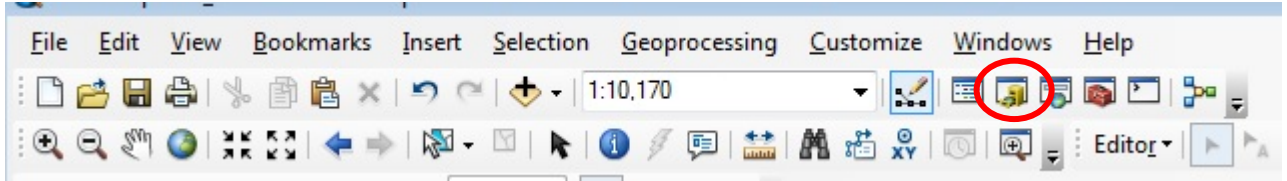


Heads-Up Digitizing in a Geodatabase in Arc 10.3

CNPS 2016 revised

A. Create a geodatabase Using ArcCatalog:

1. In ArcMap, open ArcCatalog.



2. In the ArcCatalog sidebar navigate to the folder where you want to store your data.
3. Create a new geodatabase
 - a. Right click on folder → New → Personal Geodatabase
 - b. Give your geodatabase a name (no spaces, keep it short)
4. Create a new **Feature Dataset**
 - a. Right click on the geodatabase → select New → **Feature Dataset**. Name it what you want → click Next
 - b. Select Coordinate System (i.e. NAD 1983 UTM Zone 10N → click Next
 - c. No coordinate system for Z coordinates → click Next
 - d. Accept default resolution and XY Tolerance → click Finish
5. Create a new **Feature Class**
 - a. Right click on the dataset → select New → **Feature Class**
 - b. Name your feature class and for Feature Type select Polygon Features → click Next.
 - c. Add any fields or other attributes you want → click Finish
6. Create a new **Feature Class** Topology
 - a. Right click on the Feature Dataset → select New → Topology
 - b. Click Next to start the Wizard
 - c. Accept default name and cluster tolerance → click Next
 - d. Select the name of the feature class to which the Topology will apply → click Next
 - e. Accept default Ranking (use when more than one feature class per topology) → click Next
 - f. Click Add Rule → select “must not overlap” → click OK → follow the same steps to add “must not have gaps” → click Next → click Finish
7. Close the ArcCatalog side bar.

B. Begin your project in ArcMap:

1. Add the feature class you are using along with your NAIP image.

Note: You will want to change the symbology to no fill and change the outline color.

2. If you haven't already done so, add your Editor Toolbar by clicking Customize → Toolbars → and checking on the Editor Toolbar. You will only have to do this once. You can drag the Editor toolbar to the main toolbar to dock it there.



FIGURE 1 (note: attribute button is third from right in this figure)

3. On the Editor toolbar, click Editor → Start Editing. If you have more than one database or folder in your map you need to highlight which layer or database you want to edit.

Note: If a Start Editing window appears with warnings press "Continue"

4. From the Editor toolbar click the "Create Features" button to open the 'Create Features' window.



5. Select the layer for which you want to create new polygons (see example below, VegPolys). Under Construction Tools, select the Polygon or Freehand tool.

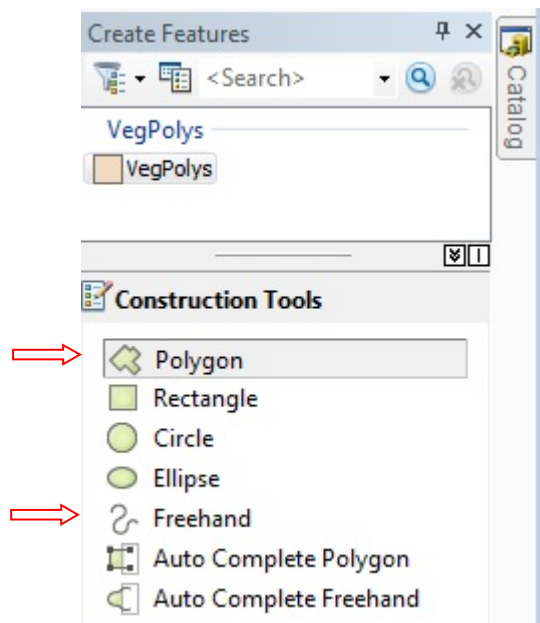



FIGURE 2 Create Features window

6. Click the mouse over the exact spot where you want to start your polygon.
7. Continue clicking around your polygon. To end the polygon, double click on the last spot. ArcMap will automatically finish your polygon and it will be highlighted in blue. *Click slowly so as not to prematurely end your polygon.*
8. Click the Attributes button  on the Editor Toolbar, and fill in your attributes.
9. Click Editor → Stop Editing, then click Yes to save your changes.

C. Setting the Snapping Environment and Snapping Tolerance in ArcMap: (note, the snapping tolerance is the distance within which the pointer or a feature is snapped to another location)

1. Start an Editing Session (see step B3).
2. Click on the Editor menu and click Options → General tab → and check the Use classic snapping → click OK
3. Click on the Editor menu, point to Snapping, then click Snapping Window.
4. For your feature class check on Vertex, Edge, and End – you may have to play around with these options to see what works best.
5. Click Editor → Snapping → Options → change Snapping Tolerance to 10 pixels and click OK – you may have to play around with the tolerance.
6. You can now begin creating your new polygons.

D. Setting the Streaming Tolerance in ArcMap: (When tracing line or polygon features, you may want to add vertices as you move the mouse rather than clicking each time you want to add a vertex.)

