

Tutorial 5: Creating a New Data Layer (Shapefile)

Tutorial Content

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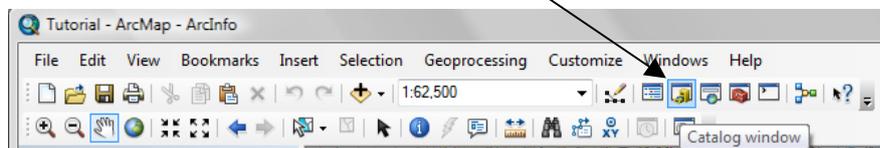
Open your saved tutorial map project.

5.1. Creating a New Data Layer - ArcCatalog

As you have already seen there are 3 types of vector layer in GIS: points, lines and polygons.

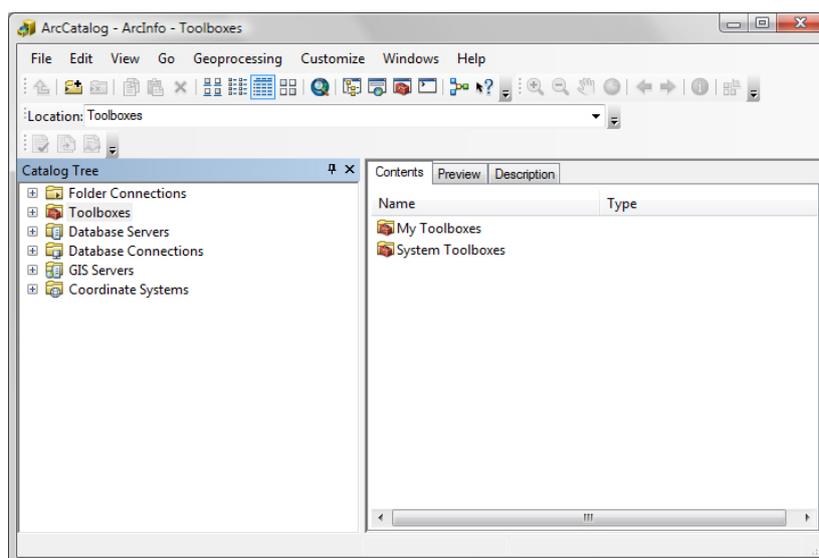
In this tutorial we are going to create a point layer to use in tutorial 6.

First we need to create a new, empty data layer in our .mxd project. To do this we need to use ArcCatalog. ArcCatalog can be accessed from the tab on the right of the map display, or from the ArcCatalog button in the tool bar.



***Note:** ArcCatalog is a bit like a Windows Explorer designed specifically for GIS. ArcCatalog is the best option for copying and moving shapefiles, as each shapefile is made up of 3 individual files and all 3 are required to properly display the layer. However, please note that if you move files out of a project folder, then the .mxd project will not be able to find those files and they will not be displayed on screen unless you 'Add' them again from their new location. Please see the end of Tutorial 1 for further explanation.

