

Creating Data: Editing

ISTC Topic:

7.1

In this Chapter you will learn

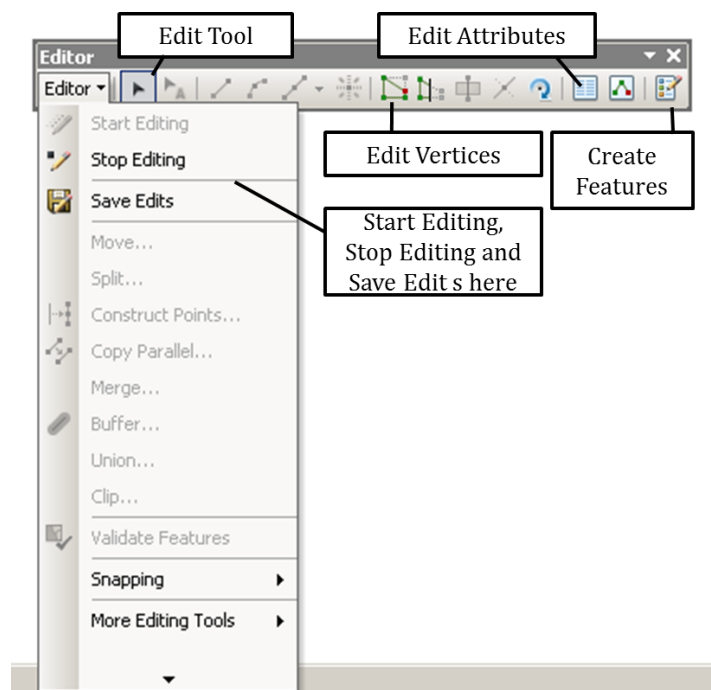
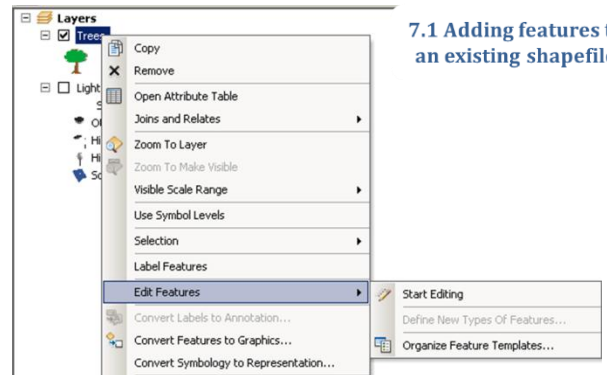
- How to create new shapefile and edit them
- How to use the template to simplify editing different feature types
- How to set up a simple personal geodatabase with a feature dataset and a feature class



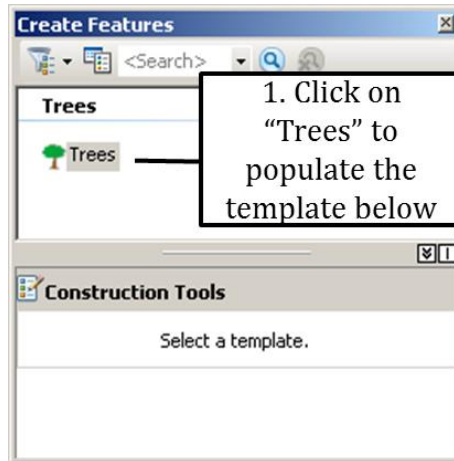
7.1 Adding features to an existing shapefile

Exercise 1: Adding features to an existing shapefile

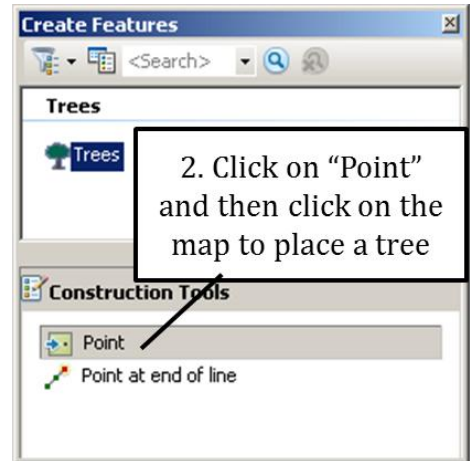
1. Open Exercise1.mxd from the Topic7_1 folder. This map has two point shapefiles.
2. We will edit the trees first. Right-click on the Trees layer and click on Edit Features > Start Editing as shown on the right.
3. A number of new items will automatically appear on your screen. One of them is the edit toolbar which is shown below.



4. Follow the instructions on the right and place between five and ten new trees on your map – anywhere you want.



5. On the Editor Toolbar click “Save Edits” and then “Stop Editing”. In the table of contents turn off the Trees layer and turn on the Lights layer.



6. Right-click on the Lights layer and click Edit Features > Start Editing.
7. Notice that the Create Features dialog has different templates for the different types of lights. Assume you want to add some new Highway light. Click on Highway and then on the Point Construction Tool at the bottom. Click on your map to add three Highway lights anywhere you want.



