

Introduction to ArcGIS

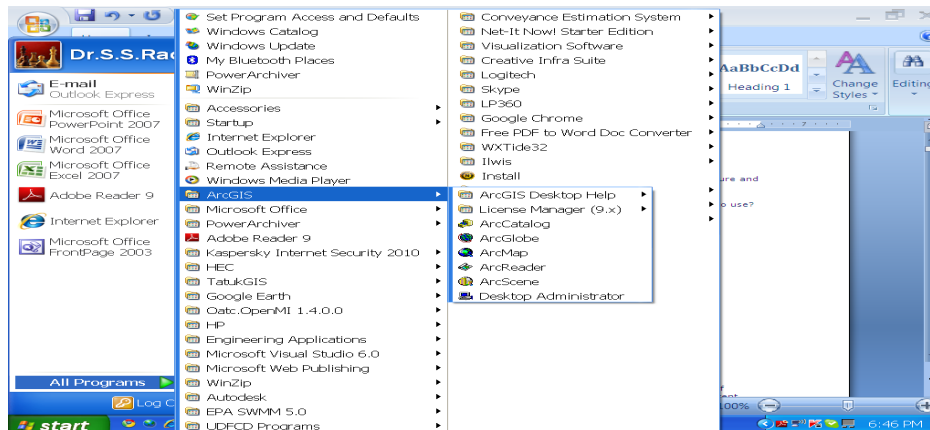
My choice of ArcGIS (I am using version 9.2. Others may be slightly different in menu) is simply because its availability and my own familiarity with this software. Even if you do not have ArcGIS, you may browse this tutorial to gain understanding on what you can do using GIS. I also provide a list of other GIS software both commercial and free version in the GIS Resources page.

ArcGIS is a product of [ESRI](#). The latest version is available in three different editions under three different names:

1. **ArcView** (simple, Standard edition)
2. **ArcEditor** (functional, Professional edition)
3. **ArcInfo** (advance; Enterprise edition)

Do not be confused with the name of the editions. The three editions above share the same architecture and have the same way on how to use. The differences are prices and more tools/functions.

If you open the menu in ArcGIS, you may see many icons. The first question is, perhaps, which one to use?



Regardless your editions, ArcGIS will contain at least three main softwares

- [ArcCatalog](#),
- [ArcMap](#), and
- [ArcToolbox](#)

ArcCatalog is similar to Windows Explorer. With ArcCatalog you may preview your GIS data in term of geography (map) or table. If your data contain 3D scene, you can use ArcCatalog to preview the content. You can create file, folder and meta-data of your GIS data using this software. If your data is a map file, you can double click to open it in ArcMap, otherwise, you can do drag and drop of your GIS data into ArcMap.

ArcMap is the main software that you use for GIS. Using ArcMap you can create and edit your map, layers, and charts. You may perform some analysis and query on your GIS data using ArcMap.

ArcToolbox is a collection of Analysis Tools (e.g. extract, overlay, proximity, statistics, surface cut and fill, volume and contour), Conversion Tools (i.e. import to / export from different type of files) and Data and Management Tools (e.g. Join tables, define projections, etc.)

If you ArcGIS contain ArcScene, it is useful for showing your map in 3 dimension. ArcScene is similar to ArcMap with more functional in 3D scene analysis, but you cannot create map in ArcScene.

The rest of this tutorial will cover only ArcCatalog and [ArcMap](#) since it is the main software of ArcGIS.

Exploring ArcMap

This section of GIS tutorial introduces ArcMap. ArcMap is part of ArcGIS that is used for creating, viewing, querying, and editing maps.

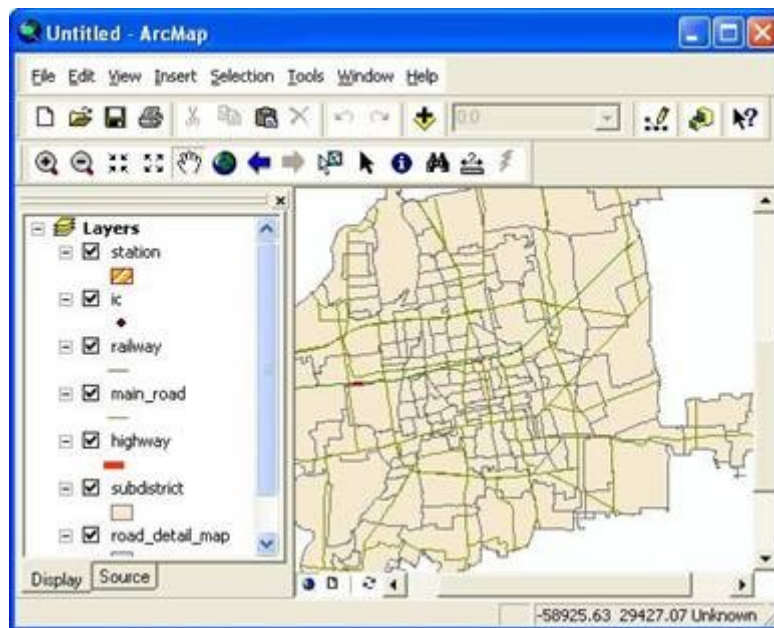
When you load a map in ArcMap, the Maps can be separated by Layers, each layer consist of

