IOWA STATE UNIVERSITY
Extension and Outreach

GIS
Training and Services

**Geospatial Technology
Training Program**

QGIS: Downloading and Preparing U.S. Census Bureau Data

QGIS 2.18.7

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, demographics, housing and income. The American Fact Finder website allows users to find and download data collected through the decennial census and other surveys. This tasksheet will take you through the steps of downloading U.S. Census Bureau data from the American Fact Finder website, and preparing the file for mapping in QGIS.
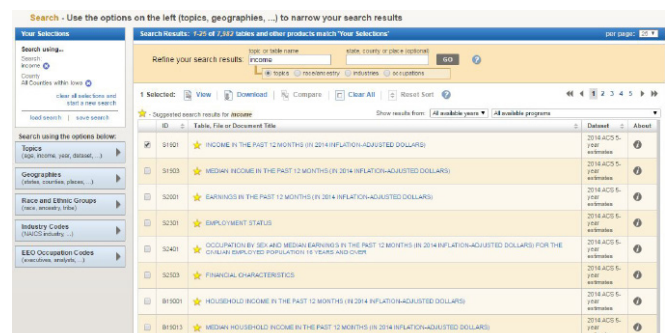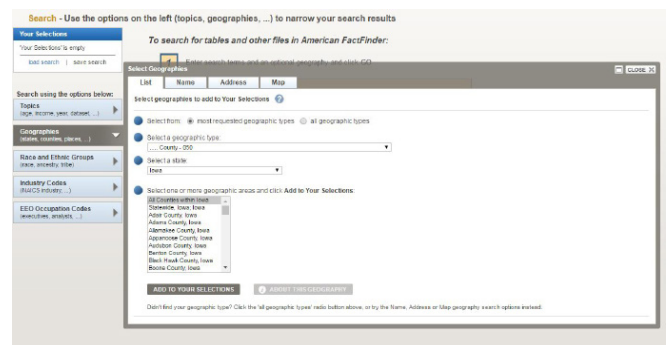
1. Getting Started

a. Download the data used in this task sheet by navigating to http://isueogtp.github.io/GISTaskSheets/TaskSheetData/PM2082-16q.zip in a web browser. The files you for this tutorial will automatically be downloaded.

b. When the download is complete, you will need to copy the files from the folder to your working directory. The folder contains a shapefile of counties in Iowa, as well as the U.S. Census data used in this task sheet. Follow **steps 2a - 2f** to go through the Census data download process.
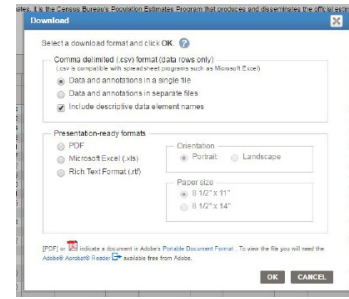
2. Downloading data from American Fact Finder

a. In a web browser, navigate to the American Fact Finder website at http://factfinder.census.gov/.

b. Select **Advanced Search** and click on **Show Me All**. Use the search filters on the left to narrow data searches by topics, datasets, geography and more. Click on the **Geographies** filter, select **County - 050** as the geographic type, select **Iowa** as the state, and **All Counties within Iowa** as the geographic area. Click **Add To Your Selections**, you should now see **All Counties in Iowa** listed under the **Your Selection** box. Close the **Select Geographies** window.

c. In the search bar at the top of the page, type **income** and click **Go**. All the search results that meet your two selection criteria are displayed in the search results. Each result will show you the table ID, table name, and the dataset with which is providing the data.
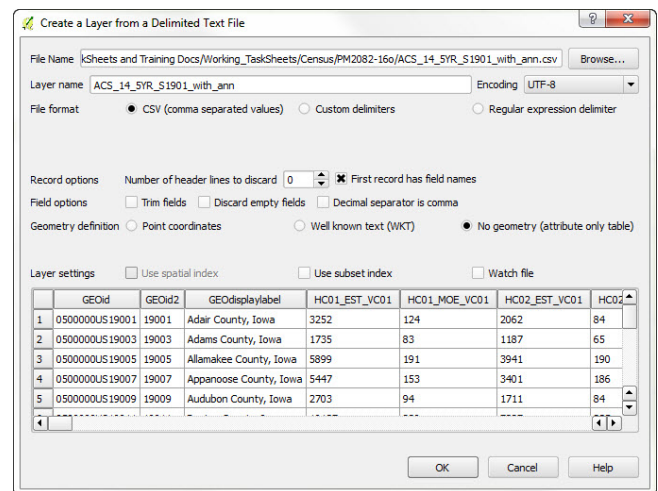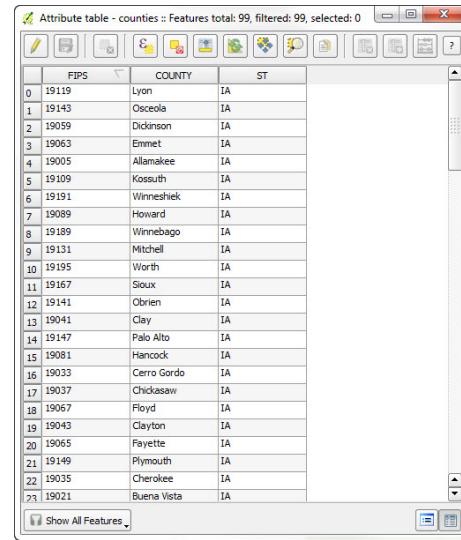
d. Select the result with table ID **S1901**, and Dataset **2014 ACS 5-year estimates**. After selecting **S1901** you will see a table showing income data for all counties in Iowa. *Note: New ACS 5-year estimates are available in early Dec.*

e. Click **Download**, from the actions listed above the table. In the **Download** window, keep default options and click **OK**. Then click **Download** to save the file.

f. The data is downloaded in a zipped folder called **ACS_14_5YR_S1901.zip**. The zip file contains a number of documents related to the downloaded table, including:
1. **ACS_14_5YR_S1901.txt** (notes file)
2. **ACS_14_5YR_S1901_metadata.csv** (metadata file)
3. **ACS_14_5YR_S1901_with_ann.csv** (data file)
4. **aff_download_readme_ann.txt** (download info)

3. Preparing Census Data to be Joined

a. Open **ACS_14_5YR_S1901_with_ann.csv** in Excel, or other spreadsheet program. Notice the **GEO.id2** field, this is the county FIPS code and is a unique identifier that can be used to join the data to a shapefile for mapping. Before this can happen, the second (header) row in the table that shows the data descriptors needs to be deleted. Highlight row 2 in the table, right-click, and select **Delete**. Before you save and close the file, remove all period and hyphen characters from header row 1.

b. Open a new QGIS project, and add **counties.shp**. Right-click on **counties.shp** and select **Open Attribute Table**. The **FIPS** field is the unique FIPS code identifier that will be used for the join. Close the table. *Note: In QGIS, field types don't need to be the same to complete a join as they do in ArcMap.*

c. Add the **ACS_14_5YR_S1901_with_ann.csv** table to QGIS by using the **Add Diliminated Text Layer** icon. Click **Browse**, and select the file. Select **No Geometry** as the **Geometry definition option**, and click **OK**.

d. Both files are now in QGIS and are ready to join. Find steps for joing data in QGIS in *QGIS: Joining and Mapping U.S. Census Bureau Data* (**PM2082-16r**).

Contact:

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September 2016