QGIS Workshop

1. Introduction to Quantum GIS (QGIS)

QGIS is a free and open source Geographic Information System (GIS).

QGIS can help you create, edit, visualize, and publish geospatial information on various operating systems including Windows, Mac OSX, Linux, BSD, etc.

2. QGIS vs. ArcGIS

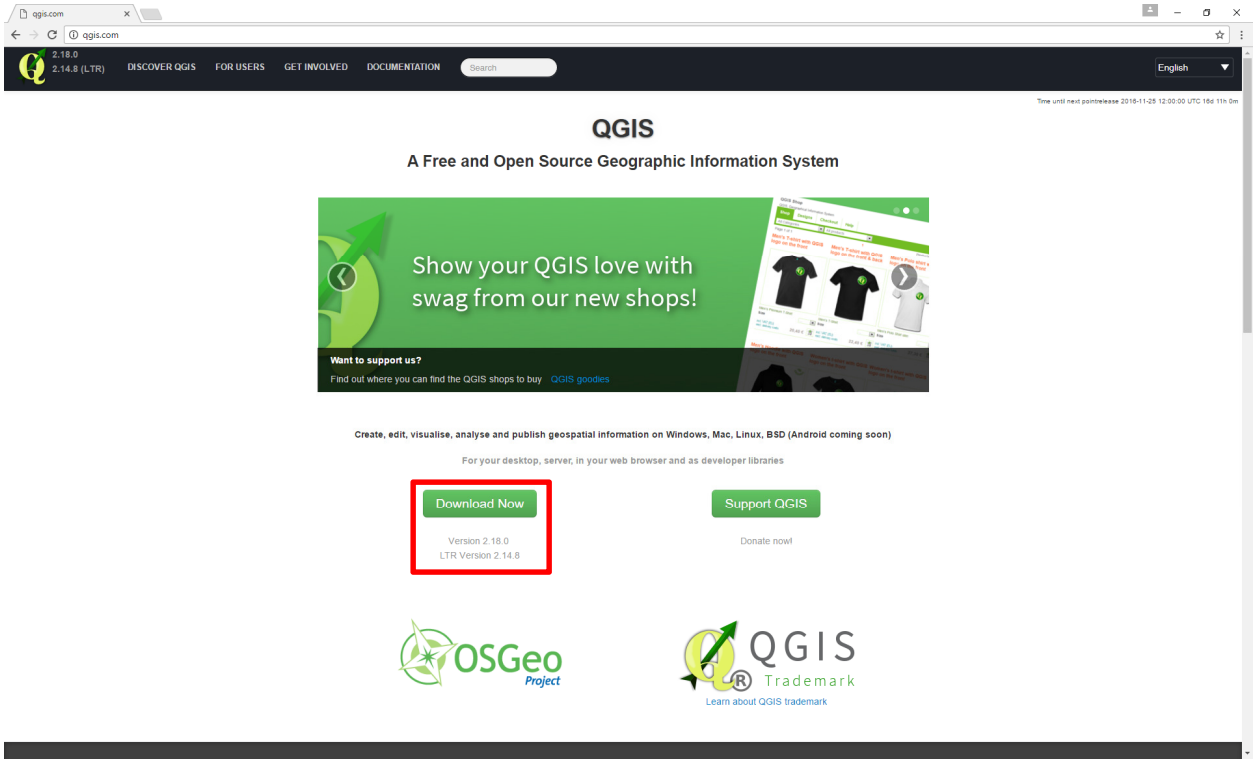
QGIS --- free and open source software package, more stable, less analysis tools, multi-platform

ArcGIS --- commercial software package, less stable, more analysis tools, single-platform

