



Get Started with Arcmap and working with Vector and Raster data and Plugins and Web Service

Prepared by: Dr.Ashna Zada and mamosta Hawkar
Department: Information Systems Engineering

Components of ArcGIS Desktop

ArcGIS Desktop is comprised of a set of integrated applications, which are accessible from the Start menu of your computer: **ArcMap, ArcCatalog, and (ArcToolbox)**.

Software Products (Licensing Levels)

ArcMap is made up of three software product levels: **Basic, Standard, and Advanced**.

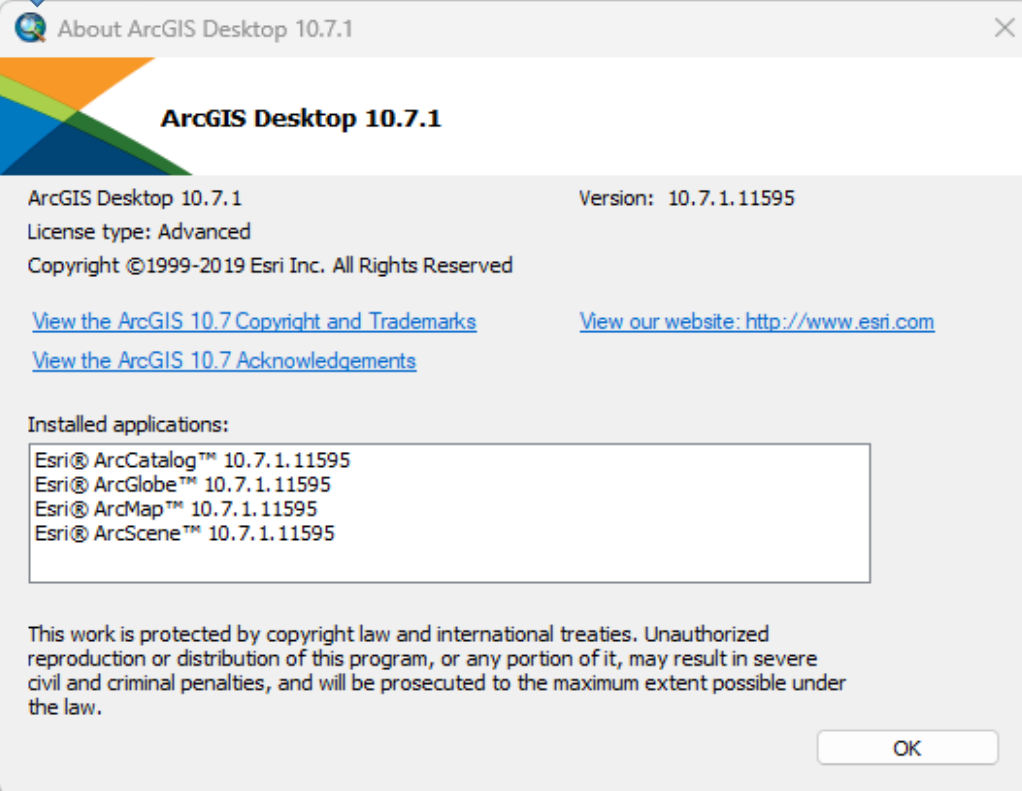
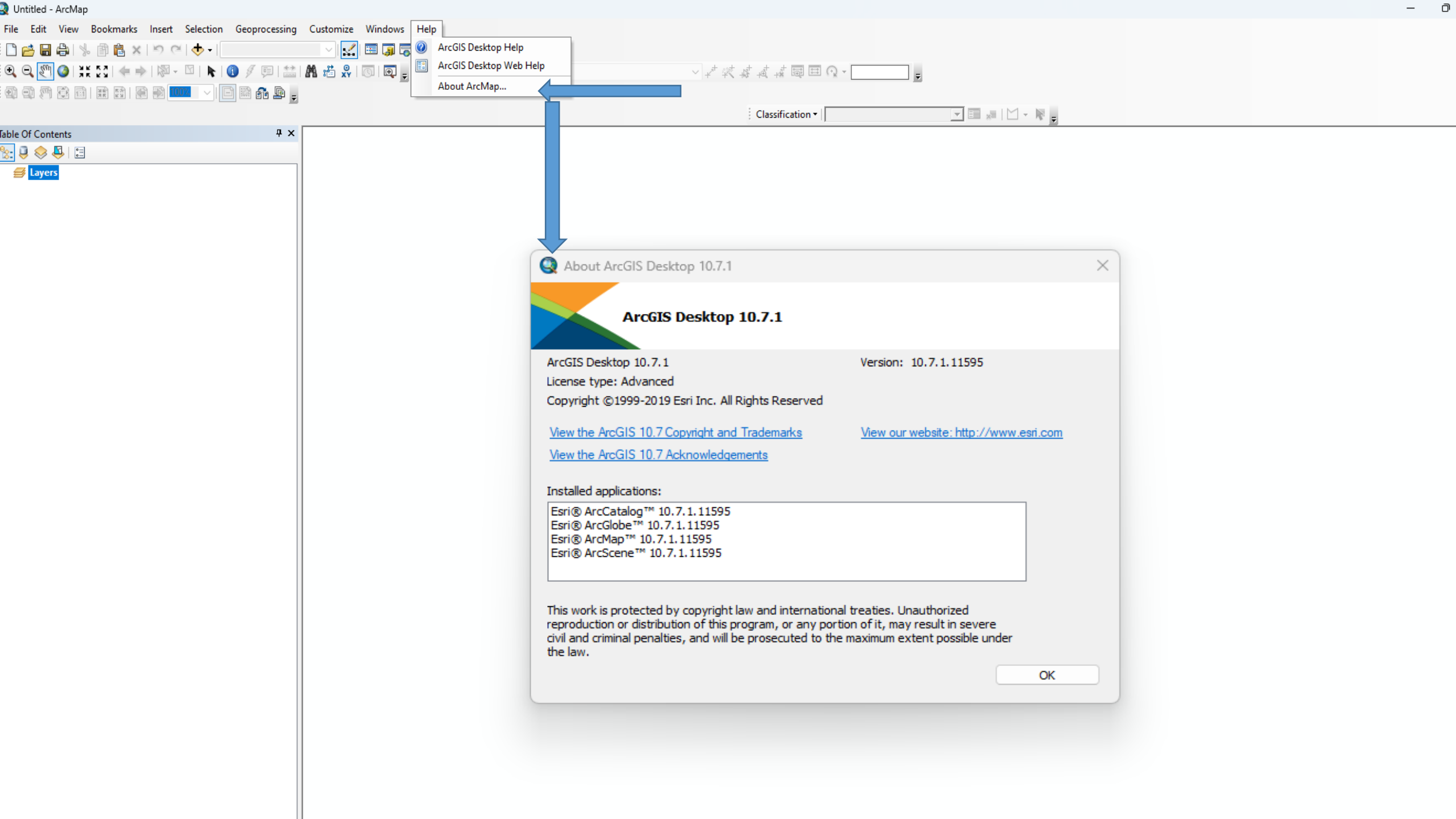
These products share a common architecture but provide increasing levels of functionality.