8. Click on the Solar Template and add a couple of Solar Lights. The use of templates for editing is new in ArcMap 10 and especially handy in cases like this where there are different types of light, roads, parcels, etc. that can be attributed and symbolized quickly by choosing a template and then creating the new feature.

9. Save your edits and stop editing.

Exercise 2: creating and editing a new shapefile

1. Open Exercise1.mxd if not already open.
2. Open the ArcCatalog window inside ArcMap (hint: click on “Windows” along the top of your screen inside ArcMap and then choose “ArcCatalog”).
3. Browse to the Topic7_1 folder in the ArcCatalog window. Then right-click on the Topic7_1 folder and follow the directions below to create a new shapefile.

1. Type “Pathways” for the name

2. Use drop-down box to choose Polyline as the Feature Type

3. Click “Edit” to choose a Coordinate System

4. Click Import

1. Right-click on Topic7_1 Folder and choose New > Shapefile

5. Browse to Trees shapefile in the Start folder. We will use the same coordinate system as this layer

6. Click Add

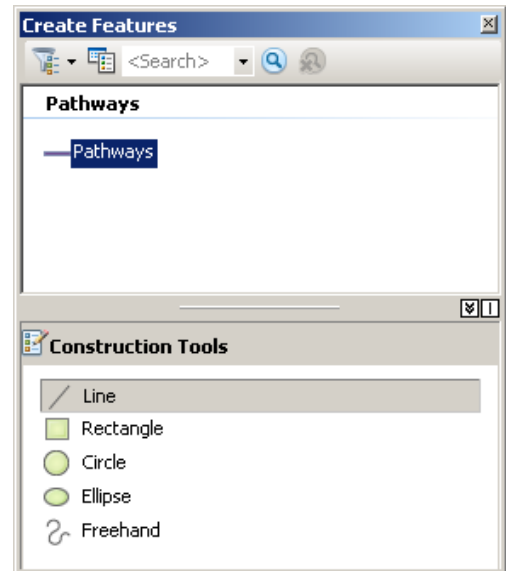
7. Click OK

8. Note that the coordinate system has been added

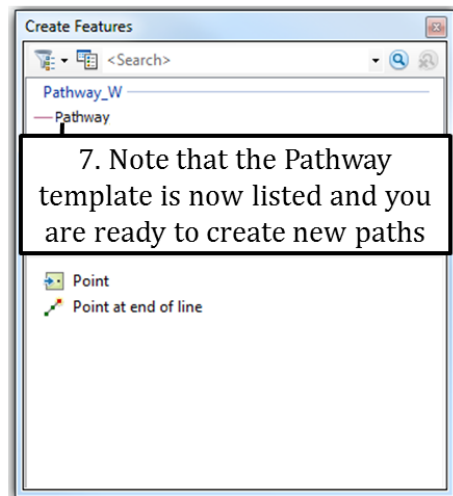
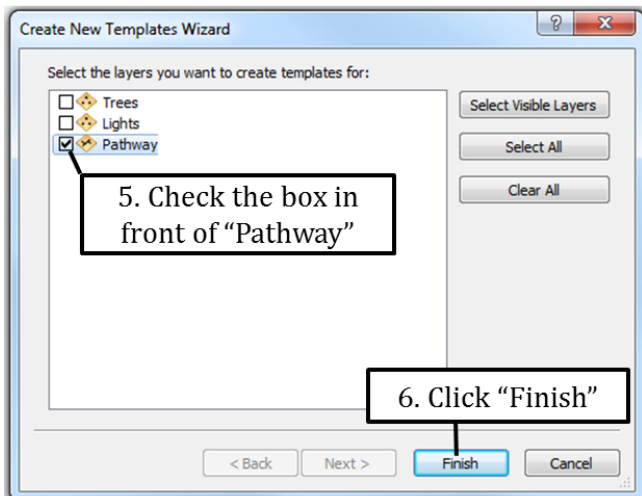
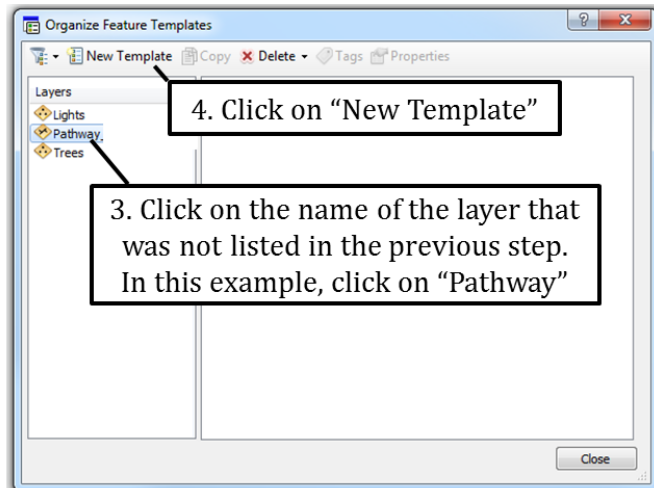
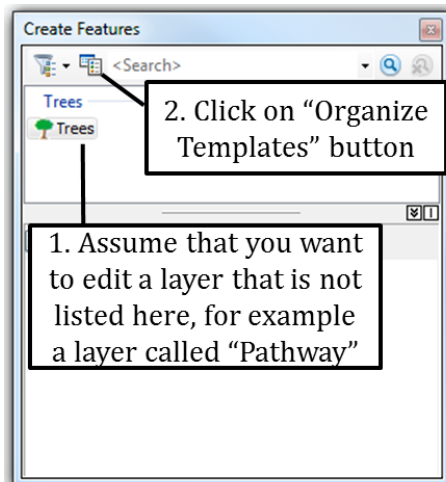
9. Click OK