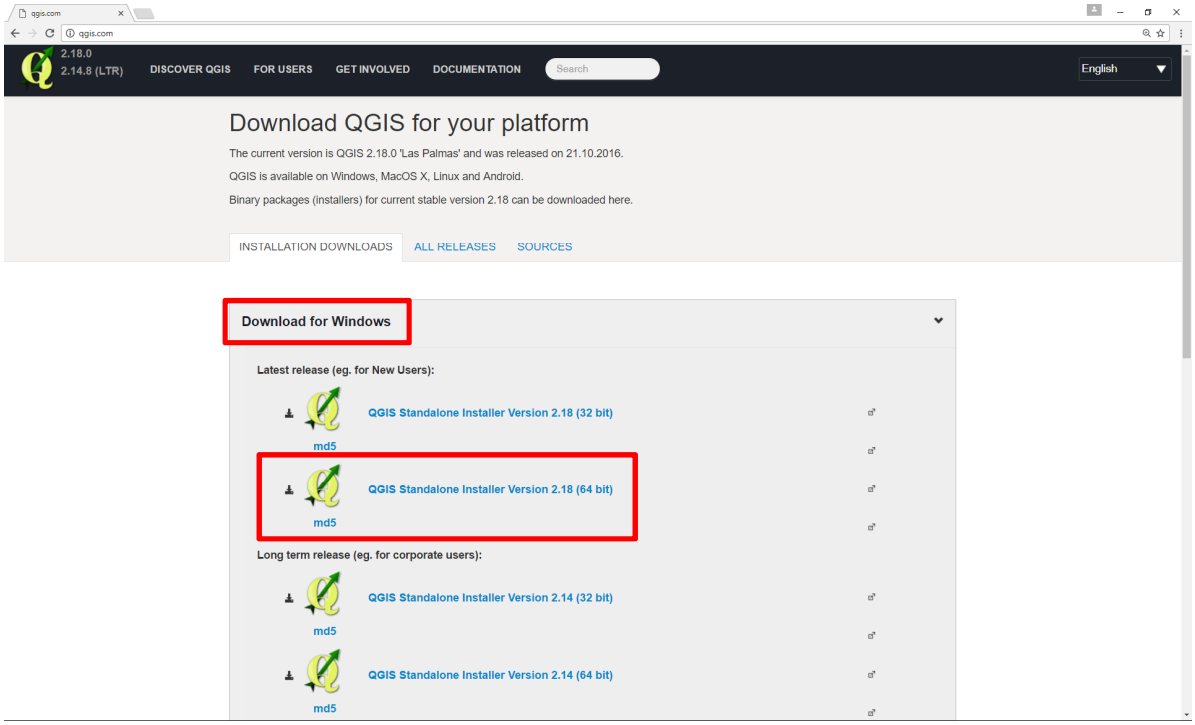
3. Download QGIS

Please go to www.qgis.com

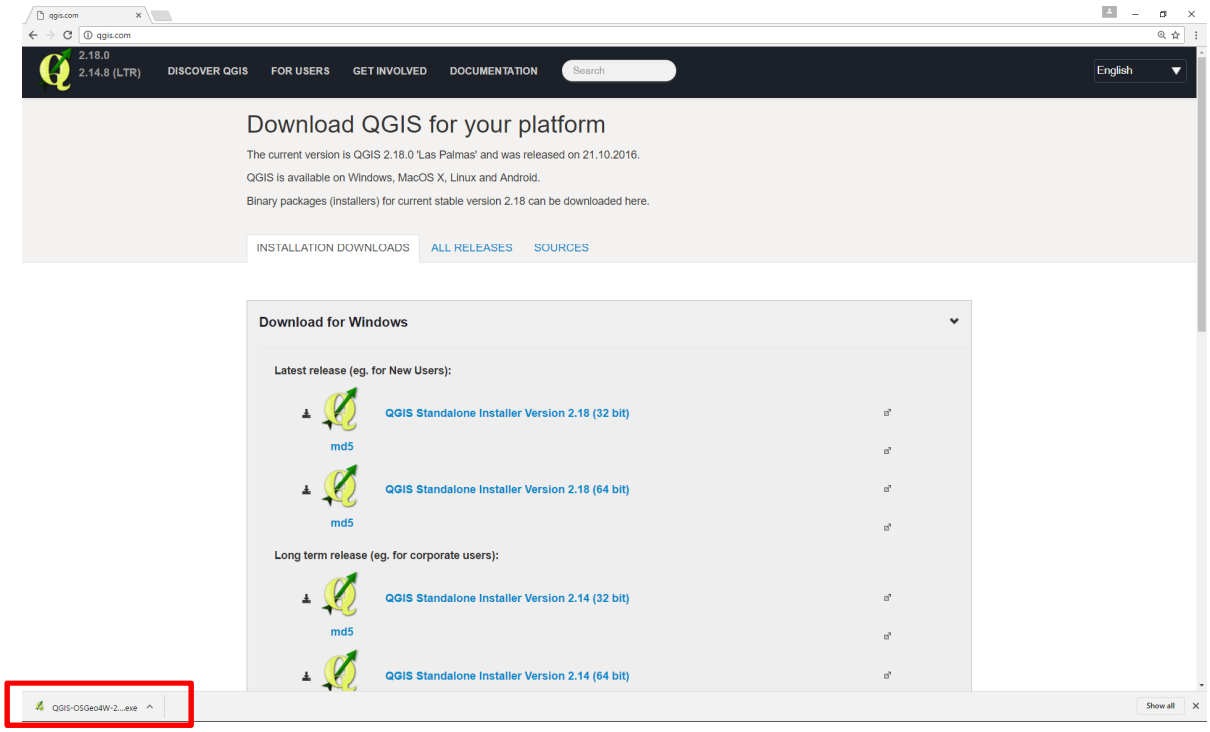
1) You will see a webpage looks like this; please click download now



2) Select the latest version that is compatible with your operating system to download; I highly recommend you download the 64-bit version if it is compatible with the operating system



3) Once you click QGIS Standalone Installer Version 2.18 (64 bit), your browser should be able to automatically download the QGIS installer.



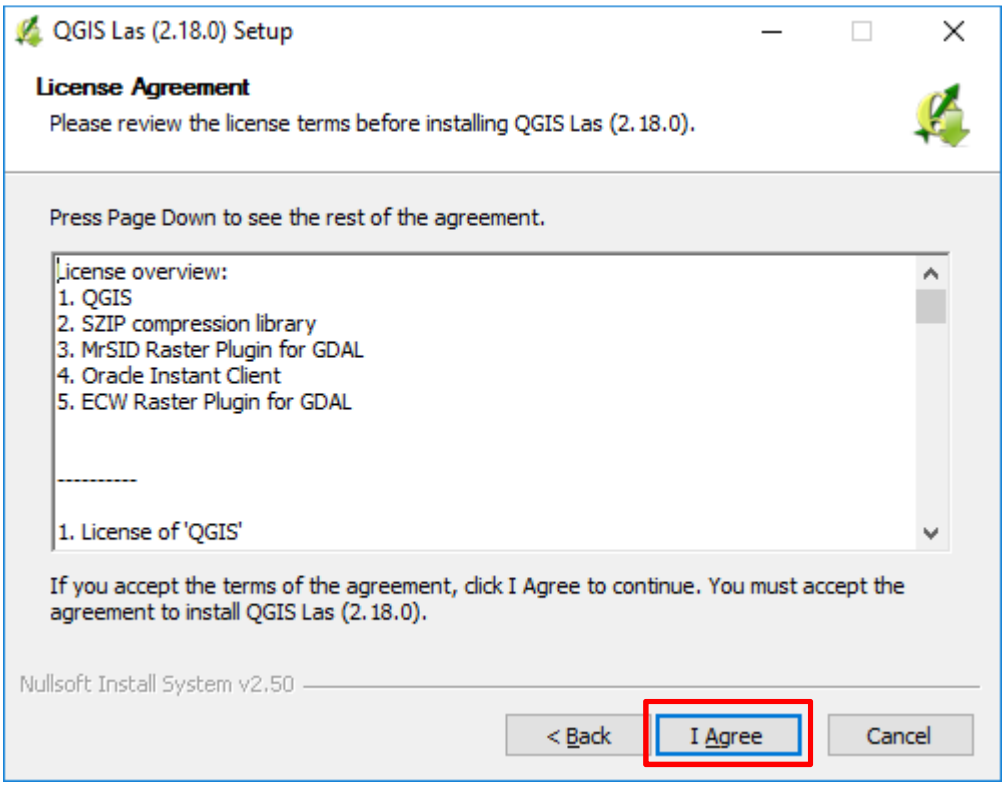
4. QGIS Installation

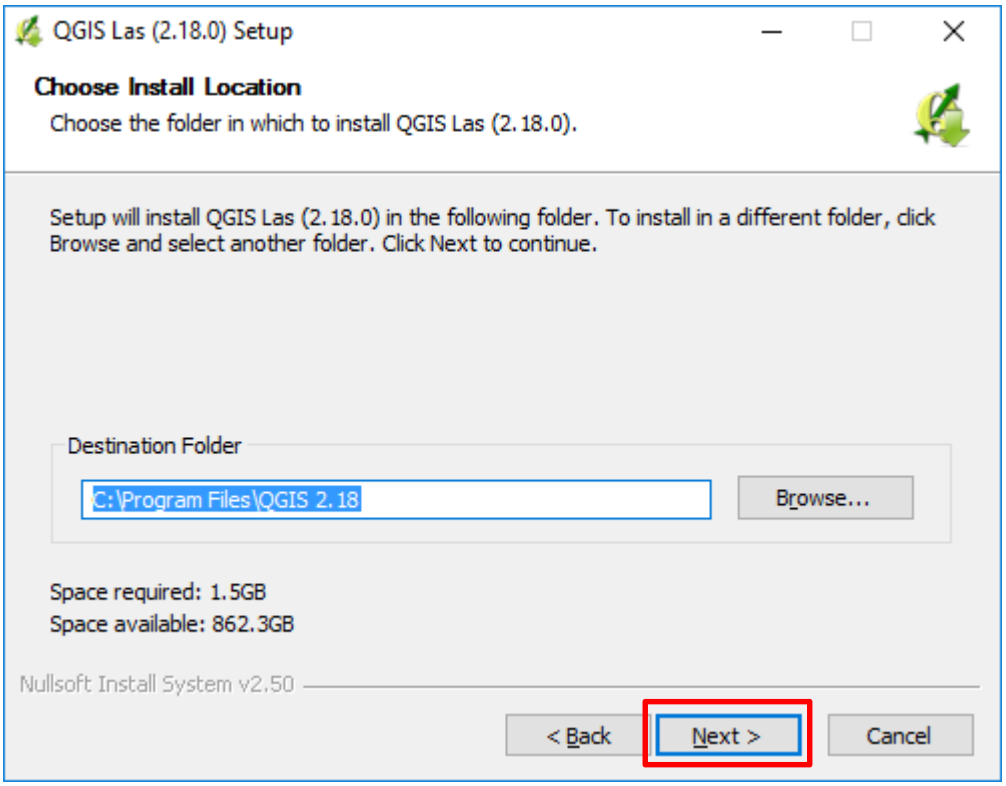
1) Double click the installer that you have downloaded

