Tools

Introducing Topolyst

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We have been very busy adding support for analysis associated with small unmanned aerial systems (sUAS, drones) to our LP360 product (more on these specific features later). For some time now we have been considering a special package of LP360 to better address the sUAS market. We did a needs assessment in terms of our standard packaging of LP360 and discovered the following:

- sUAS mapping is dominated by surveyors. They do not tend to use ESRI products.
- They need advanced tools such as automatic ground extraction (bare earth algorithms)
- Digitizing toes of stockpiles is much more complex than it appears. Tools to make this process more reliable and faster are sorely needed.
- Breaklines are very important in a number of different areas
- The project sizes are small, usually no more than several hundred acres.

We have been addressing this market with a version of LP360 that we had dubbed "LP360 for sUAS." This is essentially the same as LP360 Standard for Windows 64 bit (we will no longer be offering the standalone version of LP360 as a 32 bit application). We have decided to repackage a version of LP360 to very specifically address the needs of the sUAS market.

We are branding our new product Topolyst™, as in Topographic Analyst. Topolyst will initially be equivalent to LP360 Advanced for Windows but with a maximum size limitation of 4 km^2 (approximately 1,000 acres) of LAS data. There is no restriction on the size of image or vector data. The size limitation can be removed by upgrading to Topolyst Unlimited. Note that unlike LP360, Topolyst does not include an extension for ArcGIS® Desktop. Topolyst provides a way for us to offer the tools of LP360 Advanced at the price of Standard while keeping things "fair" for our traditional LIDAR Advanced customers.

One of the major areas we have been working on for Topolyst is 3D feature edit. In the 2015.1 version of LP360 (standalone), we added automatic stockpile toe digitizing as well as the ability to manually override the vertical location of polygon vertices while digitizing in 3D. However, we had virtually no edit tools. If a feature had an incorrect vertex, you were forced to redigitize the entire feature (this is not the case for breakline tools in LP360 for ArcGIS which contain a rich set of edit tools). We are addressing this with a new edit environment for LP360 (standalone) and Topolyst. The new toolbar (which is still under construction) is depicted in Figure 1.

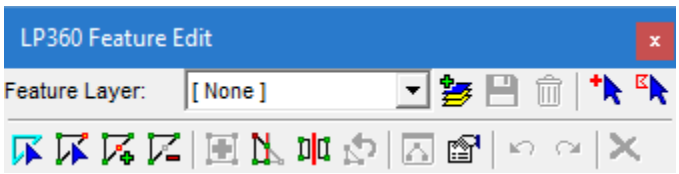

Figure 1: Feature Edit toolbar

The new tools being added for Feature Edit include:

- Select/Move – You can move an entire feature(s) intact.

- Edit Vertex – You can edit individual or groups of vertices in both X,Y and Z. An example of vertex editing in the profile view is depicted in Figure 2. Vertices can be edited by graphically digitizing/dragging or by precision key-ins (you can use this for a quick waterbody flattening to a known Z).
- Add Vertex, Delete Vertices
- Reshape Geometry – This tool allows you to quickly clean up lines/polygons that have strayed from the correct boundary.
- Split Feature – This tool allows you to quickly split a feature along a user digitized polyline. This is very useful for situations where the automatic toe finder has circumscribed more than one stockpile.
- Multi-level undo. No worries about making an error while digitizing. The undo allows you to reverse everything from a single vertex edit to an entire geometry.