4. Add the new Pathways shapefile to your map. Right-click on this new layer and choose Edit Features > Start Editing. Click on the Pathways symbol near the top of the Create Features dialog box to generate the construction tools shown on the right.

5. Try using all five different construction tools to add new polyline features to your map. It is important to remember that even though some of the tools, such as Rectangle, Circle and Eclipse, may seem to create polygons (a feature with an area) you are in fact not – you are only creating lines and nothing more.
6. Save your edits and stop editing. Leave your map open if you plan to move on to the next exercise.



HELP! I am not seeing my layer in the Create Features Dialog box





7.1 Editing Point Features

Exercise 3: Editing point features

1. Open Exercise3_mxd from the Topic7_1 folder. This map has a point, line and polygon layer that we will edit.
2. Right-click on Trees and choose Edit Features > Start Editing

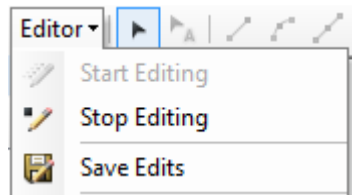
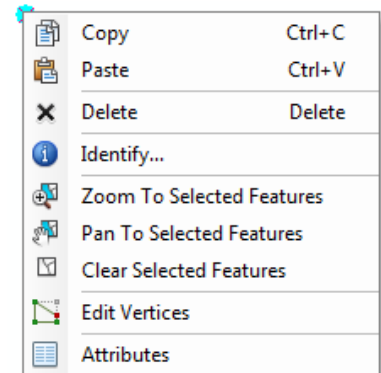


3. Zoom in to a clump of trees. Click on Edit tool and then click on one of the trees to select it: ✖
4. Once selected, hover your mouse (which is still the edit tool) over the selected point and note that your mouse changes into a four-headed arrow. Once you see that four-headed arrow go ahead and click and drag this point to a new location.

5. If you do not like the new location for your tree click on the undo button on the Standards toolbar.



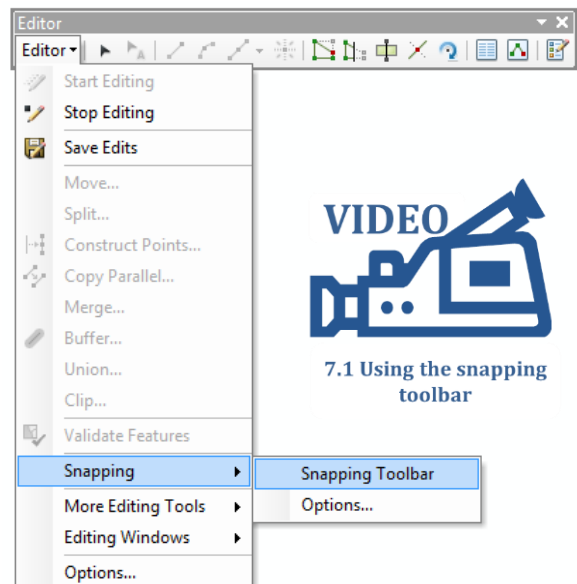
6. Practice moving a couple more trees
7. Click on a tree with the Edit Tool to select it. Then right click to see the context menu displayed on the right. Experiment with the Identify... and Delete options in this menu.
8. Select another tree with your Edit Tool and click the delete button on your keyboard to delete the point.



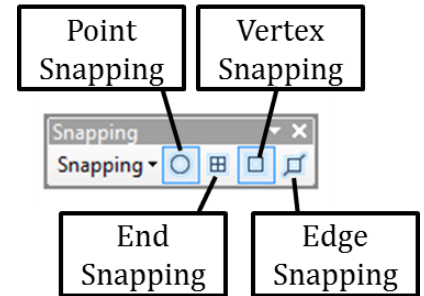
9. Click on Editor > Save Edits and then on Editor > Stop Editing.
10. Leave your map open if you are moving on to the next exercise.

