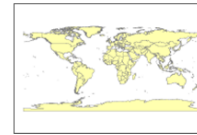# Creating and Editing a New Shapefile

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World Countries 2008
SDC Feature Database

Tags
polygon, countries, international boundaries, coastlines, area, international codes, status, population, boundaries, society, World, 1996, 1998, 1993/1994, 2000, 1994, 2000, 2001, 2000, 1995-2002, 1999, 2002, 2002, 2002, 2002, 2003, 2000, 2004, 2005, 2004, 2004, 2006, 2006, 2007, 2006, 2006, 2008, 2006

Summary
There is no summary for this item.

Description

Before you start the process of physically creating a new data layer, you need to have thought through the data design issues for both the geographic part (point, line, polygon?) and the attribute table (what information do you need in the table, will you use codes, what type will each field be, how long does each field need to be, what will be the field name, taking account of the 11 character constraint, plus no spaces).

Creating the geographic feature (point, line, or polygon)

First, create a new shape file in **ArcCatalog** by using the **File-New** menu. Note that you must already have navigated to a folder in which you have permission to create new files (i.e. not the M: Drive), otherwise when you choose File-New, there will be no options for shapefile.
When you choose **File-New**, you must specify a new shapefile *name* and *feature type* (point, line, or polygon). You should also specify a *coordinate system* by pressing the **Edit...** button. If you are creating a shapefile in the same coordinate system as Massachusetts data, the coordinate system should be *State Plane - NAD83 (meters) – Massachusetts Mainland*. You can specify this either by pressing **Edit**, then **Select**, then choose **Projected Coordinate Systems**, then navigate to the desired coordinate system. Or you can press **Edit**, then **Import**, then navigate to an existing shape file from MassGIS for which the coordinate system is specified.

Creating the attribute table

The creation of the attribute table for a new shapefile is separate from the creation of the shapefile itself. Once you have created the shapefile as described above, you need to find that shapefile in ArcCatalog.

In *ArcCatalog*, **right-click** on the new shapefile and choose **Properties**
Click on the **Fields** tab and add your new fields. For any fields you add, you will need to *name* the field (maximum of 11 characters, no spaces, or special characters), define the *field type*, and depending on the type, define the other *field properties* of that field (e.g., length - make sure the length is long enough to fit your longest value). You can add to these later, but this is the easiest place to set up a table. It is a

good idea to put in an *area* field (make the type *double*, a kind of numeric field type) and any other fields you know you will need.

## Starting the Metadata documentation

Now is the best time to start your metadata documentation. While still in ArcCatalog, click on your new shapefile, then on its **description** tab (to the right of Contents and Preview). For a new shapefile, no information is given in the metadata. You will switch the metadata data to FGDC template (For more information on this metadata style
http://help.arcgis.com/en/arcgisdesktop/10.0/help/index.html#//003t00000008000000)

1) First, in the **Customize** pull-down, select **ArcCatalog Options**.
 2) In the Options window, click on the **Metadata** tab and choose FGDC CSDGM Metadata style in the pull-down.

