

Lesson 2--Introduction to GIS: Using GIS Software
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A. Download free data from CDOT

1. go to CDOT (google "CDOT"), or go to www.dot.state.co.us
 - From the website menu, click "**Stats and Data**">"**Geographic Data**"
 - select "**County Data Set**"> and pick Archuleta from drop down box.
 - Download and SAVE TO DESKTOP (makes it easier to find)
 - close CDOT website
2. UNZIP DATA ON DESKTOP
 - Notice the two folders "Metadata" and "Shp"
 - MetaData has information about the data, while Shp is the actual data (shapefiles)
 - Investigate MetaData and determine **Projected Coordinate System Name**
(Hint: search "County_Meta_Highways.htm" file for "Projected")
 - Write down the name of the Projection in the MetaData file.

B. Open the GIS program Udig (free download at udig.refrations.net)

1. (menu) **New>NewMap**
(note: if a project or a map already exists, delete them by right click>delete)
- 2.(menu) **Layers>Add**> (navigate to unzipped CDOT "shp" folder, click until you find the shapefiles. Then, select these files (use ctrl click):
 - CITIES.shp
 - cnty.shp
 - FCROADS.shp
 - HIGHWAYS.shp
 - LAKES.shp
 - LROADS.shp
 - STREAMS.shp
3. Pick Projection (the box below the map on the right)
 - From the long list of projections, find the proper projection that was found in the MetaData (hint: search for "utm 13N" in the text box entry). Notice how the shape of the county changes significantly (the default view was unprojected)
4. Spend a few minutes investigating the tools on top:
 - Zoom in
 - Zoom out
 - Zoom Window tool (called "Adjust Current Zoom" in tooltips)
 - Pan tool
 - Info tool: notice how the results depend on which layer is selected on left
 - Show All Data Tool (essential for when you "get lost", also called "Zoom Full" in many GIS programs.)

(SEE OTHER SIDE)

5. Return to full view (Show all Data), and change color scheme of Layers:
On the left side of the screen, the layers are shown. To access the layers properties, click on the layer, then click on the little "palette" icon" (the tooltip says "changes the style of the selected layer". Change each layers properties as follows:

cnty Line: Black (the color combo box on top, below "Simple")
 Line Thickness: 3 (the number to the right of the colorbox)
 Uncheck "Fill" (then click apply and close)

HIGHWAY Line: Black
 Line Thickness: 2 (then click apply and close) ETC.

LROADS LINE: Black
 Line Thickness: 1

FCROADS LINE: Green
 Line thickness: 1

CITIES Line: Black
 Line Thickness: 1
 Fill: Yellow
 Fill opacity: 100%

LAKES Line: Blue
 Fill: Blue
 Fill Opacity: 100%

STREAMS Line: Blue

6. CREATE BOOKMARK VIEW:

- a. Click Bookmark tab (left column, next to layers)
- b. Click Add Bookmark icon and name the bookmark.

Now you can add additional layers that may have a larger "Extent", and no matter what you always go back to the county view by clicking the Bookmark.

7. ADD **publands.shp** layer to map (from the same CDOT folder unzipped earlier).

- a. GO back to Layers Tab, and change properties for publands:
- b. Instead of "SIMPLE" Styles as before, click "THEME" in the Style Editor.
- c. In "Attribute", click Owner
- d. Pick a Pallete, and change colors that make sense to you.

This final step you are changing the theme of the map based on the specific attributes of the shapefile. In this case, you are color coding the map based on "OWNER", which includes the BLM, BIA (Bureau of Indian Affairs), COLORADO (state lands), PVT (private), and USFS. What colors make sense for each of these? (hint: private is usually transparent--no color).

8. SAVE and CLOSE your map. We're done for today.