Basic provides the base mapping and analysis tools.

Standard provides all Basic capability and includes additional processing and advanced editing.

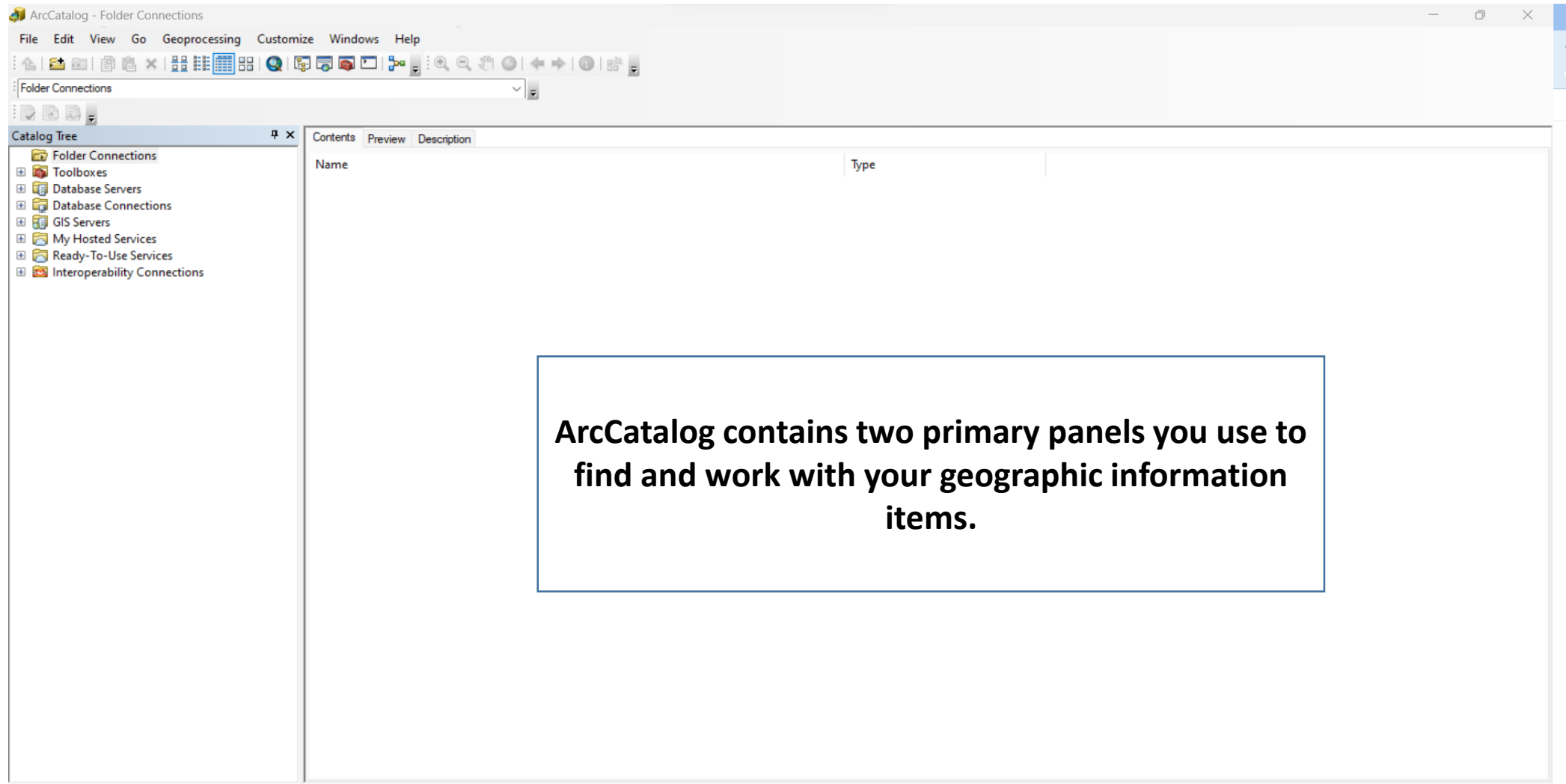
Advanced provides all Standard capabilities plus advanced analysis and processing.