Exercise 4: Using the Snapping Toolbar

1. Open Exercise3.mxd from the Topic7_1 folder (if not already open from the previous exercise).
2. Click on Editor > Snapping > Snapping Toolbar as shown on the right.



3. Snapping helps you avoid gaps and overlaps when you are placing or moving points or vertices. It does this by “pulling” your mouse to a nearby point, vertex, line end or feature edge when your mouse gets close to any of those areas. For example, if you need to place a point feature at the end of the line, using “End Snapping” will ensure that this point sits at the exact same geographical location as the end of the line you are snapping to.



4. Click on the various buttons on the Snapping Toolbar and note that you can turn each type of snapping on and off. Snapping is on when you see a light-blue box around the tool. In the figure above the Point Snapping and Vertex Snapping are turned on, while the End and Edge Snapping are turned off.

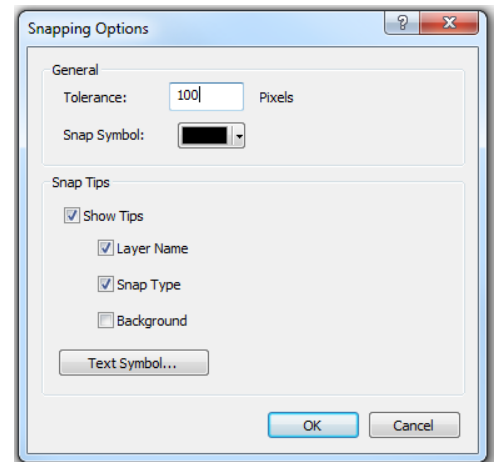
5. Turn the Point Snapping on and all the other snapping tools off.

6. Click on Bookmarks > Point Snapping.

7. Start an edit session for the Trees layer (Hint: right-click on Trees and choose Edit Features > Start Editing).

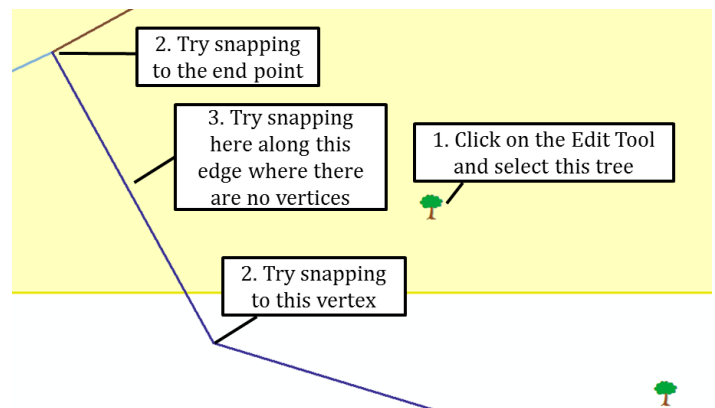
8. Click on the Edit tool and click on the tree on the left to select it. Then slowly move the tree on the left towards the tree on the right. Note that, when you get close to the tree on your right, your mouse is pulled – or snapped – to the tree on the right. Move your tree back to its original location.

9. Click on Editor > Snapping > Options and change the tolerance to 100 as shown on the right.



10. Click on the Edit tool and click on the left tree again. Try moving it towards the tree on the right. Do you notice a difference compared to previous tolerance setting? When you set the tolerance you need to find the right balance between making snapping easy (larger snapping tolerance) but not being inadvertently pulled to a nearby point you do not want to snap to (smaller snapping tolerance). Click on Bookmarks > More Snapping Practice. Note that each Road polyline has a different color.

11. Turn all the buttons off on your Snapping Toolbar. Turn on the Vertex Snapping and try snapping to all the points in the figure on the right.



12. Turn all snapping tool off again and turn on the edge snapping. Again try snapping to all the point in the figure on the right. Repeat with only the end snapping turned on.