3) Left-click onto the **Edit** icon to start creating the metadata for the shapefile.
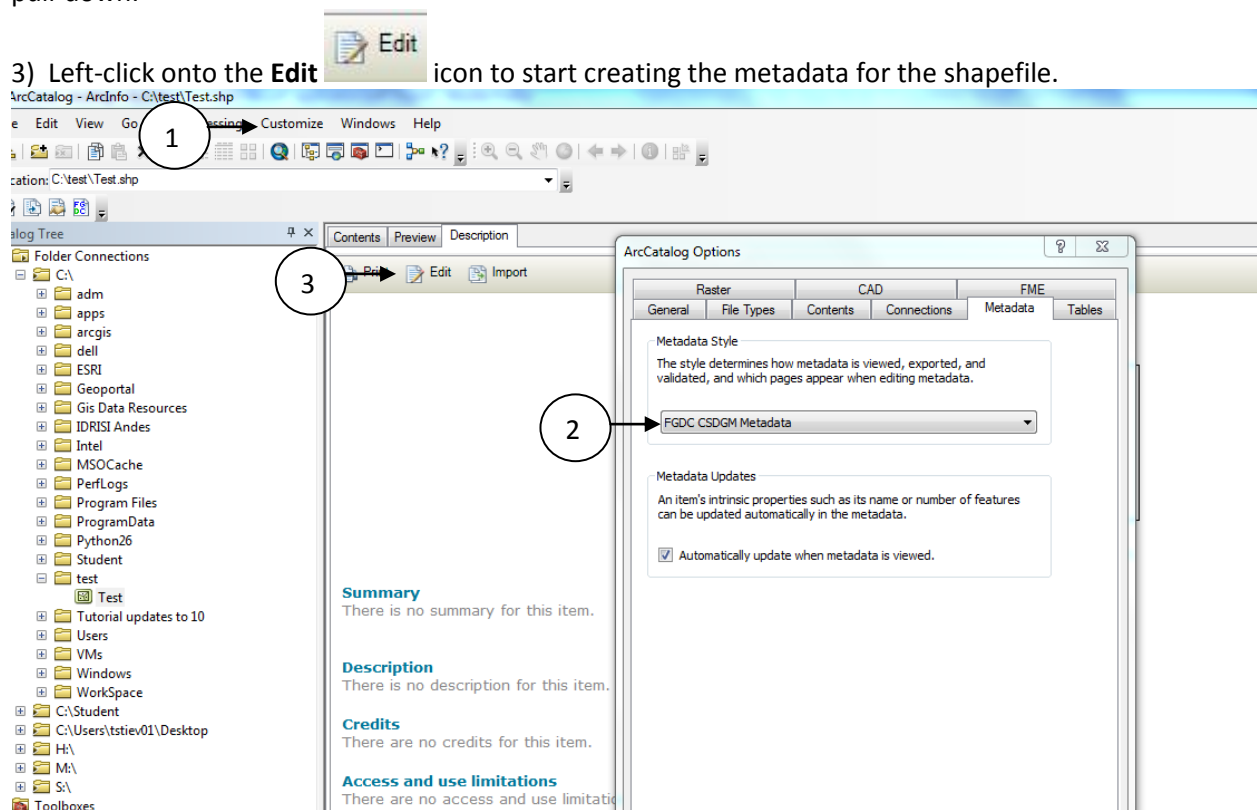
Use the Table of Contents (TOC) on the left to navigate through the metadata. Start with the **Item Description** and fill in the essential information such as **title, tags (keywords), summary and description**.
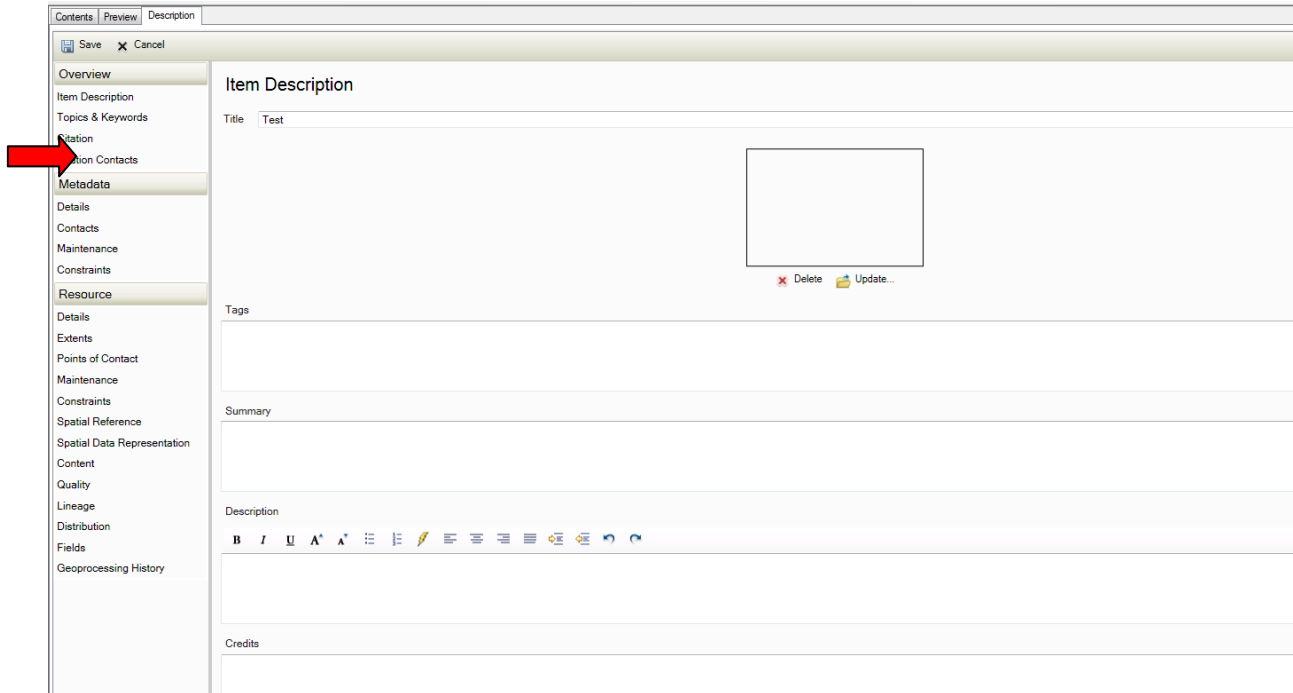
Next go to 1) **Fields** in the TOC to give a definition to your new fields and code definitions (domain values). 2) Click on **Attribute** to populate each variable with needed information, such as label and definition of the variable.