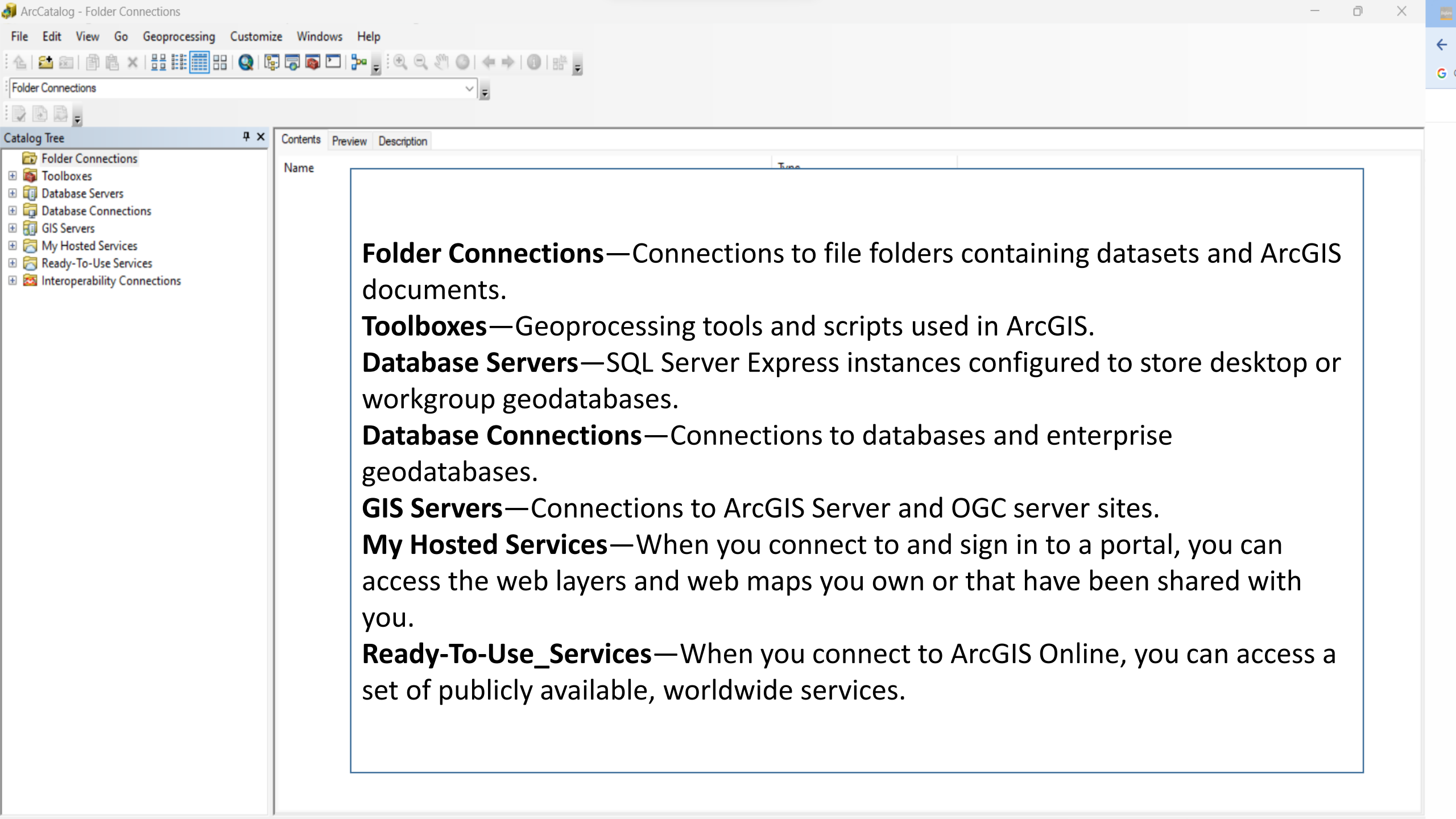
While these levels are crucial to consider when purchasing software, it is also important to be aware of the limitations of the level you are using. I'm using the Advanced level.



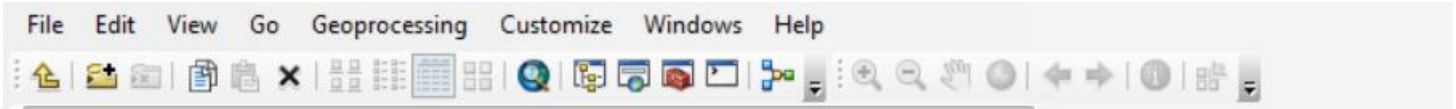
Arc Catalog
















- **Arc Catalog:** used to organize and manage your GIS data. It also allows you to preview datasets and view and manage metadata. Also, it is the center of any GIS project to find and use the data.