7.1 Editing Line Features

Exercise 5: Editing line features

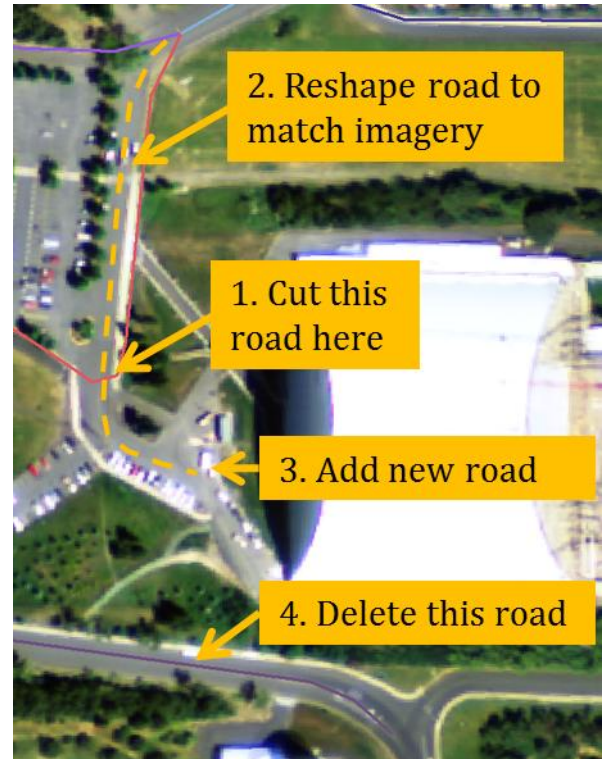
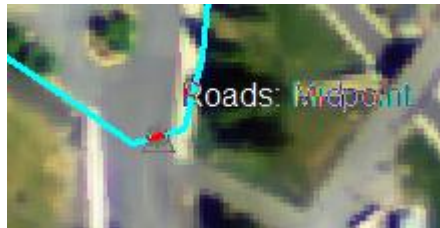
1. Open the Exercise5.mxd from the Topic7_1 folder. In this map you see a number of Roads on the University of Idaho campus in Moscow, Idaho.
2. Click on Bookmarks > Edit_Area and turn on the Stadium layer.
3. The figure on the right shows the various edits we will be doing in this exercise.
4. Right-click on the Roads layer and choose Edit Features > Start Editing.
5. Click on the Edit tool and then on the road we are planning to cut (see step 1 in the figure on the



Split Tool

right)

6. Click on the Split Tool and then click on the road (see figure below)

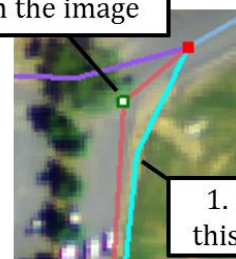


7. Click on the Edit Tool and click on the road segments you just split to make sure the cut was successful.
8. Use your Edit Tool to select the road segment that needs to be reshaped according to step two in the figure above.
9. Click on the Edit Vertices button as shown on the right. Note that you can now see the vertices which look like little green and red squares.
10. Hover you mouse over the vertex indicated in step one in the figure on the right until it changes shape. Then click on the vertex and drag it to the location indicated by step 2. If you find that your mouse wants to snap to other



Edit Vertices

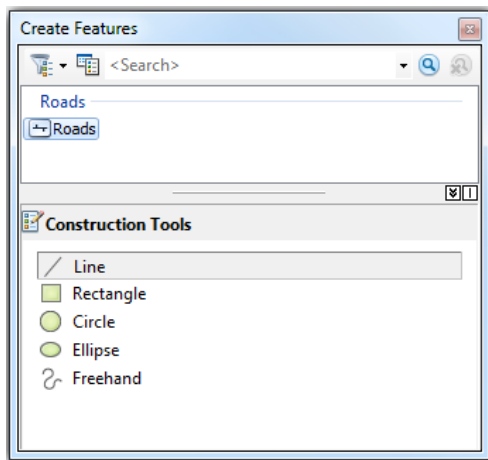
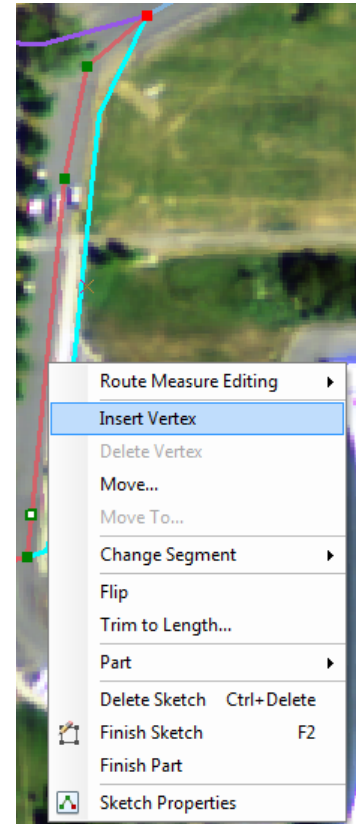
2. .. and move it over here to the middle of the road on the image



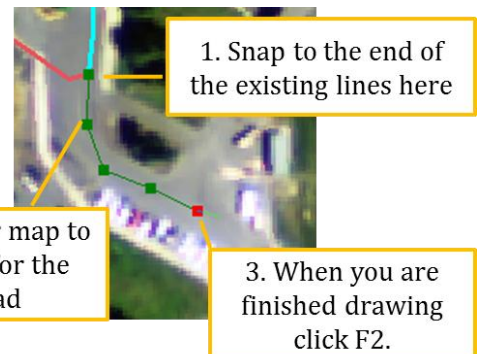
1. Click on this vertex...

nearby features change the snapping tolerance to 10 (hint: Editor > Snapping > Options).