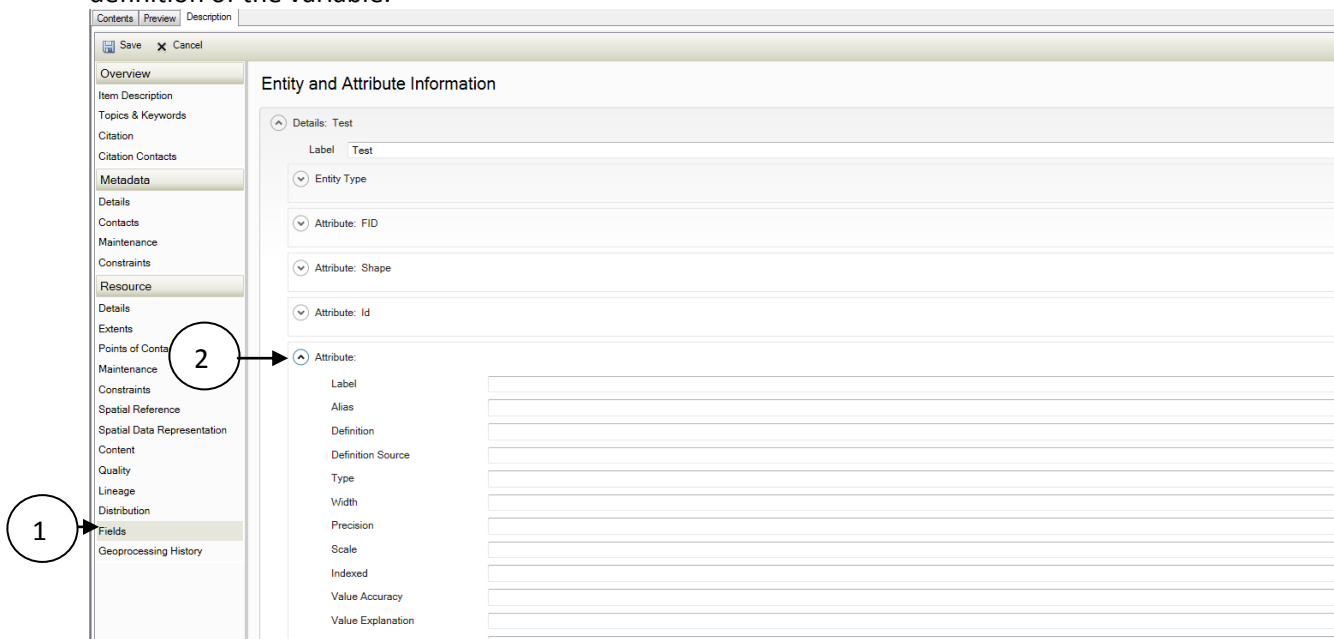
For each attribute, you can define the *domain* as well. This means defining the kinds of values permitted, e.g., a set of specific codes that you have created (enumerated domain), a range of values from minimum to maximum (range domain), the use of an existing standard code (codeset domain), or specifying that the values cannot be defined in advance (unrepresentable domain).
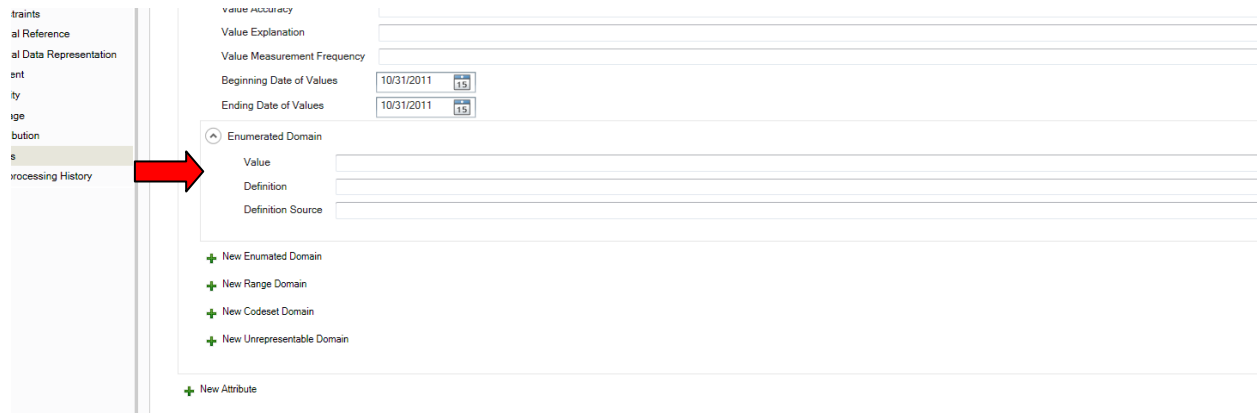
If you know the data source you are using you can go to **Data Quality** and define the data source. The process steps are also defined under **Data Quality**.