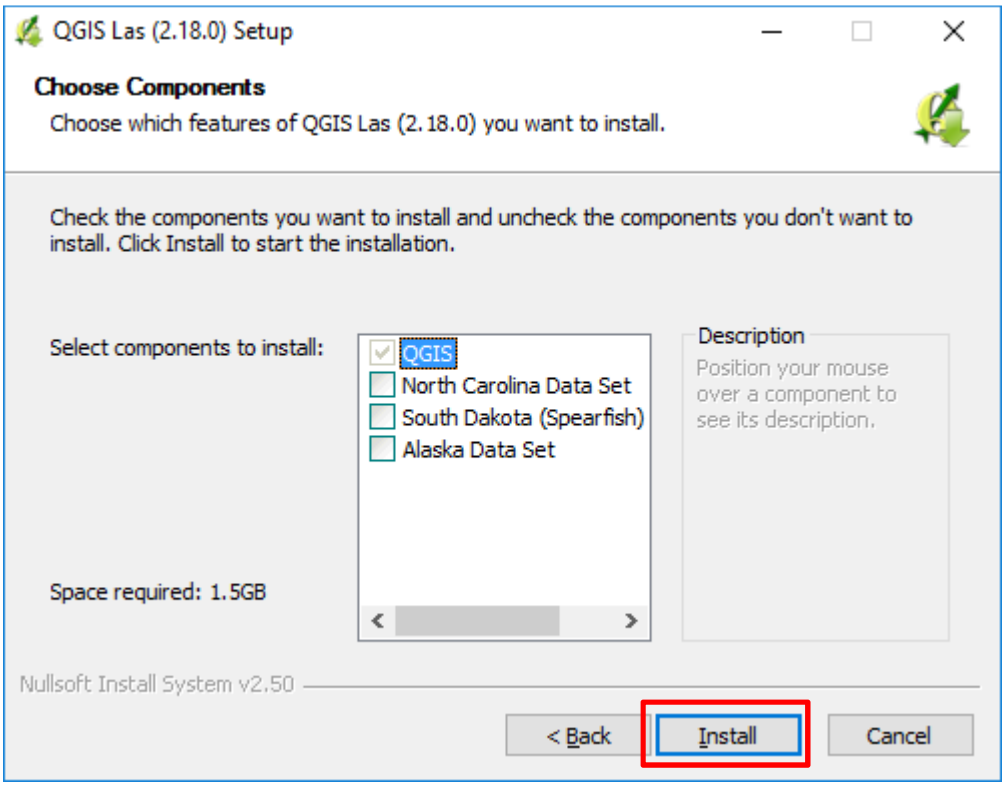
2) QGIS Setup Wizard should show up

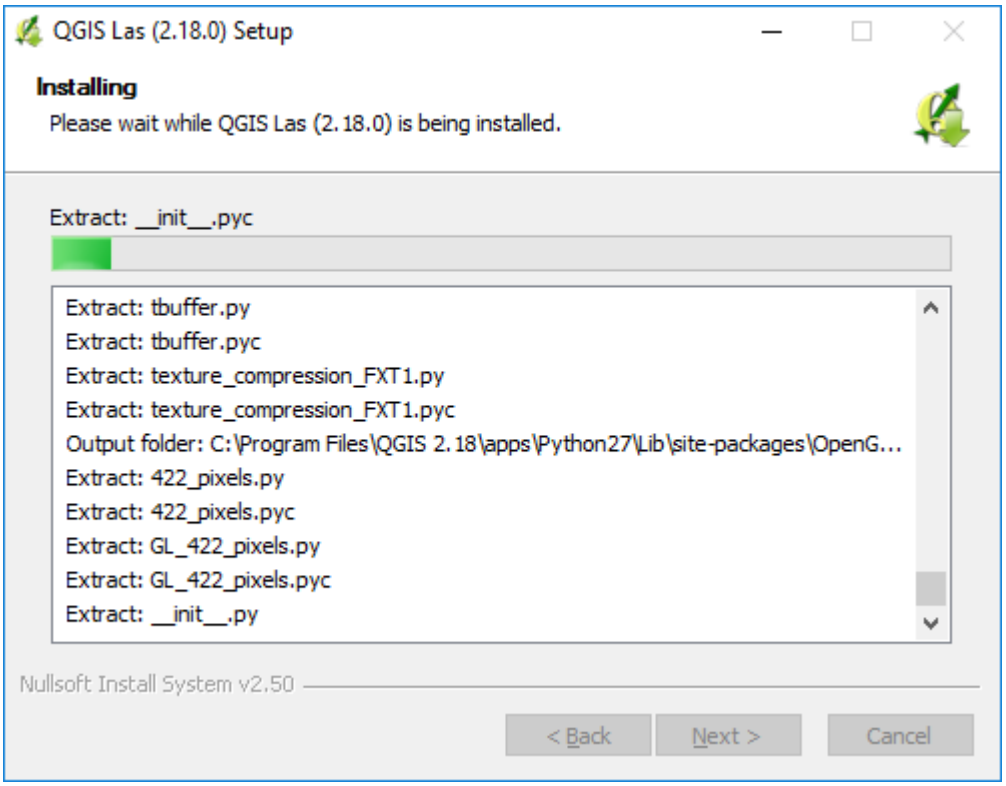
3) Click Next to start the installation process

4) You will see the License Agreement, installation location, components to install, etc.


QGIS Las (2.18.0) Setup
License Agreement
Please review the license terms before installing QGIS Las (2.18.0).
Press Page Down to see the rest of the agreement.
License overview:
1. QGIS
2. SZIP compression library
3. MrSID Raster Plugin for GDAL
4. Oracle Instant Client
5. ECW Raster Plugin for GDAL
---
1. License of 'QGIS'
If you accept the terms of the agreement, click I Agree to continue. You must accept the agreement to install QGIS Las (2.18.0).
Nullsoft Install System v2.50
< Back
I Agree
Cancel


QGIS Las (2.18.0) Setup
Choose Install Location
Choose the folder in which to install QGIS Las (2.18.0).
Setup will install QGIS Las (2.18.0) in the following folder. To install in a different folder, click Browse and select another folder. Click Next to continue.
Destination Folder
C:\Program Files\QGIS 2.18
Browse...
Space required: 1.5GB
Space available: 862.3GB
Nullsoft Install System v2.50
< Back
Next >
Cancel


QGIS Las (2.18.0) Setup
Choose Components
Choose which features of QGIS Las (2.18.0) you want to install.
Check the components you want to install and uncheck the components you don't want to install. Click Install to start the installation.
Select components to install:
QGIS
North Carolina Data Set
South Dakota (Spearfish)
Alaska Data Set
Description
Position your mouse over a component to see its description.
Space required: 1.5GB
Nullsoft Install System v2.50
< Back
Install
Cancel


QGIS Las (2.18.0) Setup
Installing
Please wait while QGIS Las (2.18.0) is being installed.
Extract: __init__.pyc
Extract: tbuffer.py
Extract: tbuffer.pyc
Extract: texture_compression_FXT1.py
Extract: texture_compression_FXT1.pyc
Output folder: C:\Program Files\QGIS 2.18\apps\Python27\Lib\site-packages\OpenG...
Extract: 422_pixels.py
Extract: 422_pixels.pyc
Extract: GL_422_pixels.py
Extract: GL_422_pixels.pyc
Extract: __init__.py
Nullsoft Install System v2.50
< Back
Next >
Cancel