11. Hover over any of the other vertices with your Edit Tool, and then drag the vertex to the middle of the road.
12. To insert a vertex you have to right-click on the line where you would like to add a vertex. In the context menu that appears – and which is also shown on the right – click on “Insert Vertex”.
13. Hover, click and drag your new vertex to the center of the road.
14. To delete a vertex you need to right-click on a vertex and choose “Delete Vertex”.
15. To finish your sketch either click on F2, or right-click anywhere on the line you are editing and choose “Finish Sketch”.
16. Next, we will add a new road segment.
17. Turn “End Snapping” on
18. Click on “Roads” in the Create Features window on the right hand side of your screen. (Hint, if you do not see the Create Features window click on Editor > Editing Windows > Create Features).



19. Click on the Line Construction tool and then follow the directions on the right to draw a new road. Save your edits.
20. Finally we will delete a road segment. Go to Bookmarks > Delete_Road.
21. Use your Edit tool to select the road that runs through the middle of your screen. Click on the delete button on your keyboard, or right-click and choose Delete.



Exercise 6: Editing Parcels



7.1 Editing Parcels

Part 1: Reshape a parcel

1. Start ArcMap and open the Exercise6.mxd from the Topic7_1 folder.
2. First we will reshape an existing parcel. Click on Bookmarks > Reshape Parcel
3. Right-click on the Ex6_Parcels layer and choose Edit Features > Start Editing
4. Turn on the Ex6_Image.tif layer in your table of contents
5. Click on the Edit Tool, and then click on parcel 13 to select it

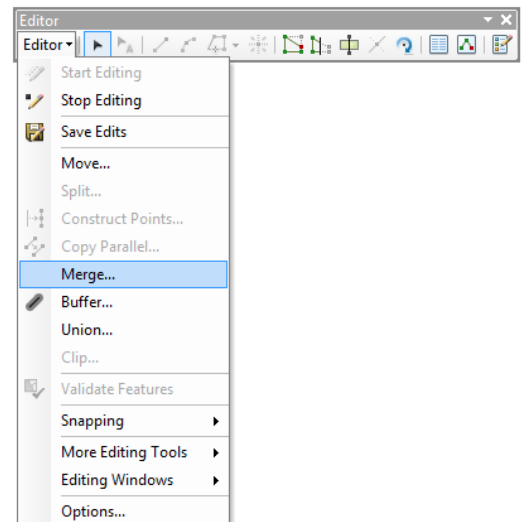
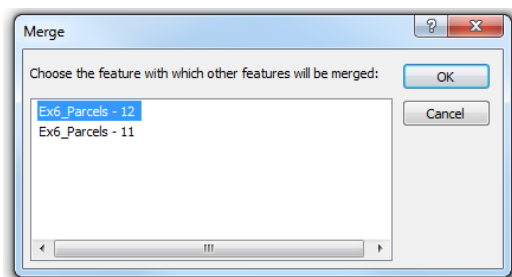


6. Click on the Edit Vertices tool to expose the vertices for this parcel.
7. Hover your mouse over the vertex in the south-east corner of parcel 13 until the mouse changes shape. Then drag the vertex to a new location as shown in the figure on the right.
8. Move all the vertices along the eastern side of the parcel so it matches the figure on the right. Save your edits.
9. Save your edits when you have finished shaping the parcel.



Part 2: Merge two parcels

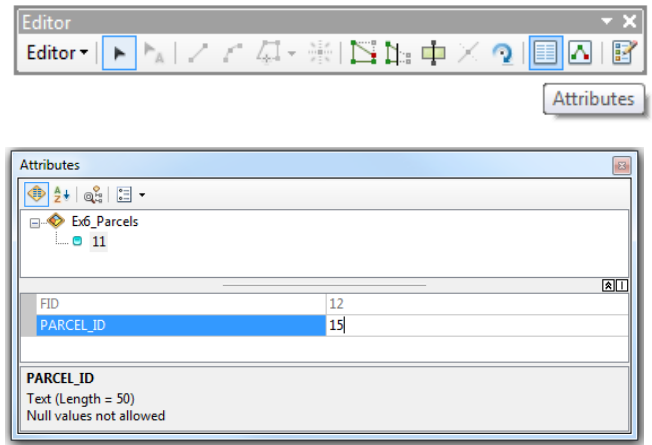
1. Go to Bookmarks > Merge
2. Click on the Edit Tool (hint: if the tool is greyed out you need to start an edit session first) and select parcel 11 and 12. You can do this by clicking on parcel 11 to select it and then, while holding down the Ctrl button, clicking on parcel 12.
3. Click on Editor > Merge as shown on the right.



4. Click on each of the parcels in the Merge dialog box that appears above and note that each parcel is briefly highlighted on your map. Then click on Edit_Parcel - 11 since we would like to keep the attributes for this parcel and discard the ones for Edit_Parcel - 12.