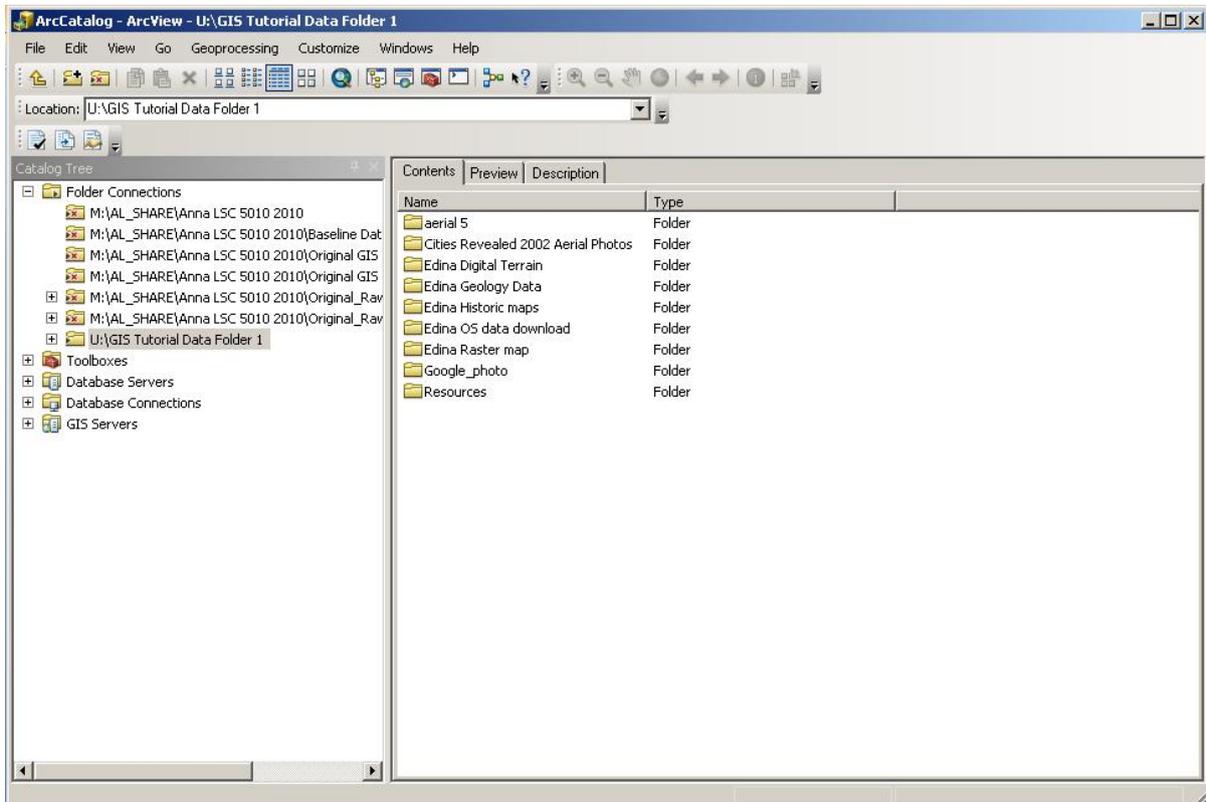
It can also be opened as a separate program window by going to your computers Start menu, Programs, ArcGIS, ArcCatalog 10. This is the best method for moving around shapefiles or folders used in GIS (*see note below).



The **ArcCatalog window** will open. The window should display the drives on your computer.



Use the 'Connect to Folder' button to navigate to the U drive, double click on **U:drive\GIS Tutorial Data Folder 1** to open the tutorial data folders.



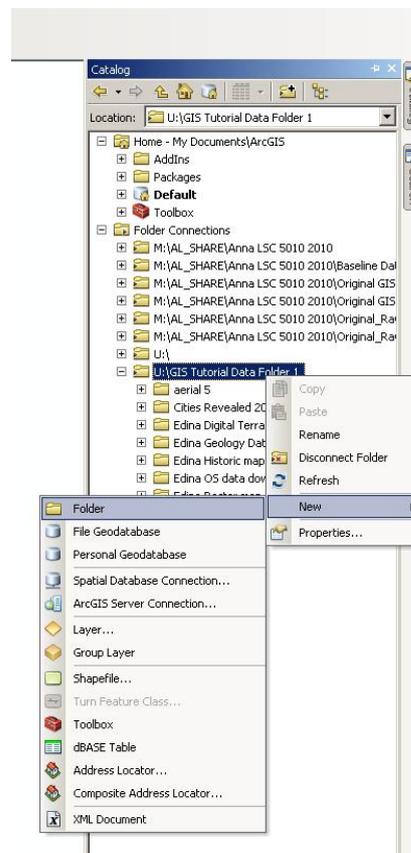
For this exercise we will use the ArcCatalogue tab within ArcMap as it provides quick access to the ArcCatalogue functions.

First we are going to create a new folder to save your data layers in.

Within the ArcCatalog tab on the right of ArcMap, right click on the 'GIS Tutorial Data Folder 1' folder and select **New** from the drop down menu, and then **Folder** from the next drop down menu.