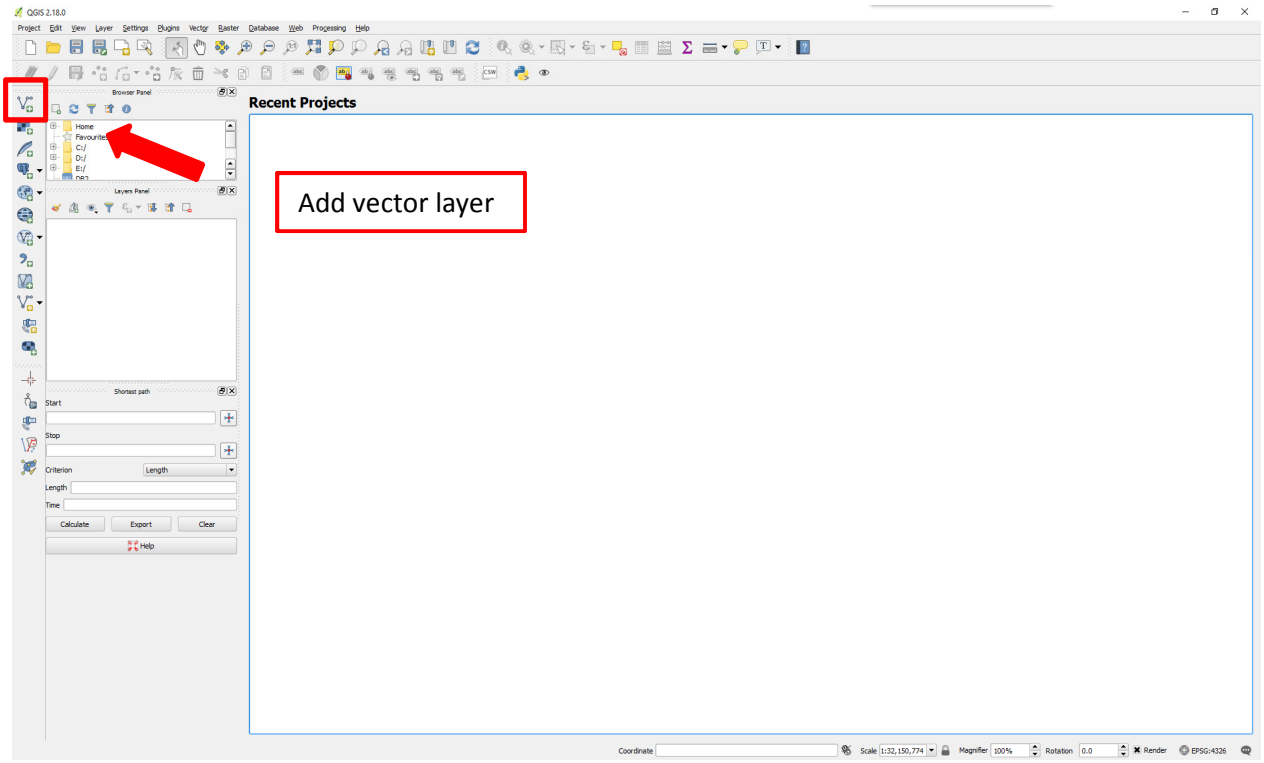
5) Click Finish to complete the installation

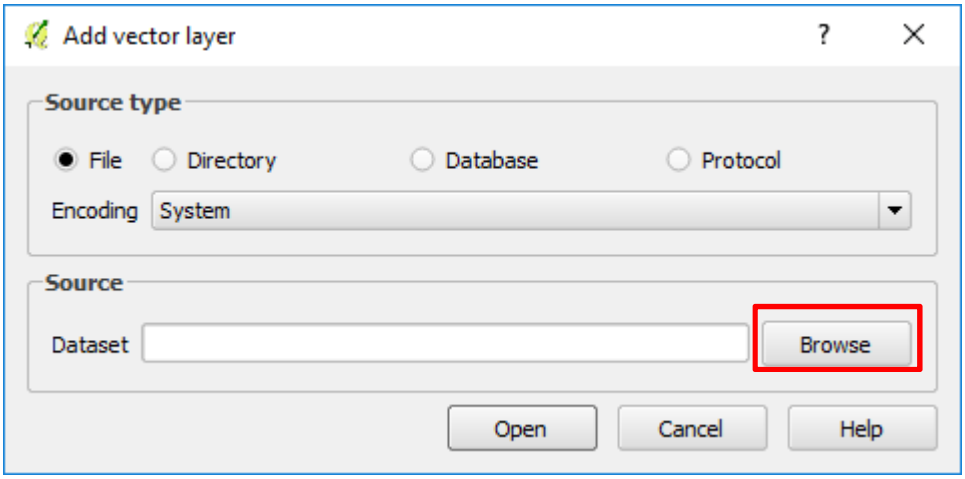
4. Start QGIS

Click the "QGIS Desktop 2.18.0" application icon on your desktop or please go to my computer ---- all programs (all apps for Windows 10) --- QGIS Desktop 2.18.0

Note: The first time may take a few minutes to start. For this workshop, we will only focus on vector data (points, polylines, and polygons).