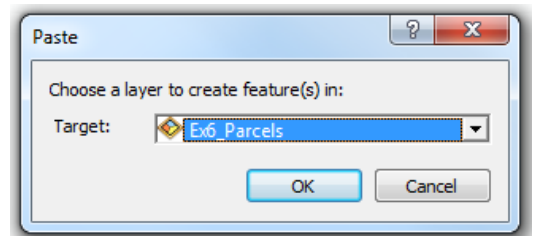
Part 3: Edit parcel attributes

1. Select Parcel 11 with your Edit tool and then click on the Attributes button.
2. Change the PARCEL_ID to 15 as shown on the right.
3. Save your edits



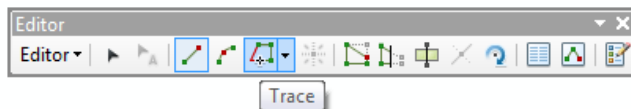
Part 4: Copy and paste a parcel

1. Turn on the New_Parcel layer in the Table of Contents
2. Click on Bookmarks > Copy and Trace
3. Right-click on the New_Parcel layer and choose Selection > Make this the only selectable layer. In this exercise we will copy the black parcel 1 and then paste it into the Ex6_Parcels layer.
4. Click on the Edit tool and then select the black parcel 1 from the New_Parcel layer.
5. Click on Edit along the top of your screen and choose "Copy"
6. Click on Edit along the top of your screen again and choose "Paste"
7. In the Paste dialog box shown on the right set the target to the Edit6_Parcels layer and click OK
8. Save your edits

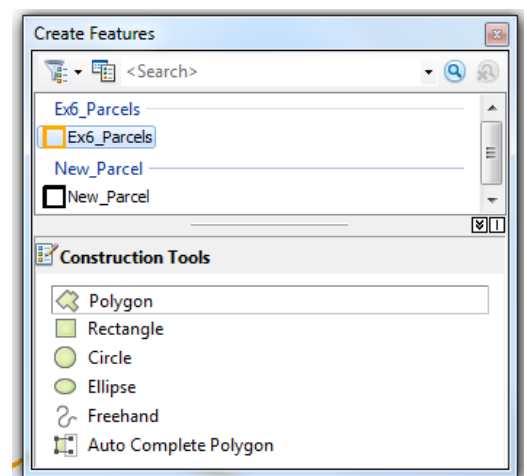


Part 5: Use the trace tool to draw a new parcel

1. Click on Ex6_Parcels in the Create Features Dialog box and then click on the Polygon construction tool. Hint: if you do not see the Create Features dialog box make sure you are in an edit session and then click on Editor > Editing Windows > Create Features.

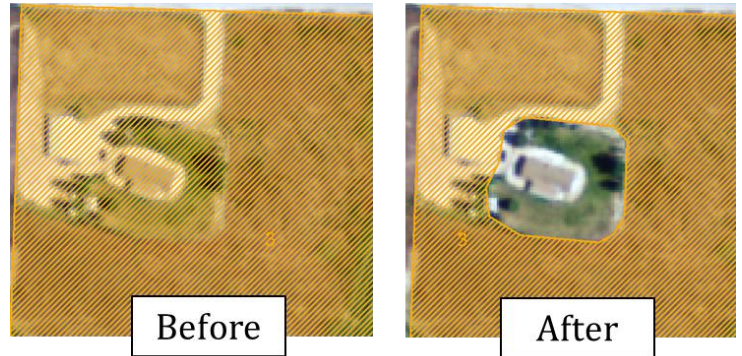


2. Click on the Trace Tool
3. Click anywhere on the parcel outline for parcel 2 in the New_Parcel layer and trace all around the parcel. Double-click quickly to finish your sketch.
4. Save your edits

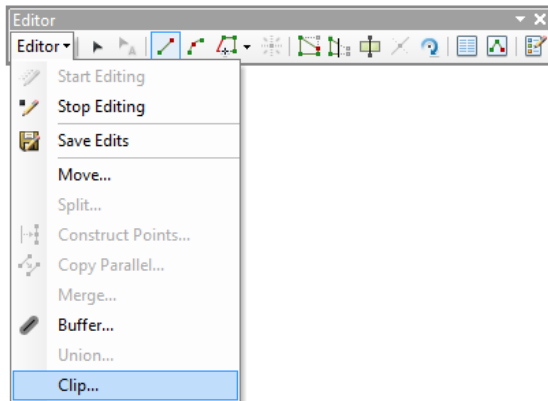


Part 6: Create a “Donut Hole”

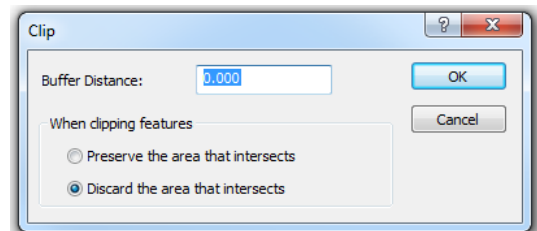
1. Go to Bookmarks > Donut Hole. In this part the exercise we will “cut” a hole in the parcel as illustrated in the “before” and “after” picture on the right.
2. Click on Ex6_Parcels in the Create Features dialog box and then click on the Polygon construction tool.