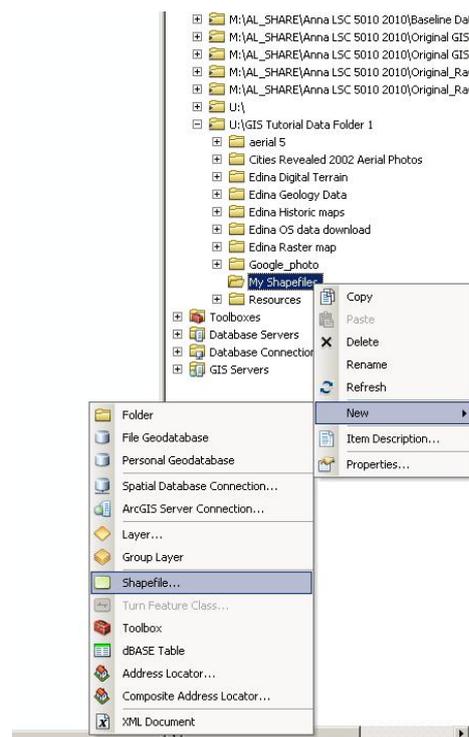
The folder will be added to your list of folders in the ArcCatalog window.

Give your folder an appropriate name. In this case the folder has been called 'My Shapefiles'.



We are going to save our new data layer in the folder that we have just created.

To do this, right click on the new folder and select the option **'New'** from the drop down menu, then select **Shapefile**.



The **'Create New Shapefile'** window will open.

Give your shapefile a name in the **'Name:'** text box.

In this case we are going to create a **'Point'** shapefile, called **'water_mills'**. So, type **water_mills** in the **'Name:'** text box.

We then need to select the **'Feature Type:'** for the new shapefile. There are five options in the drop down menu: Point, Polyline, Polygon, MultiPoint, and MultiPatch.

In this case we want to create a point shapefile and **'Point'** is the default entry so we do not need to change it.

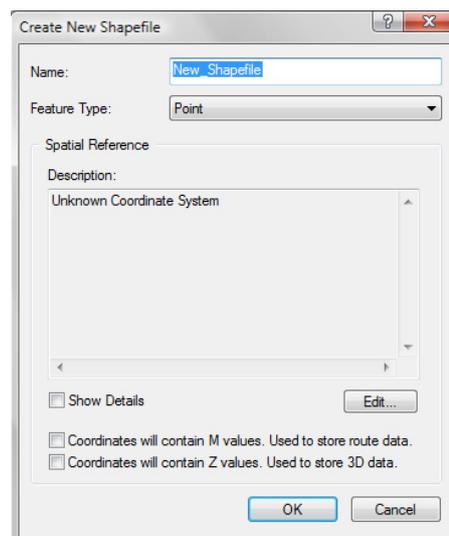
Now we need to define a coordinate system for the shapefile.

a) Defining a Coordinate System

The window indicates that the shapefile has an **'Unknown Coordinate System'**. We are going to use the coordinate system from one of the Ordnance Survey shapefiles. Click **Edit...** Click on the option **Import...**

Browse to the **'GIS OS Map'** folder, in your GIS Tutorial Data Folder on your U:drive. Click on one of the shapefiles and click **Add**. Click **Apply**, and then click **OK**.

Click **OK** in the **'Create New Shapefile'** window. Your **'water_mills'** shapefile will be added to the folder. It should also automatically be added to the **.mxd** project and will be visible in the table of contents.



***Note:** Following these steps you can import the **Coordinate System** to the contour layer: **"Dtmloxley"** previously added into your **.mxd** project in tutorial 1. Locate the Dtmloxley shapefile using ArcCatalog, then **right** click on the shapefile and from the drop down menu click in **Properties**, then select the **XY Coordinate System** tab and import the coordinates from any OS Map Shapefile. This will not be a problem as we know that Dtmloxley has been downloaded from the OS service, therefore they are using the same coordinate system.

***Note:** you can add multiple shapefiles from a folder by holding down the **Ctrl** key and clicking on the shapefiles and then dragging them into the **.mxd** project.

The next tutorial (Tutorial 6) will look at adding data to our **water_mills** point shapefile.

Tutorial 7 looks at adding data to polyline and polygon shapefiles