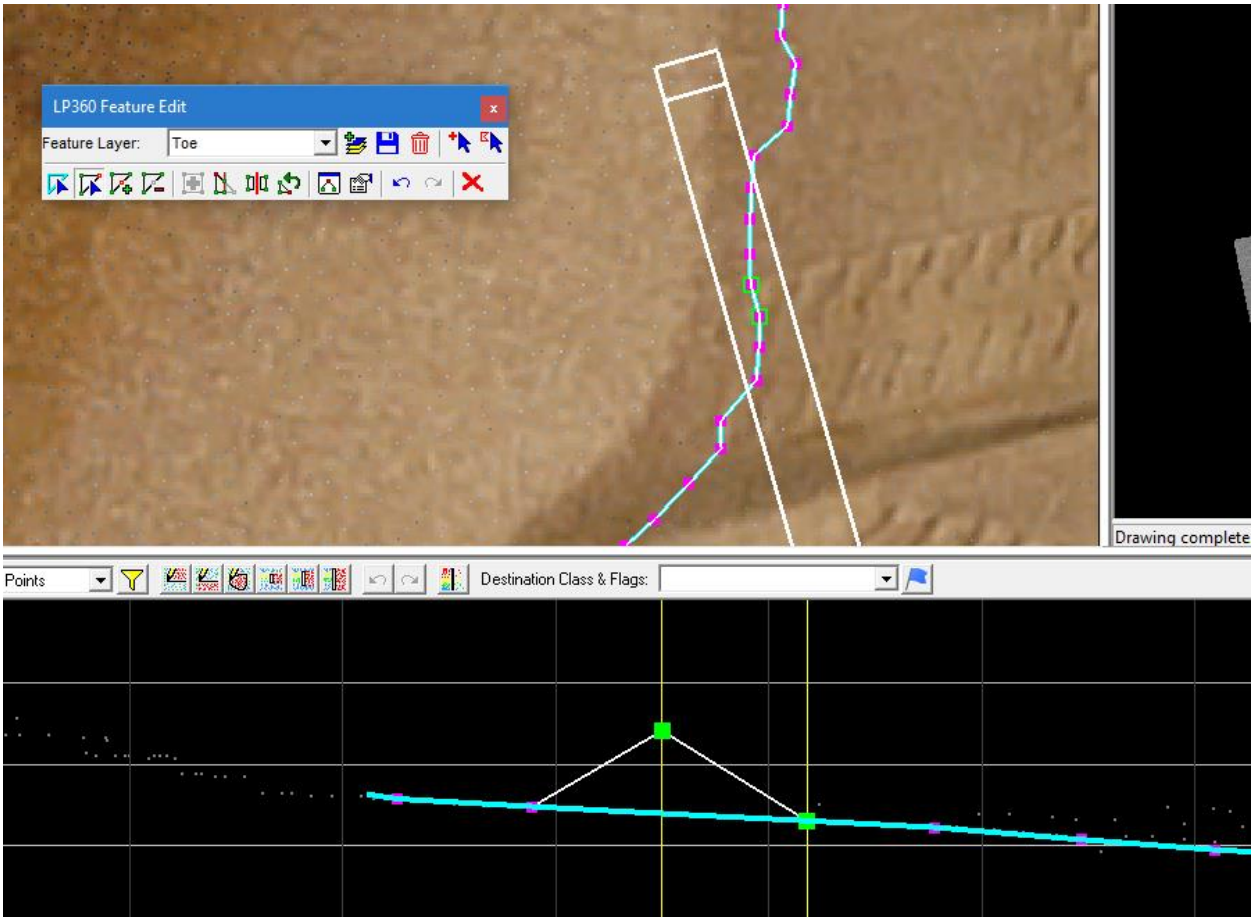

Figure 2: A 3D Vertex edit in Topolyst

The Feature Edit tools will incorporate a method of automatically invoking a Conflation task for vertical assignment. This will encompass the entire rich set of conflation tasks available in LP360. This means

that the elevation of a vertex will be automatically computed not only when first digitized (already a feature of the conflation and breakline editing tools) but also during edits.

Features collected with the new Feature Edit tools are fully qualified features in LP360/Topolyst in that they can be used in breakline enforcement operations. This is very important for operations where a complex geometry needs to be formed under the point cloud. A common example is a situation where preexisting vectors of a stockyard base are supplied. Topolyst has the ability to perform these complex subsurface modeling operations.

We hope to release the initial versions of Topolyst and LP360 in the next 45 days. Current customers can have access to alpha/beta releases in the interim. I am very excited about these new features (pun intended) in LP360 and our newly branded Topolyst software. You are going to find that these tools compress a day's worth of stockpile definition into an hour's work!