3. Draw a new polygon around the house and the lawn as shown on the right.
4. Click on Editor > Clip as shown below

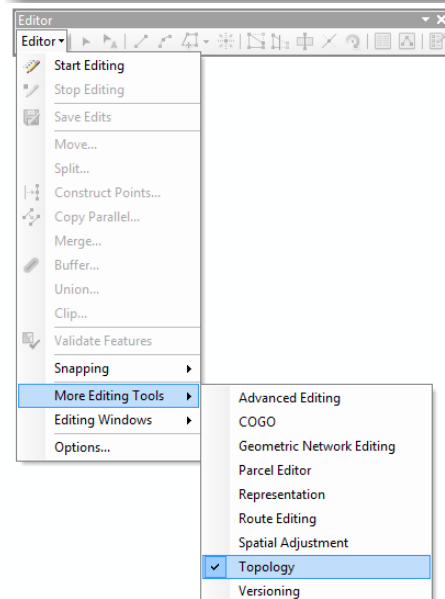


5. Click the button in front of “Discard the area that intersects”. Click OK
6. Use your edit tool to select the polygon that covers the house and lawn. Click the delete button on your keyboard.
7. Save your edits.

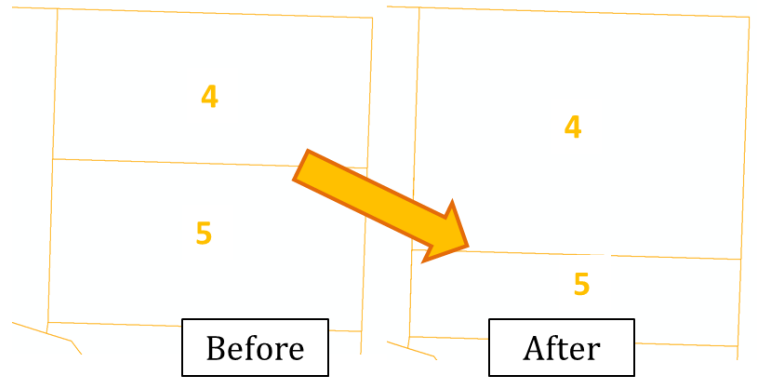


Part 7: Topological Editing

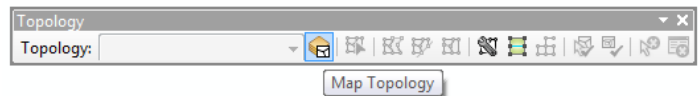
1. Turn off Ex6_Image.tif in your table of contents
2. Click on Bookmarks > Topological Editing
3. Click on Editor > More Editing Tools > Topology to add the Topology Toolbar



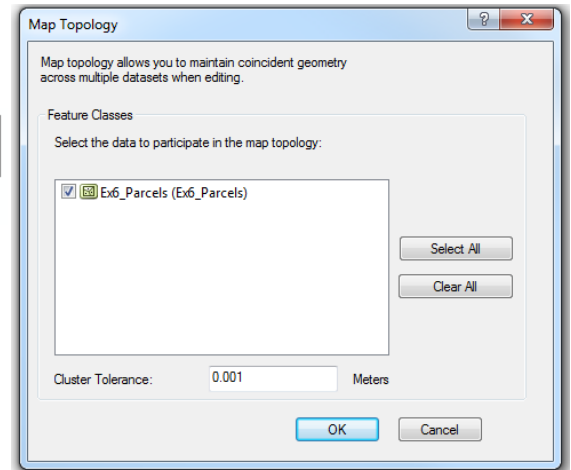
- In this exercise we will be moving the boundary between parcel 4 and 5 south as shown in the before and after figure shown on the right. By using topological editing we will edit both parcels simultaneously: parcel 4 will grow, and parcel 5 will shrink. Using topological editing will avoid the possibility of creating a small gap or overlap between both parcels since you are moving the boundary for both at the same time.



- Click on the Edit tool and select parcel 4 and 5 (recall: click on one parcel, then hold down the Ctrl key and click on the other parcel)
- Click on the Map Topology button on the Topology Toolbar
- Click the check box in front of Ex6_Parcels in the Map Topology dialog box as shown on the right and click OK



- Click on the Topology Edit Tool and click on the boundary between parcels 4 and 5.
- Click and drag the boundary to the south.
- Save you edits and stop editing. Note that both parcels 4 and 5 were edited.



Part 8: Splitting a parcel

- Finally, we will split a large parcel into two smaller parcels. Click on Bookmarks > Split parcel. We will split Parcel on as shown in the before and after figure below.



2. Click on the Edit Tool and then click on parcel 1 to select it.

3. Click on the Cut Polygon tool.

4. Follow the instruction on the right to finish the cut. It is important to start and end the “cut line” outside the parcel you are cutting.

5. Save your edits and stop editing

