Preparing U.S. Census Bureau Data for Mapping* (**PM2082-16o**).

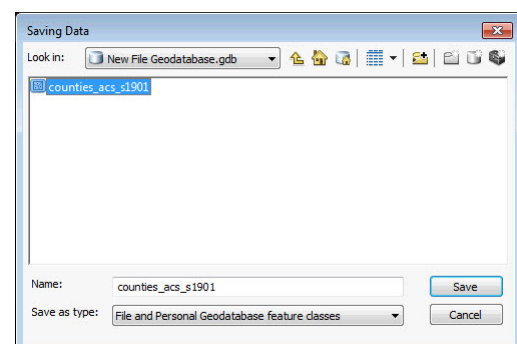
2. Joining Census Data to a Shapefile

- Right-click on the **counties** layer in the **Table of Contents** and select **Joins and Relates > Join**.
- At the top of the **Join Data** window, select **Join attributes from a table**. In box 1 select the **FIPS2** field from the counties shapefile, verify that the table name appears in box 2, and select **GEOid2** in box 3. Select **Keep all records** and click **Validate Join**.
- You should see a message that says the join was successful. Click **Close** to close that window, and click **OK** to close the **Join Data** window.
- Open the attribute table for the counties shapefile. You should notice that all the data from the **ACS_14_5YR_S1901_with_ann.csv** table is now included in the counties shapefile. *Note: Joins in ArcGIS are not permanent and the counties attribute table has not been modified outside of the current ArcMap document you are working in.*



3. Making a Join Permanent

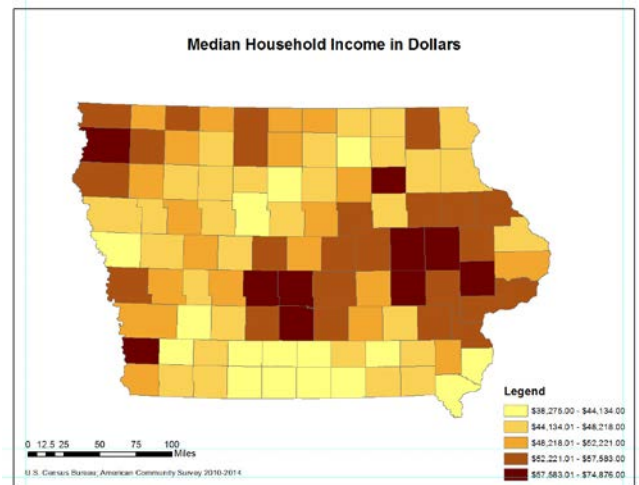
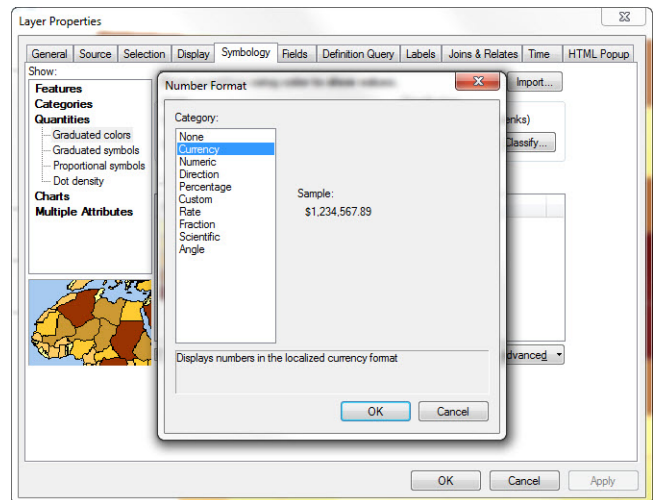
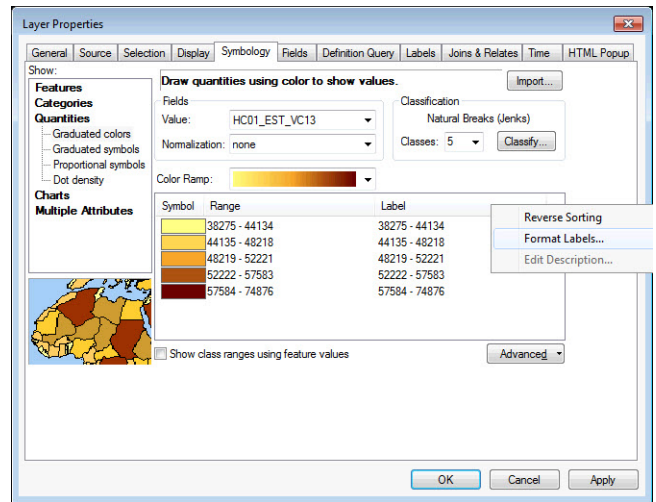
- Right-click on **counties** in the **Table of Contents**, and select **Data > Export Data**. In the **Saving Data** window, find a good place to save the file, and select the **New File Geodatabase** icon in the top right corner of the window. Name the file **counties_acs_s1901** and set the **Save as type** to **File and Personal Geodatabase feature class**, and click **Save**.



- b. Note: It is important to save the file as a feature class within a file geodatabase because the field names provided in the census data table are 13 characters long, and a shapefile limits field names to 10 characters. If you save the data as a shapefile the field names will be shortened and it will be difficult to tell which fields you are looking at in the attribute table.

4. Symbolizing Data

- a. Add the **counties_acs_s1901** feature class to your map document. Right-click on **counties_acs_s1901** from the **Table of Contents** and select **Properties**. In the **Layer Properties** window, select the **Symbology** tab.
- b. Under **Quantities**, select **Graduated colors**. Select the field **HC01_EST_VC13**. Note: By checking the **ACS_14_5YR_S1901_metadata.csv** file, from the data download step 2f in the previous task sheet, you can identify that the **HC01_EST_VC13** field represents median household income in dollars.
- c. Select the **Yellow to Dark Red** color ramp from the **Color Ramp** drop-down menu. Note: You can change the view of the color ramps from graphic view to text view by right-clicking on the **Color Ramp** drop-down menu and checking or unchecking the **Graphic View** option.
- d. Since the data being symbolized is median household income in dollars, the legend labels should reflect that. Right-click on **Label** (just under and to the right of the color ramp), and select **Format Labels**. From the list of categories on the left, select **Currency**, and click **OK**. Click **OK** to close the **Layer Properties** window.
- e. At the top menu of the ArcMap document, select **View > Layout View**. You will add the following basic map element: title, legend, scale bar, and data source.
- f. Click **Insert > Title** and type in **Median Household Income in Dollars**. Click **Insert > Legend**. Only the **counties_acs_s1901** layer is necessary in the legend. Click **Insert > Scale Bar**, and choose an appropriate option. Click **Insert > Text**, and type in **Source: U.S. Census Bureau; American Community Survey 2010-2014**.



Contact:

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