Standard toolbar



Button	Name	Function	Button	Name	Function
	Up One Level	Navigates up one level in the Catalog tree		Details	Displays a detailed list for each item on the Contents tab
	Connect To Folder	Connects to ArcGIS contents and documents that are organized and managed in file folders on disk (also called workspaces)		Launch ArcMap	Starts a new ArcMap session
	Disconnect From Folder	Removes the selected folder reference from the Catalog tree (but does not delete any content)		Catalog Tree Window	Opens the Catalog tree window if it is hidden or closed
	Copy	Copies the selected item		Search Window	Opens the Search window
	Paste	Pastes the copied item at the pointer location		ArcToolbox Window	Opens ArcToolbox
	Delete	Deletes the selected item		Show Python Window	Shows the Python window in which you can use Python for geoprocessing
	Large Icons	Displays items on the Contents tab using large icons		ModelBuilder Window	Opens ModelBuilder for creating geoprocessing models
	List	Displays a list of items on the Contents tab			

Geography toolbar

When you use the Preview tab and set the view type to Geography, you can pan and zoom your display using the Geography toolbar




Contents Preview Description										
FID	Shape	Status	Score	Match_type	Addr_type	Match_addr	X	Y		
0	Point	M	100	A	MGRS	38SLB9461794486	43.866983	33.384488		
1	Point	M	100	A	MGRS	38SLB9157794900	43.834255	33.387919		
2	Point	M	100	A	MGRS	38SLB9437337283	43.870983	32.868583		
3	Point	M	100	A	MGRS	38SMB0356690781	43.963579	33.351916		
4	Point	M	100	A	MGRS	38SLB9157794900	43.834255	33.387919		
5	Point	M	100	A	MGRS	38SLB8039292024	43.714402	33.360796		
6	Point	M	100	A	MGRS	38SMB0356890784	43.963601	33.351943		
7	Point	M	100	A	MGRS	38SLB9461794486	43.866983	33.384488		
8	Point	M	100	A	MGRS	38SLB9437337283	43.870983	32.868583		

ArcMap

LAUNCH ARCMAP

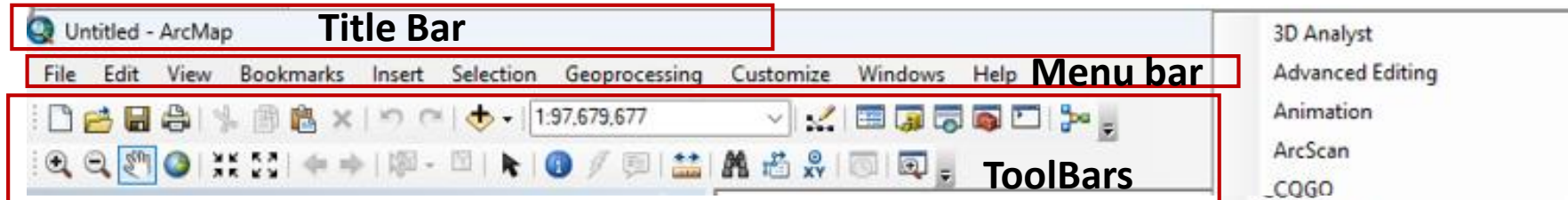
ArcMap can be launched independently or from ArcCatalog. Use one of the following methods to launch ArcMap with "A new empty map" now:

1. You may launch ArcMap by clicking **Start > Programs > ArcGIS > ArcMap**. When prompted, select **A new empty map**.
2. To launch ArcMap from ArcCatalog, click on the ArcMap icon  on the standard toolbar, then select **a new empty map**.

The ArcMap Interface

Key components of the ArcMap interface are:

1. The title bar, menu bar, and toolbars
2. Two side-by-side windows the table of contents and the map display window
3. The status bar

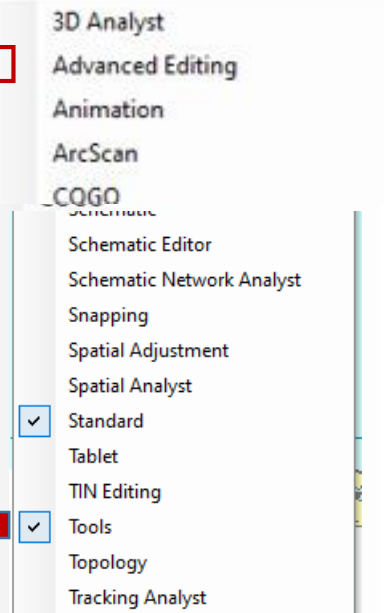


The **Tools Toolbar** includes tools that allow you to interact with the data displayed in the map display window to carry out specific tasks. Typically, the pointer changes when a tool is used.