1. Click Add vector layer button

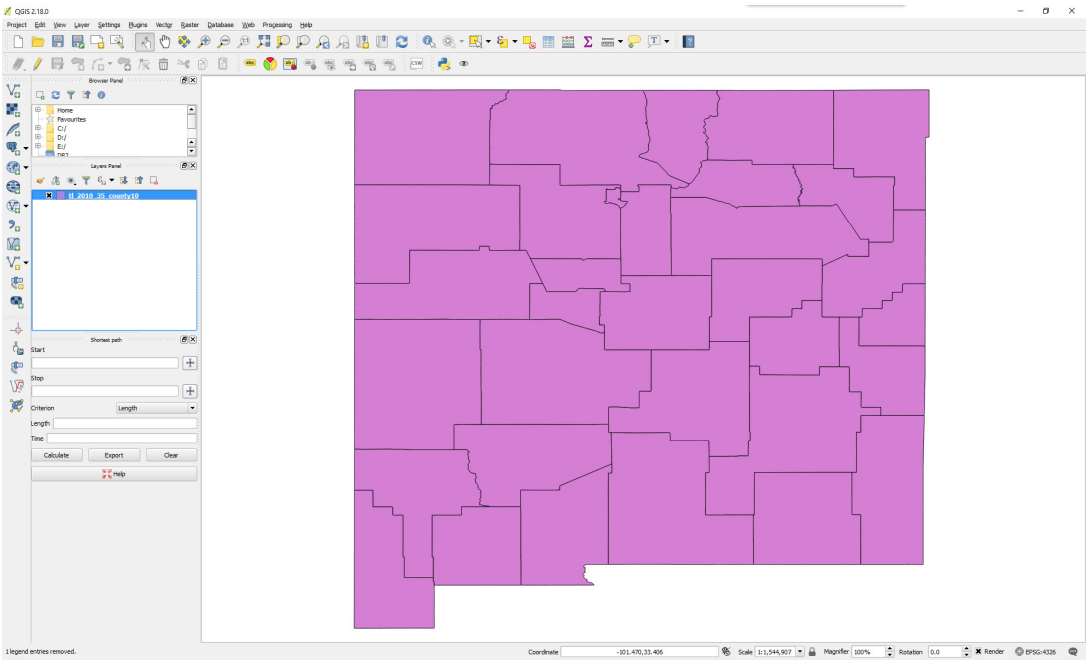




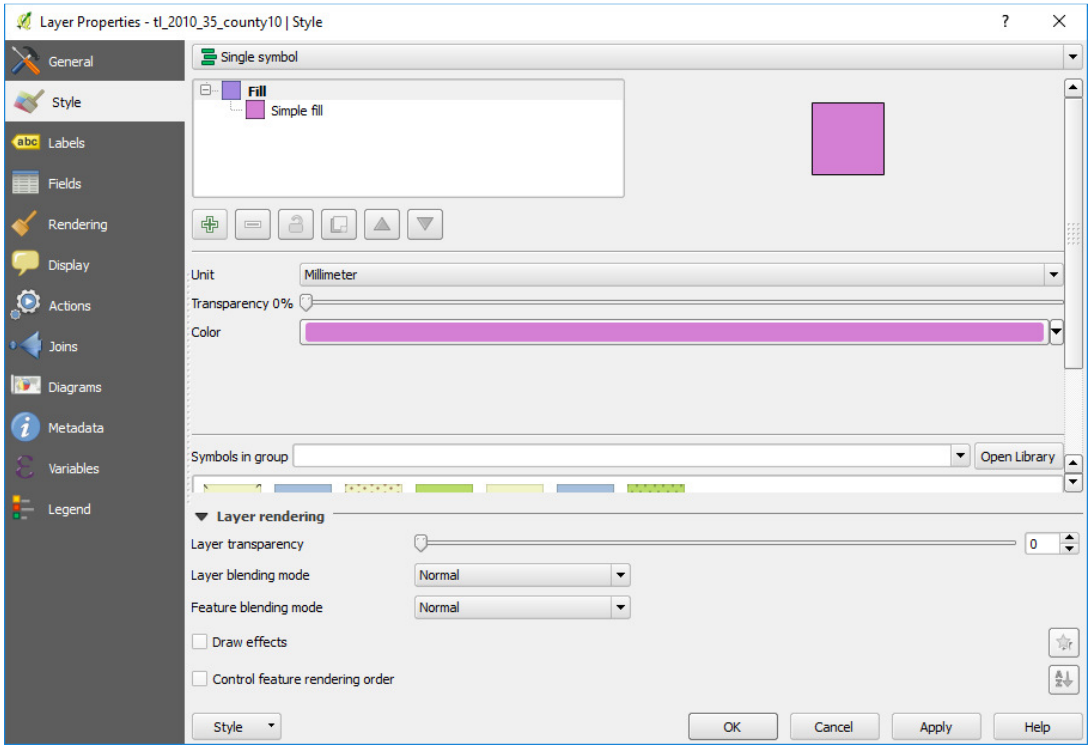
2) Browse to the path that you save your data; make sure you choose the .shp file to upload

5. Basic Editing

1) Now you should have already successfully added the New Mexico county boundary polygon shapefile, and it should look like this



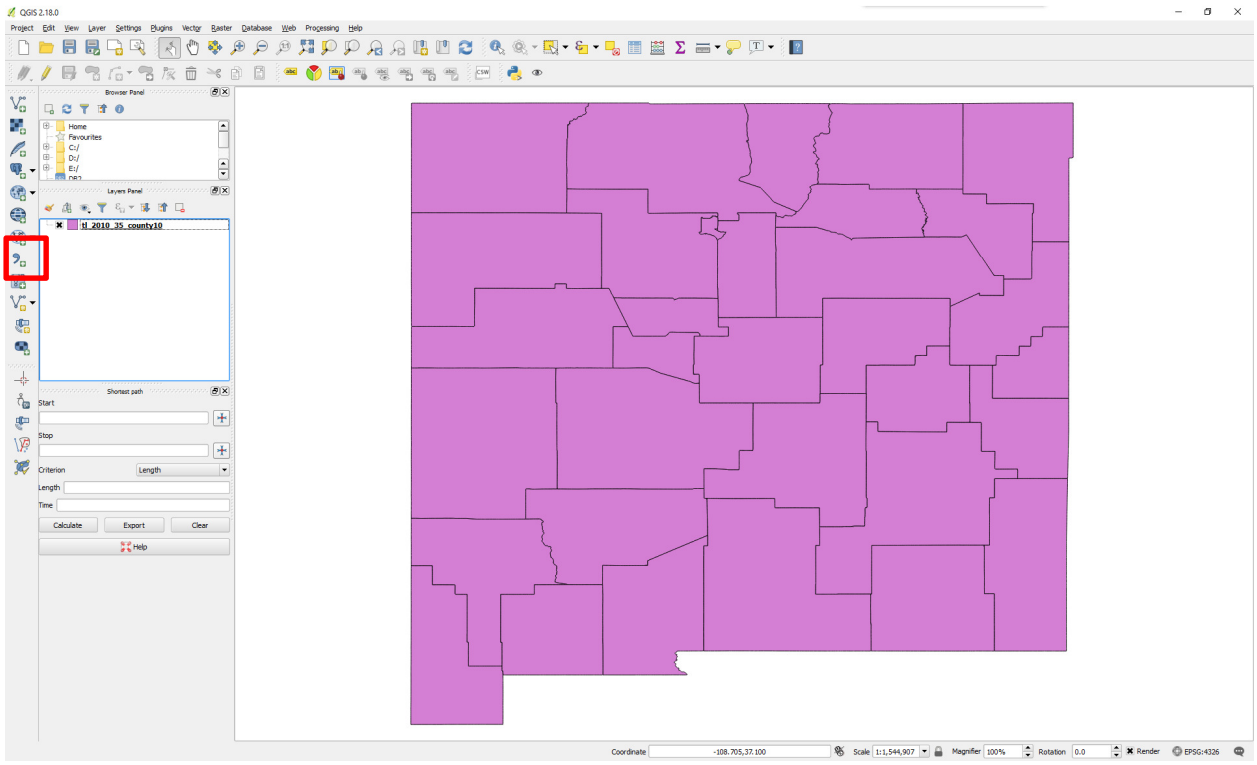
2) Right click on the layer name, and then choose Properties for editing

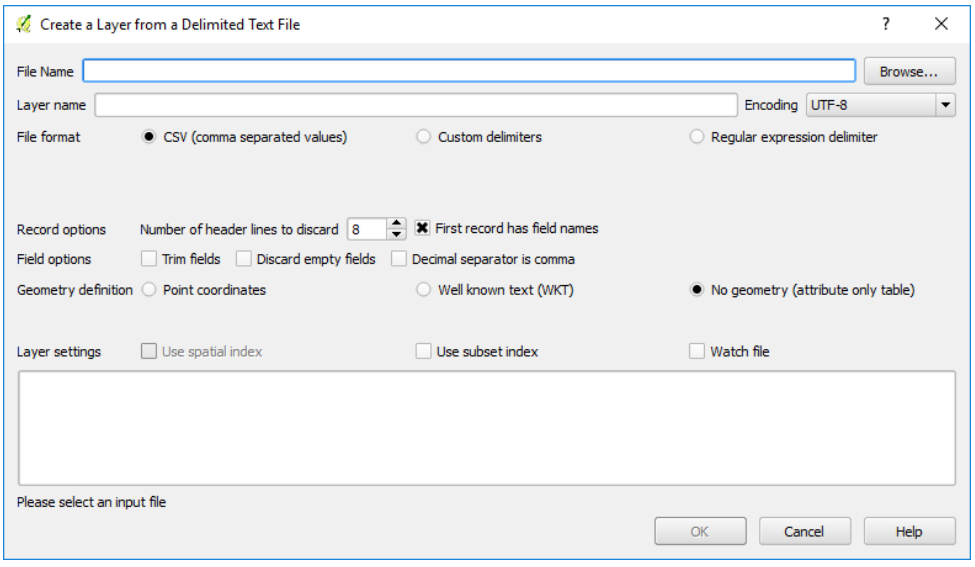


3) Table Join

Sometimes the shapefile does not include all the information that you want, which makes table join to be necessary and useful. Table join is typically used to append the fields of one table to another through an attribute or field common to both tables.

a. Click Add Delimited Text Layer, and then the create a layer from a Delimited Text File dialogue should show up.



