Map Topology in ArcGIS 10.1 for Desktop

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Introduction

In ArcGIS 10.1, aligning features and editing coincident geometry is easier. We will highlight some of the new tools available to update features that have shared geometry. A map topology creates topological relationships between the parts of features that are coincident, which allows you to simultaneously edit features that share geometry. You can create a map topology for point, line, or polygon layers from shapefiles or geodatabase feature classes by Topology Toolbar. This alignment tools in ArcGIS 10.1 make it simpler and quicker for us to perform these updates on the data.

Procedures of creating a map topology, reshaping and aligning edges by Topology Toolbar

In this example, we will edit edges with the Reshape Edge and Align Edge tool on Topology Toolbar. All the features that share the same edge can be updated at the same time. Firstly, to reshape multiple edges, ArcGIS 10.1 - Reshape Edge allows us to update multiple edges that form a connected path.

1. After we start editing in ArcMap and begin working with topology, we select the Topology Toolbar, which has been already redesigned in ArcGIS 10.1.
2. Click the **Select Topology** button on the Topology toolbar. This opens a dialog box that allows you to set the type of topology to edit. Use the Select Topology dialog box to create a map topology (or geodatabase topology) by specifying the layers that should be edited together. In this case, we need to edit the Land_A and Land_B polygons, so we check those layers to participate in the map topology.

3. To reshape the edges, we need to select them first. We can use the new **Topology Edit Trace tool** to select a series of edges that form a connected path, or hold down the left mouse button while dragging along an edge with the **Topology Edit Tool**.

4. Once we have selected topology edges, we can open the **Shared Features** window to see which features belong to the selected edge. In ArcGIS 10.1, the Shared Features window now uses the layer's display expression to list features. By default, topology elements become colored in magenta when they are selected.
5. In the above diagram, we use the tool on the Topology toolbar to select the elements that can be shared by more than one feature and update all the features at the same time. In this example, we select a shared edge and we can simultaneously update the Land_A and Land_B regions on that common boundary.

6. Change to the **Reshape Edge tool** button and digitize the location of the new lines. Once we have finished the sketch, all the polygons sharing that new edge will be updated. Reshape Edge allowed us to update all these features at once while maintaining the coincidence between Land_A and Land_B.
7. When there is a gap between polygons, we can use the **Align Edge tool** to fix the geometry problem. This is a new tool on the Topology toolbar. The **Align Edge tool** allows us to match one edge to another edge quickly so that they are coincident without having to trace or reshape the edge manually.

8. After clicking the Align Edge button, we click the edge that we want to align, which is the eastern edge in this example; it is shown in solid magenta once active. If that edge cannot be aligned with any other edges, it will continue to be shown in a dashed line to indicate that we need to click a different edge. Next, we click the edge to which we want to align the selected edge, which is the western edge.

9. The First edge is adjusted to match the second edge which filled the gap now. It works best for fixing gaps between polygons and making long edges match among features.

The End