Zoom in and out control

Pan Control



ArcMap provides a number of other toolbars, such as:

Draw – for drawing graphics and adding text

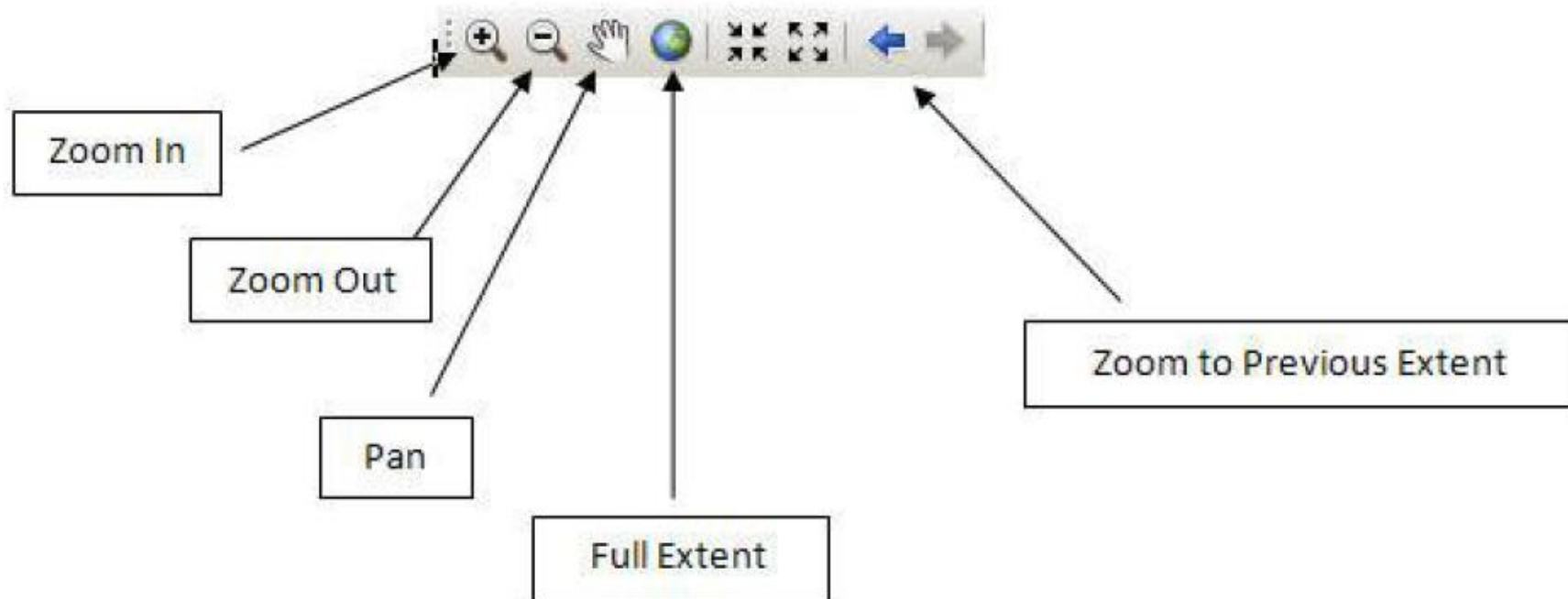
Editor – for editing spatial data

Layout – for working with layouts

Effects – for altering the display of spatial data


Moving Around the Map Display

Now let's examine ways of zooming in and out and panning. The Tools toolbar contains eight buttons that provide zooming functions and allow you to define a custom view of the layer data. Some of the most useful ones are illustrated here.