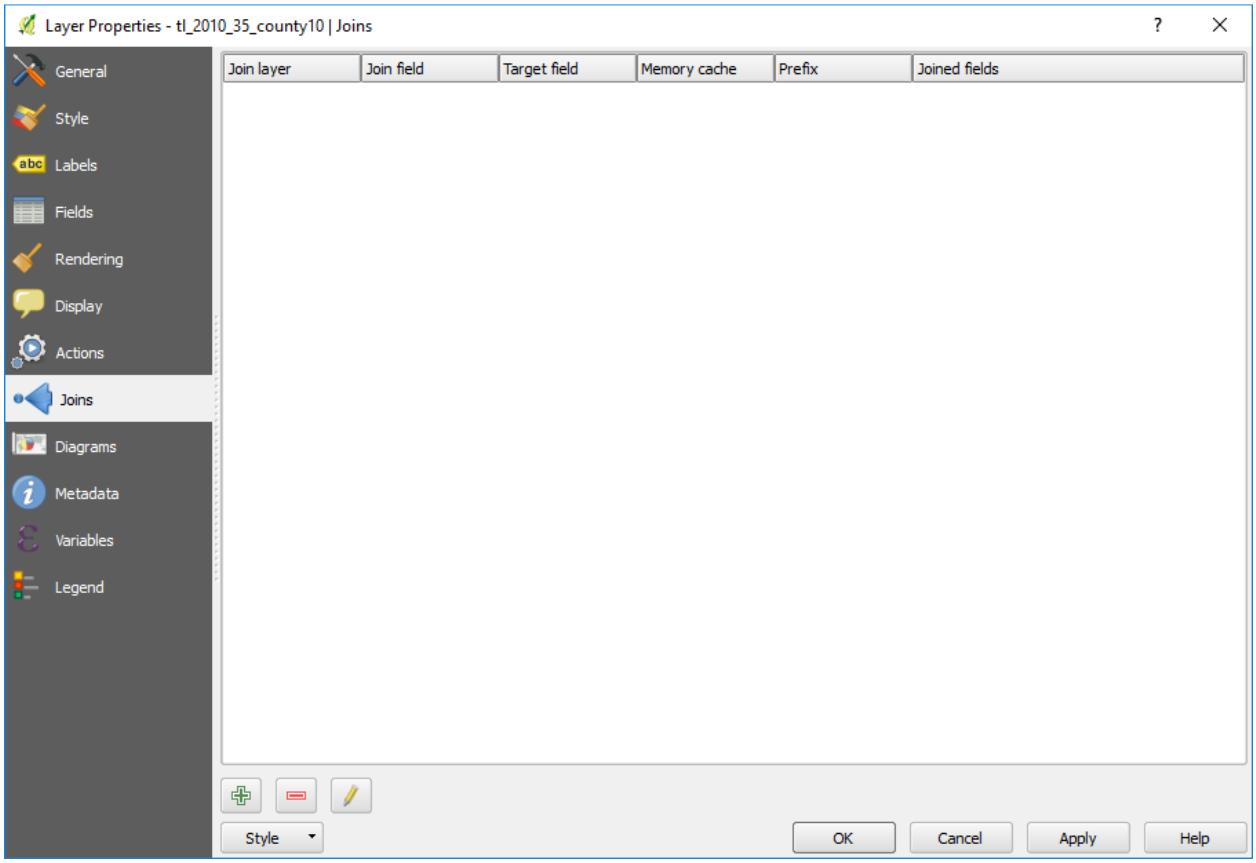


b. Browse to the path that you save your population data, make sure you choose the csv file; the file format should be CSV, the number of header lines to discard should be 8, and the geometry definition should be no geometry (attribute only table)

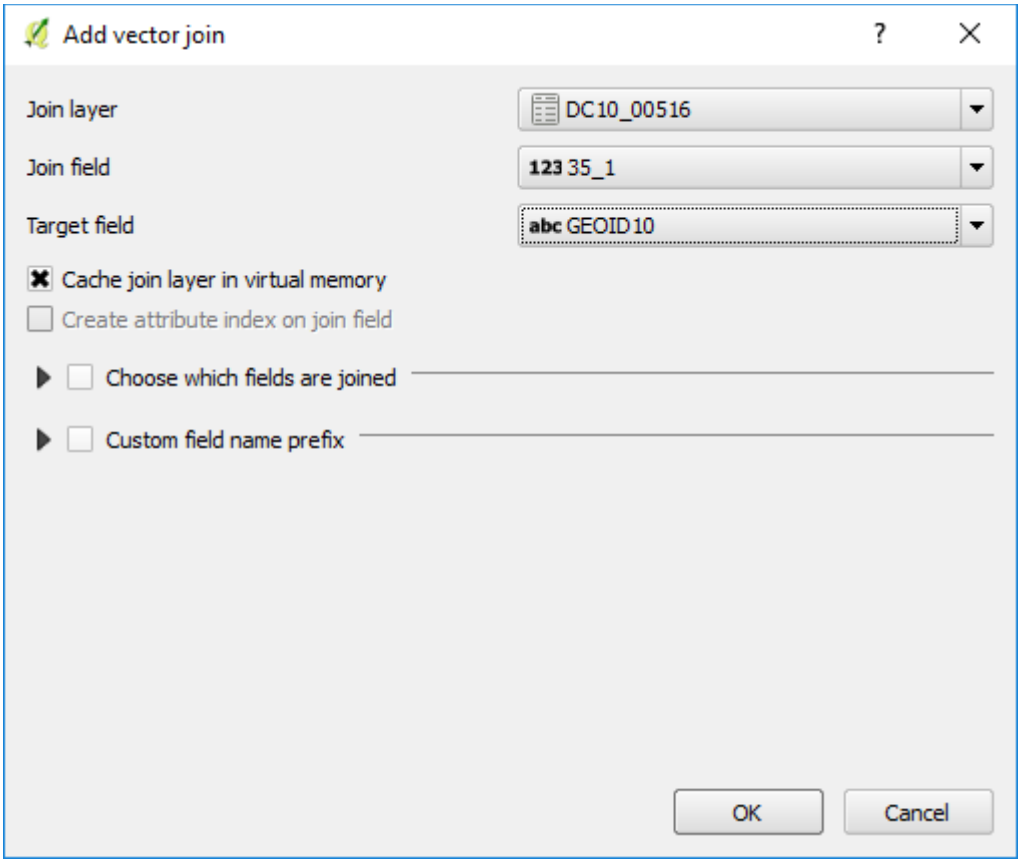
c. Right click on the layer name of the New Mexico county boundary (tl_2010_35_county10), and then click on Open Attribute Table, please browse the table to find unique IDs (GEOID10)

d. Right click on the layer name of the New Mexico county boundary (tl_2010_35_county10), and then click on Properties

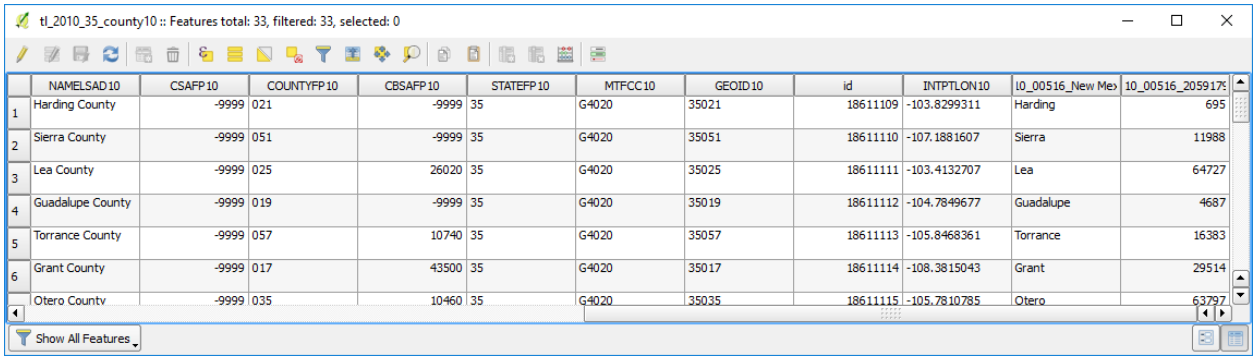
e. Click Joins



f. Click the green plus sign and the following dialog should appear, the john field should be 35_1 and the target field should be GEOID 10, and then click OK



g. You table should be joined with your shapefile, please right click on your shapefile layer and then click on Open Attribute Table