1. Spatial information (the map, where is the location)
2. Shape (type, symbol, color)
3. Table attributes

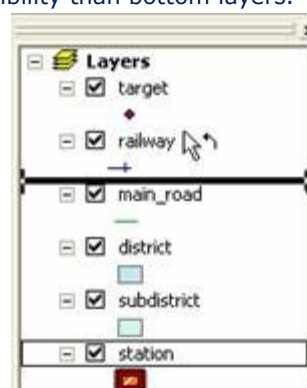
You can only open one map *file* at a time, but several layers or dataset can be added into layers using



toolbar. Each layer can be turn On or Off by clicking the check box on the Layer contents on the left.

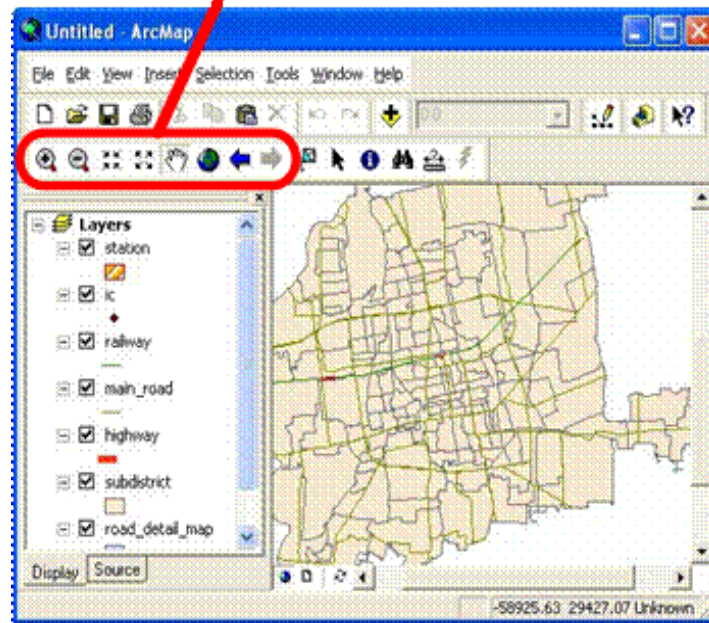


You can easily change the arrangement of the layers by selecting the layer, then do drag and drop to other places. Top layer have better visibility than bottom layers.



You can explore the map using Tool toolbar to zoom, pan and change the scaling. Try these tools on the map to see how the effects are.

Zoom and pan



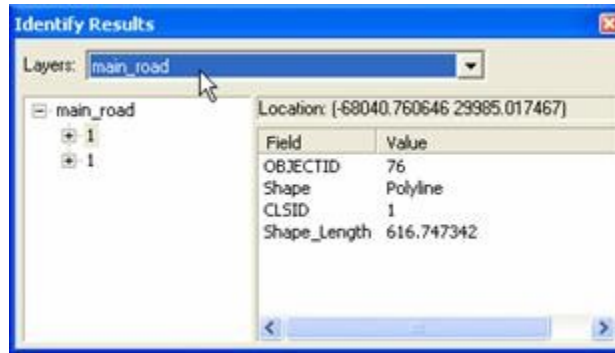
You may select some features using *select feature* tool. Use SHIFT to select more than one feature. Selected features have thicker line.



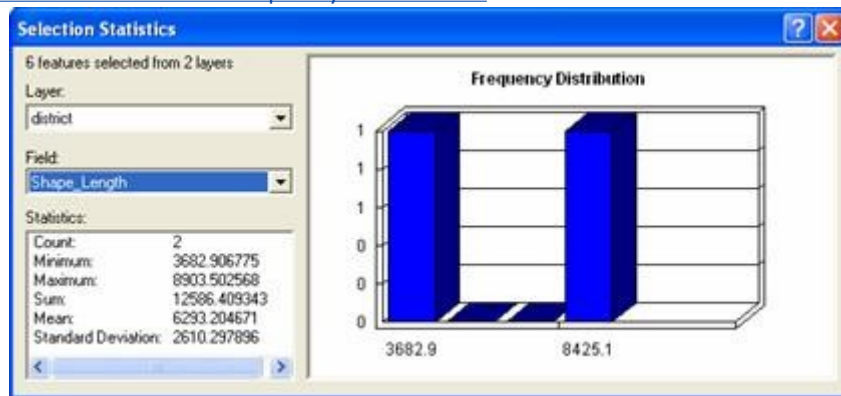
You may choose menu Selection – Zoom to Selected Features to see your selection features.