When you are done, press **Save** and check out your work. You can view it either in ESRI stylesheet format or the FGDC format or the FGDC FAQ format.

Adding and editing geographic features and attributes in ArcMap

You can now add the new (empty) shapefile to ArcMap to begin the actual digitizing process. Nothing will show on the map because there are no features in the shape file yet.

Once you have added the shapefile, make the **Editor** toolbar visible (choose **Tools-Editor Toolbar**). Follow the instructions in *ArcGIS Desktop Help* or the digital manual for *Editing in ArcMap* - creating new features. Always remember to look at the **Editor toolbar** to make sure you are performing the right task (e.g., creating a new feature) in the correct shape file.

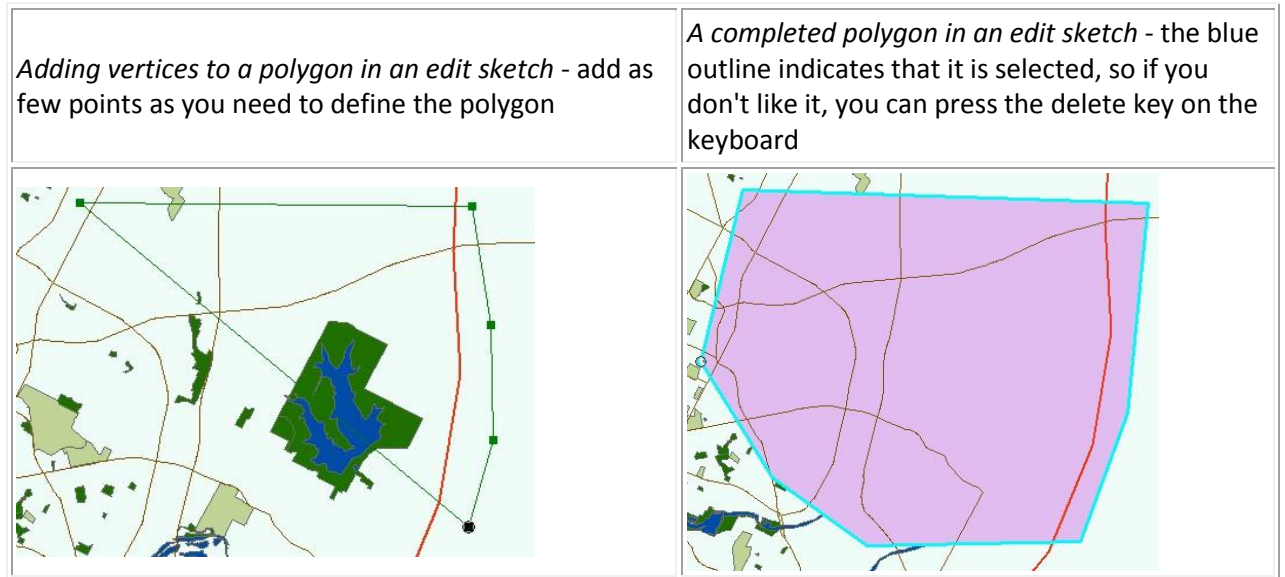## Creating a new geographic feature in ArcMap:

- Open ArcMap
- Add the new shape file you just created
- Bring up the *Editor* toolbar by choosing **Customize-Toolbar-Editor** or clicking on the editor icon