	NAMELSAD10	CSAFP10	COUNTYFP10	CBSAFP10	STATEFP10	MTFCC10	GEOID10	id	INTPTLON10	l0_00516_New Me	10_00516_205917
1	Harding County	-9999	021	-9999	35	G4020	35021	18611109	-103.8299311	Harding	695
2	Sierra County	-9999	051	-9999	35	G4020	35051	18611110	-107.1881607	Sierra	11988
3	Lea County	-9999	025	26020	35	G4020	35025	18611111	-103.4132707	Lea	64727
4	Guadalupe County	-9999	019	-9999	35	G4020	35019	18611112	-104.7849677	Guadalupe	4687
5	Torrance County	-9999	057	10740	35	G4020	35057	18611113	-105.8468361	Torrance	16383
6	Grant County	-9999	017	43500	35	G4020	35017	18611114	-108.3815043	Grant	29514
	Otero County	-9999	035	10460	35	G4020	35035	18611115	-105.7810785	Otero	63797

h. Please save your joined shapefile to a new shapefile to permanently save your shapefile; to do this, you need to right click the joined shapefile and then click on Save As, a save vector layer as dialogue should show up, choose the path you want to save the layer and provide a name to the new file, and then click OK.

4) Visualize your shapefile

a. Add the newly saved shapefile from you path

b. Right click on the layer name, and then click on Properties

c. Click style

d. Click Single Symbol

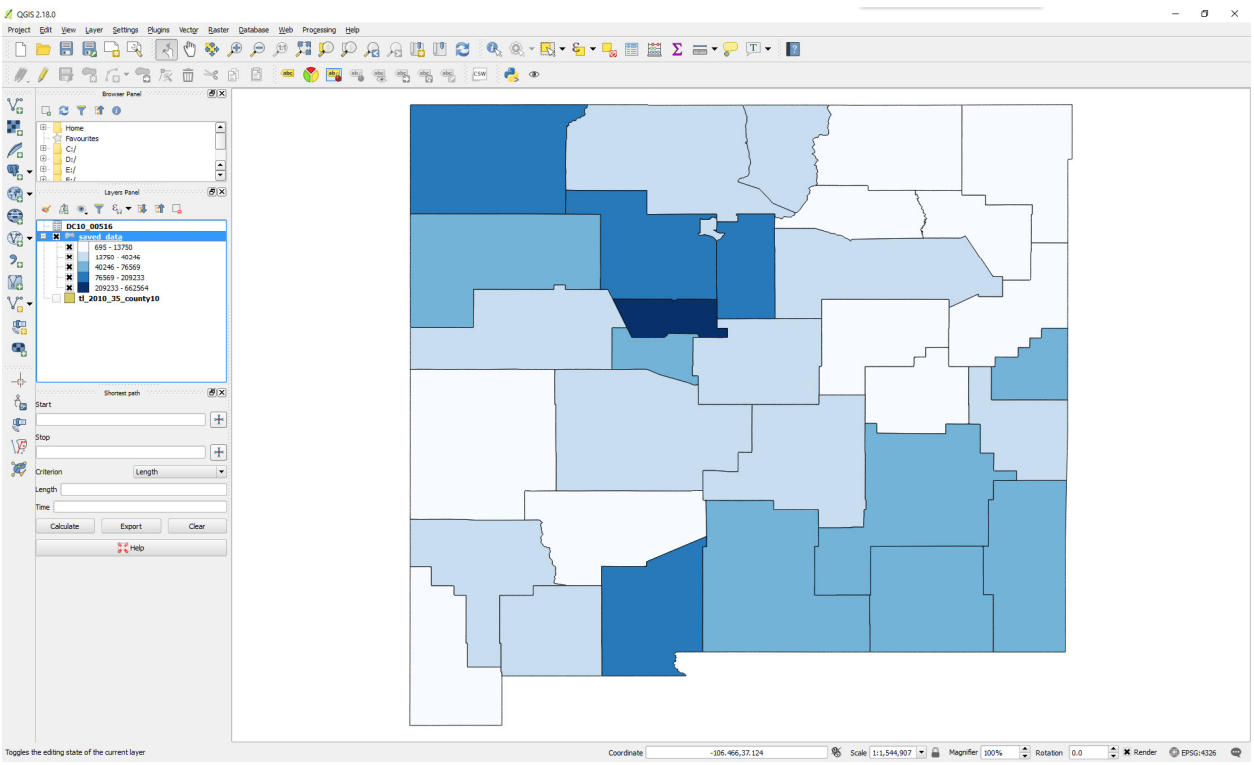
e. Choose Graduated

f. Column chooses your population attribute field

g. Choose the color ramp you like

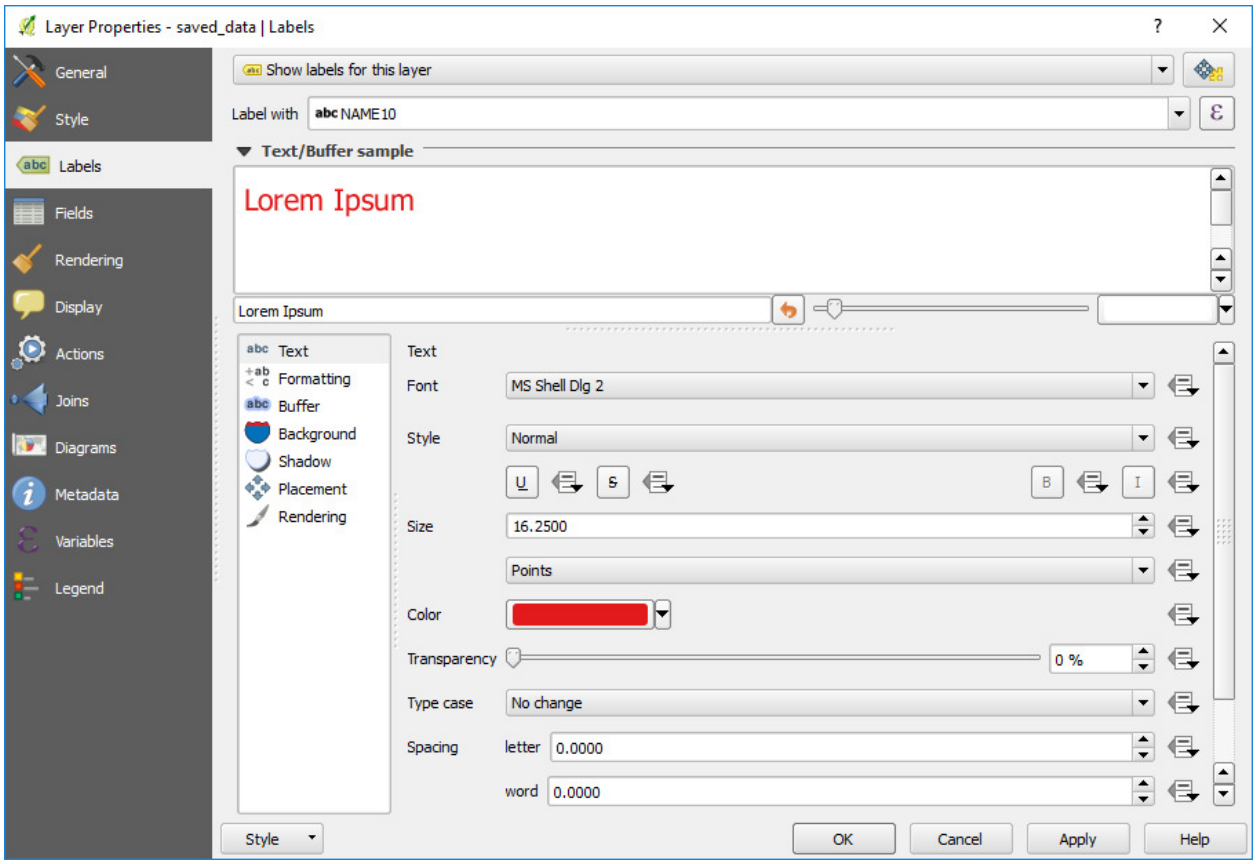
h. Choose mode of Natural Break (Jenks) for classes, and then click classify