1. Before starting to digitize in stream mode, you need to set a stream tolerance—the interval at which the sketch adds vertices along the feature you are digitizing. The default tolerance value is 0 map units, we recommend at least 10. On the Editor Toolbar click on Editor → Options → In the Stream Mode change the stream tolerance from 0 to 10 map units – you may want to play around with these options to see what works best. On the same screen as the stream tolerance (at the top), you can also adjust your “sticky move tolerance” up. This is the number of pixels you must move a feature before that feature moves. Setting it up to at least 10 helps prevent accidental moving of polygons.
2. You will also need to specify the group tolerance—the number of streaming vertices you want to group together. The number you set tells ArcMap how many vertices to delete when you click the Undo button (or press Control-Z). For example, if you set this number to 20 and click the Undo button while you’re digitizing a feature, ArcMap deletes the last 20 digitized vertices from your feature.
3. Click OK when finished changing settings.
4. Press F8 to toggle the stream mode on/off – you can also right-click when you are in edit mode to turn streaming on/off.

E. Append a New Polygon to an Existing Polygon:

1. To append a polygon to another polygon you must first select Auto Complete Polygon from the Create Features sidebar (see FIGURE 2).
2. Start digitizing your polygon (see step B4-6) when you get to the border of the polygon you want to append to double click to finish your polygon. *Remember to start a new independent polygon you*

need to change the “Construction Tool” back to a non-Auto complete tool (e.g. Polygon, Freehand, etc.)

F. Merge/Cut Polygons:


1. To merge a polygon to another polygon you must first select both polygons (make sure you are using the editor select tool and not a construction tool) by clicking on one polygon and then holding down on the Shift-key and clicking on the second polygon.
2. On the Editor Toolbar click on Editor → Merge. Next, you need to select which of the two attribute lists to retain for the merged polygons. Highlight the polygon with the attributes you'd like to keep and Click Ok. Highlighting the different polygons will make them flash on the screen so you can make sure you are retaining the desired polygon attributes.
3. To cut part of a polygon away, select the polygon by selecting it. Click the cut polygon icon in the Editor toolbar (see below for icon circled in red). Then click with the mouse to make your cut across the polygon, double-clicking to finish.



G. Making a New Polygon within a Polygon:

1. To create a separate polygon (e.g. a doughnut hole) within an existing polygon you must first select the Polygon tool from the Create Features sidebar (see FIGURE 2).
2. Draw your internal polygon. Double-click to complete. There is now a new polygon stacked on top of the existing polygon.
3. To separate the two polygons, highlight the internal polygon and make sure that it is the only polygon selected. On the Editor Toolbar click on Editor → Clip. Next, select “Discard the area that intersects”. You now have two polygons that are independent of each other and can be attributed separately.

H. Attributing your Polygons:

1. Select the polygon that you want to Attribute by using the ‘Edit Tool’  button on the Editor Toolbar to click on the polygon and highlight (in blue) it for attributing.
2. Click on the Attribute icon (the third to last icon circled in red) in the Editor Toolbar.



3. Fill in fields, make sure to click Editor → Save Edits often while delineating and attributing!

I. Labeling your Polygons:



1. In the Table of Contents (Left-side column of screen), double click your Layer to open Layer Properties.

2. Click on the Labels Tab.
3. For Label Field choose OBJECTID or VegCode.
4. Check on the "Label Features in this Layer".


J. Run Topology Rules: Once you've made edits to a feature that participates in a topology, the next step is to validate the topology. Validating the topology means checking the features to identify any violations of the rules that have been defined for the topology. You can validate the whole topology, the visible extent of your map, or a selected area.

1. Start an Editing Session (see step B3).
2. If not already visible, add your Topology Toolbar by clicking Customize → Toolbars → and selecting Topology.
3. On topology toolbar select Select Topology (Icon circled in red below). Select Geodatabase Topology and Vegetation_Topology from the drop-down menu. Select OK.





4. Click the Validate Topology in Current Extent button  on the Topology toolbar. This will highlight all errors within your layer.
5. Click the Error Inspector button  on the Topology toolbar to open Error Inspector window.
6. On the Error Inspector window, check Errors and make sure other boxes are unchecked (or Visible Extent only may be checked if you are only inspecting that area).
7. Click the drop-down arrow, and click "Errors from all rules".
8. Click Search Now. This will display a table of errors within your layer along with a count.

K. Fix Topology Errors: There are several ways to correct topology errors once you've discovered them.

You can select the error on the map with the Fix Topology Error tool , or select the error from within the Error Inspector.

1. To fix an error from the Error Inspector table, highlight the error you want to fix. Right-click the error and click Zoom To, this will allow you to inspect the error up close.
2. If the error is an **Area Error** (bright red on the map and usually violates the Must Not Overlap rule), right-click the error and select Merge. This will bring up a window listing (usually) two polygons - select the feature you want the error fragment to be merged with. If you click on each of the polygon numbers the corresponding polygon will flash on the screen so you can determine which one works best to have the fragment added to it. Click OK. Repeat for remaining area errors.
3. If the error is a **Line Error** (pink on the map and violates the Must Not Have Gaps rule) there may be multiple issues and more than one solution.

4. You may find a ghost polygon which is actually an un-attributed empty space surrounded by other polygons. If this error is a polygon that you want to attribute - right click on the error in the Error Inspector table and select Create Feature. This adds the ghost polygon to the VegPoly layer, and then you can open the table and assign attributes.
5. If the line error creates a narrow gap between two polygons that you don't want to attribute, select the Topology Edit Tool . Double click on the error line until you see the vertices. Often there is a vertex on one line that isn't present on the adjacent line. Click to select the extra vertex, then right click and select Delete Vertex (repeat if there are multiple extra vertices). When you click off the line error it will still show an error. You will need to click on Validate Topology in Current Extent  from the Topology toolbar in order to re-check the error.