Identifying Objects

Now let's examine the ***identify tool***. This tool helps us to identify the objects of a layer. It is located on the Tools toolbar and it has the icon with the letter **i** in a blue circle. This tool will display the attributes of a particular layer object. These attributes are actually located in a table that we will discuss later.

To use the identify tool: 

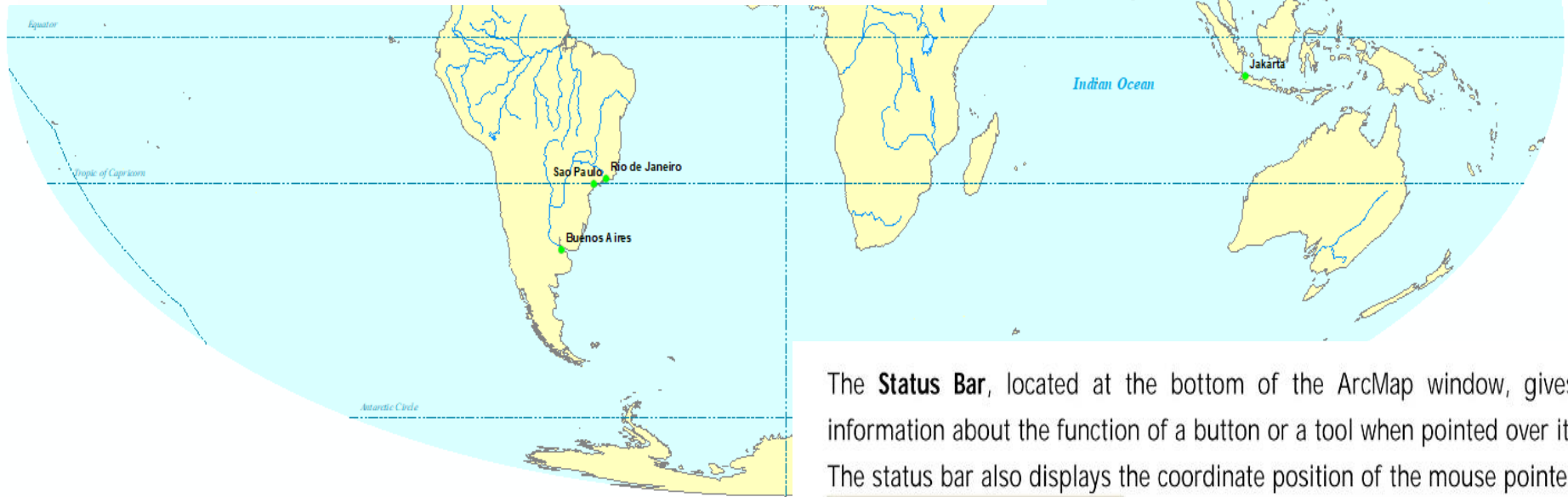
1. **Click the identify tool with the left mouse button.** Your cursor changes to a crosshair with the **i** icon.

When you click on a feature in the map, the Identify Results window will open and you can choose what layers you would like to be able to identify or see what you have identified.

- World
 - ☒ Basemap
 - ☒ Cities (population > 5 Million)
 - |
 - ☒ Geogrid
 - ☒ Rivers
 - ☒ Lakes
 - ☒ Continents
 - ☒ Ocean



The **Table of Contents**, located on the left side of the ArcMap window, lists all of the layers that you have added to your map and shows the symbols that are used to represent the features in each data layer. The check box next to each layer name indicates whether it is currently displayed in the map display window to the right of the Table of Contents (i.e., whether it is turned on or turned off). The order of layers within the Table of Contents is also important. Each **data layer** represents a specific type of feature such as Boundaries, Villages, Water Bodies, Road, Rail, Power Lines etc.