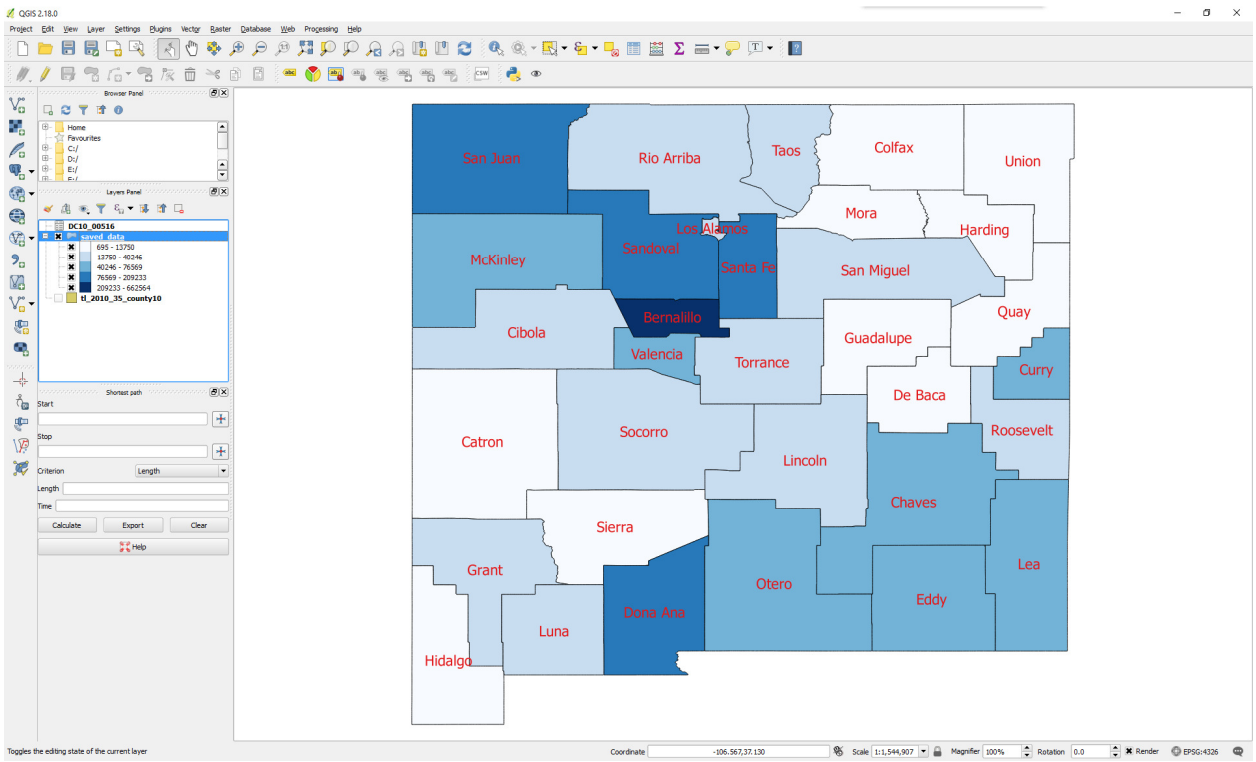
i. Apply and then click OK.



j. Right click on the layer name again and click on Properties, choose the labels option and then start explore the settings

k. Please at least select red color for text and choose size 16.25.





5. Creating Maps

1) Add more shapefiles, including airport data and highways data

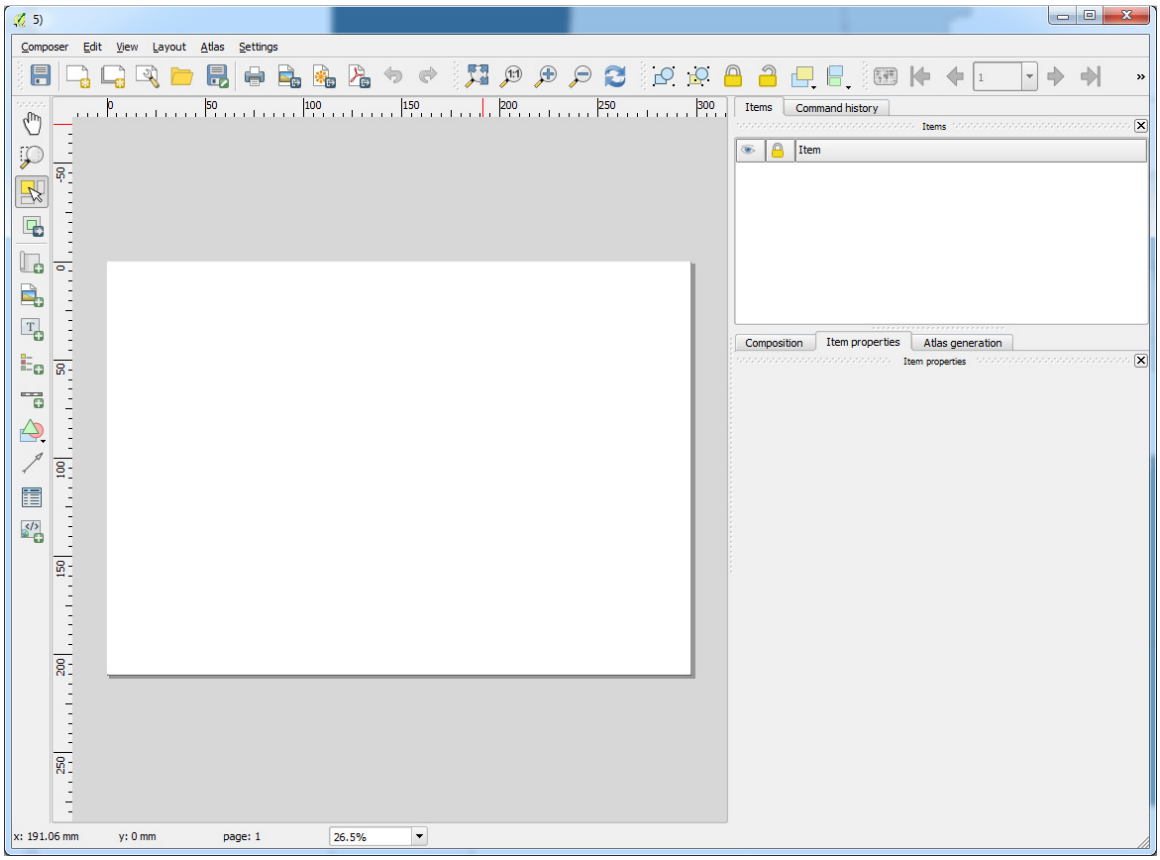
2) You can explore the editing of these data

3) Click Project

4) Click on New Print Composer

5) Type in a name for your composer

6) The composition panel should appear



7) Click Layout and then click add map

8) User your mouse pointer to select the area where you want to add your map

9) Click Layout and then click Add Scalebar, Add Legend, and Add Arrow

10) Click Composer and then click Export as Image