- In the *Editor* toolbar pull-down, choose**Start Editing**. The file you want to edit is your new shapefile. A new window opens on the right appears called **Create Features**.
- You are now ready to create the new feature. To do this, 1) select the layer you want to work with in the Create Features window. 2) In the bottom panel **Construction Tools** new options appear. In this case, we are make a **Polygon**, so left-click on that option.
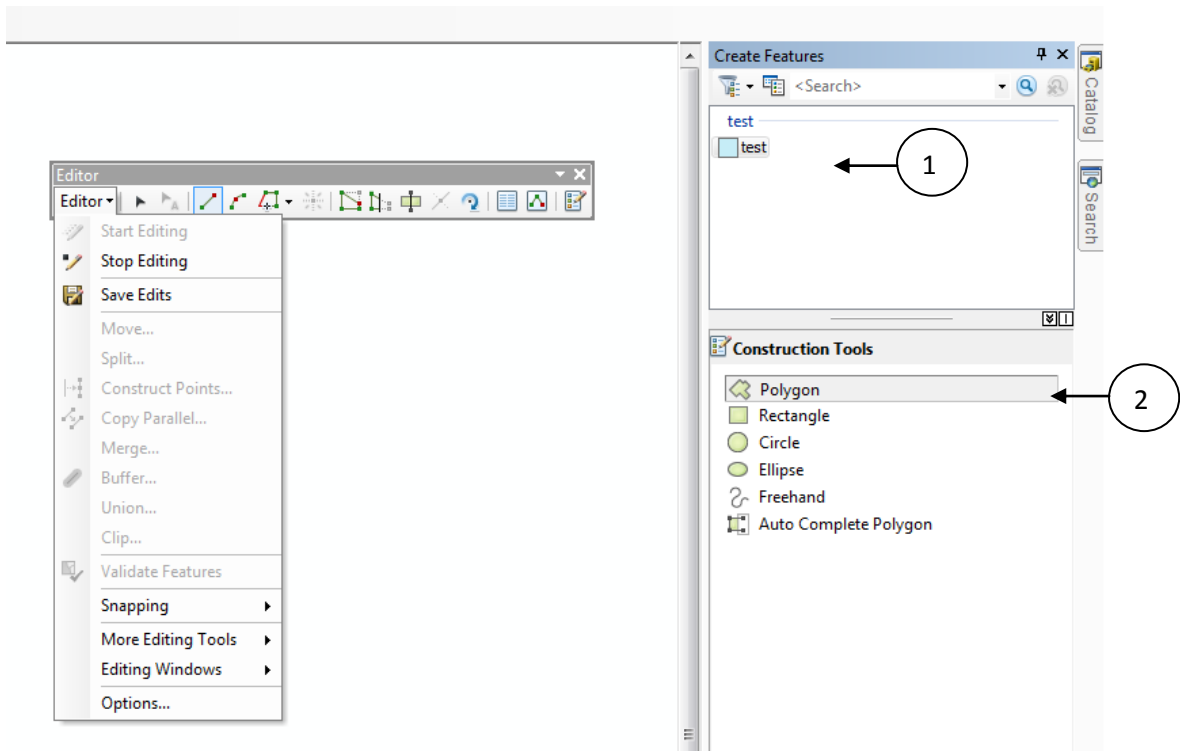
- Place the *cursor* on the map where you want to begin your new polygon feature - you should see a circle with a cross-hair in it, and *click once*. Then go to the next point that defines your polgyon and *click* again. Continue doing this until you are almost back to the last point. To *close* the polygon, *double-click on the next-to-last point,* or press *F2* after the next-to-last point. If you get messed up, you can either double-click to finish, and then press the *Delete* key on the keyboard, or you can *right-click* and choose *Delete Sketch*. It may take a few attempts to get it right.

Adding vertices to a polygon in an edit sketch - add as few points as you need to define the polygon	*A completed polygon in an edit sketch* - the blue outline indicates that it is selected, so if you don't like it, you can press the delete key on the keyboard

- When you have a boundary polygon complete for your area, Click on the **Editor toolbar's Editor** and choose **Save Edits**.
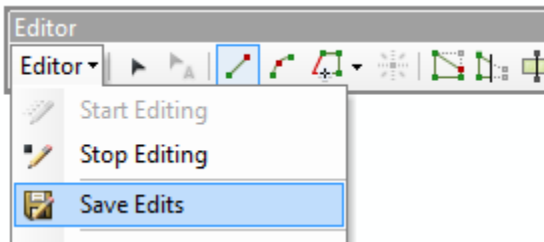
- You can add attribute information at this point or later. To add it now, click on the **Attributes** icon in the *Editor Toolbar* :

- This opens a box on the far right with the selected feature's attributes available for editing – you can click and type in the added fields.

- Be sure to save your edits again when finished (**Editor – Save Edits**)
- Get out of editing mode by choosing **Editor-Stop Editing**