The **Status Bar**, located at the bottom of the ArcMap window, gives information about the function of a button or a tool when pointed over it. The status bar also displays the coordinate position of the mouse pointer

78°25'3.97"E 29°54'38.24"N



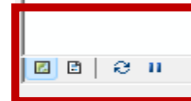
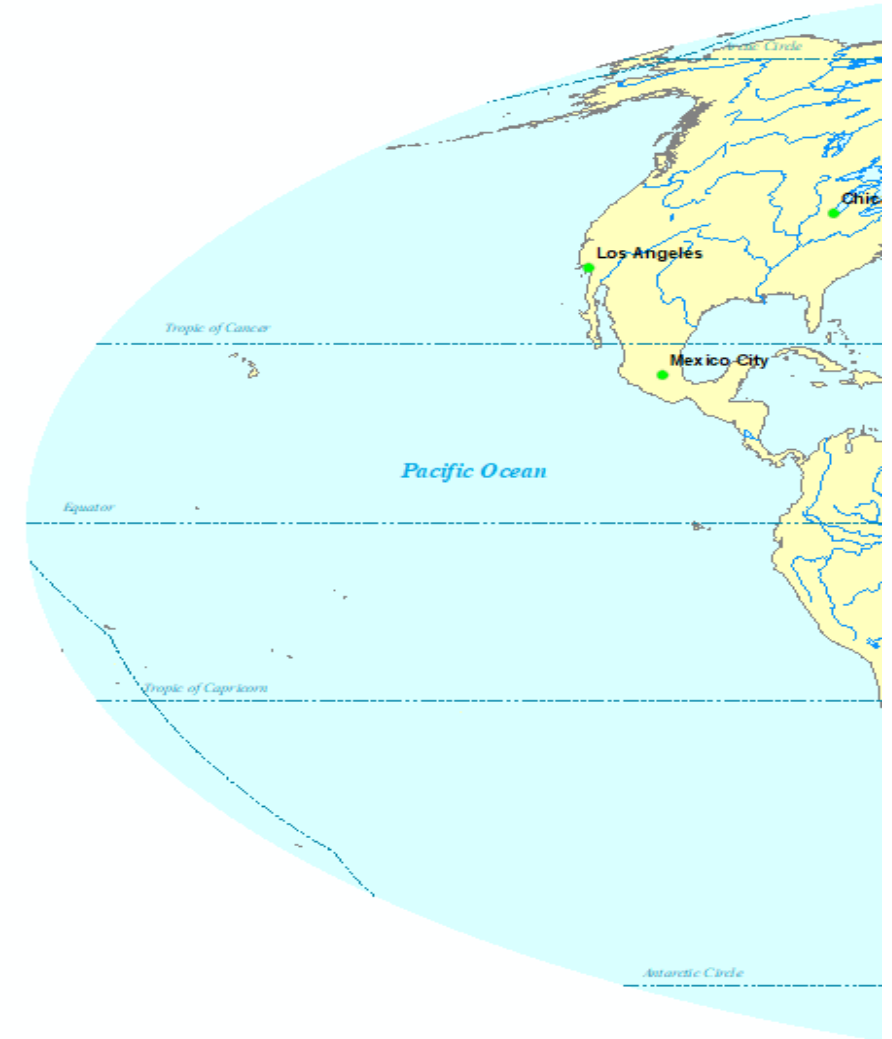
DATA VIEW AND LAYOUT VIEW

ArcMap provides two different ways to view a map: data view and layout view. Data view is used when you want to browse, edit, and/or analyze the geographic data on your map.

Layout view is used to prepare finished maps for printing, presenting and publishing maps.

To switch between data and layout views:

1. Click the **View** menu item and select either **Data View** or **Layout View** from the context menu that appears.
2. Alternatively, you can use the **Data View** and **Layout View** buttons located in the lower left portion of the view window to switch between these two views.
3. When you switch to Layout View, the Layout toolbar is automatically added to the ArcMap window. These tools allow you to zoom in and out, pan, and zoom to set extents



Georeferencing of Raster Data

1. Open your excel sheet and key in the four corners of the image (in Degree Decimal). →
2. aScanned map available as *.tif or *.jpg (other flavours can be used as well, but should be raster)
3. Then Open Arc Map software.
4. Click the add data button on the standard toolbar and navigate to the folder where you already save your data.
5. Make sure the Georeferencing toolbar is tuned on.
6. Then, add the web base map to ensure that the raster data is accurately defined.