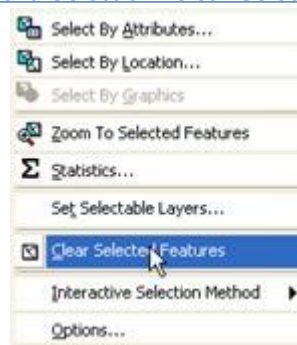
Using this tool you may identify the result of your features.



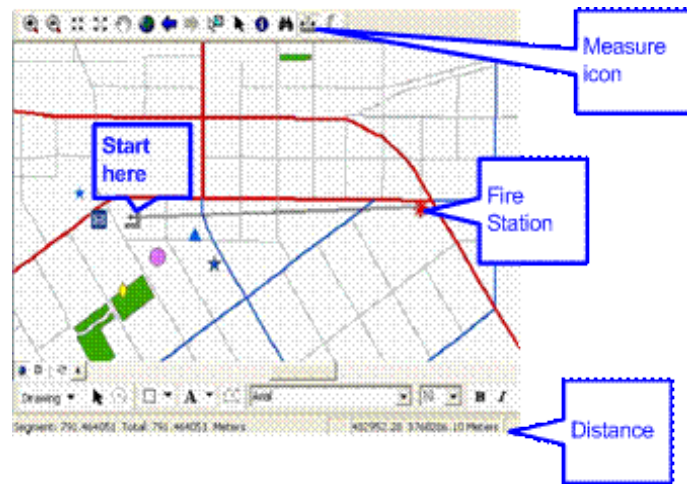
You can also get some statistics on the selected features: Selection –Statistics. Set the layer and field, then you will get the statistics and frequency distribution



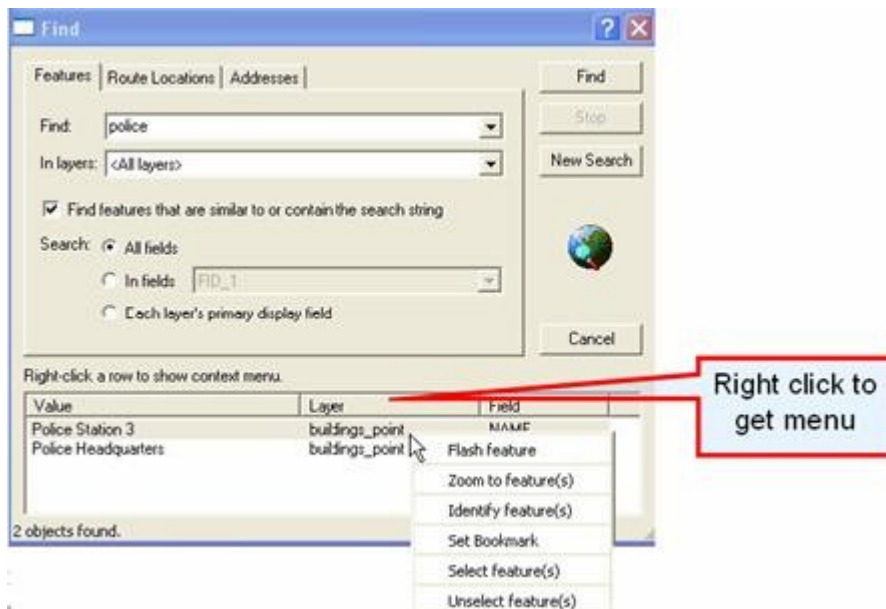
Finally, to remove the selection, use menu Selection- Clear Selected Selection



You can measure distance directly on the map using measure toolbar. For example, you want to know what is the distance from fire station your new building you may click you building as starting point and click the fire station nearby. The distance is in the status bar on the bottom.



Using Find toolbar, you can directly type the feature, route or addresses that you want to locate. For example, you need to find police station, then you can type "police" and you can get the result (provided that your map contain that features).



When you do a right click on the layer, a popup menu will come out and open the attribute table of that layer, do something to some selection or change the properties of that layer.

