

# General Workflow for Volumetric Analysis

1. Import LAS Layer
2. Perform Ground Classification (Optional)
3. Import, Extract, or Create a Feature Layer boundary of the area to be measured
  - a. Ensure the feature is conflated to the ground surface Z
4. Open and configure the settings for the Volumetric Analysis Point Cloud Task
5. Execute the Point Cloud Task to calculate volumes

Volumetric Analysis Point Cloud Task –  
Settings page



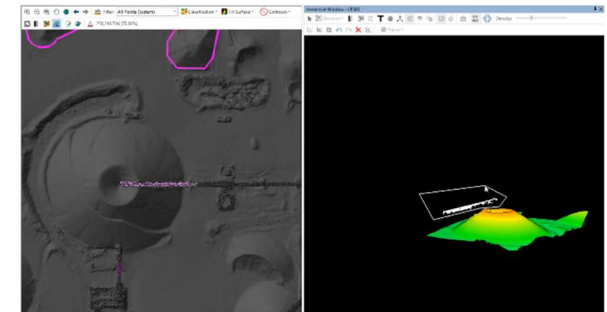
How to Perform Volumetrics Analysis –  
Video Tutorial



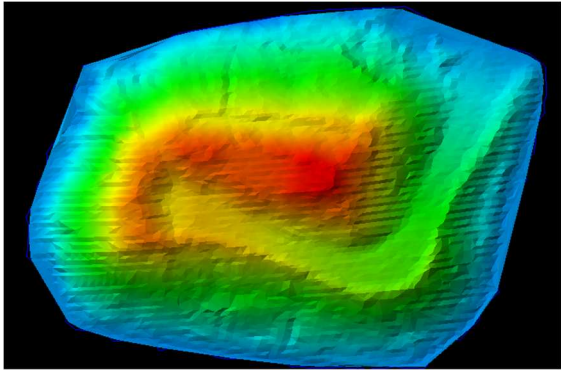
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# Perform Volumetric Analysis

In this exercise, we will review the  
workflow for calculating Volumes  
using LP360.



**LP360**



## About the Volumetric Analysis PCT

The Volumetric Analysis point cloud task (PCT) is used to compute the volume between two Triangulated Irregular Networks (TIN) defined by a circumscribing polygon and LAS points.

The use of the Volumetric Analysis PCT allows users to calculate volumes and/or monitor change over time in stockpiles, borrow pits, ditches, etc.

This PCT has also been used in a Canopy Height Model workflow for LP360.

## Volumetric Computation Methods

When calculating volumes, there are multiple methods for computation depending on the object or surface being measured.

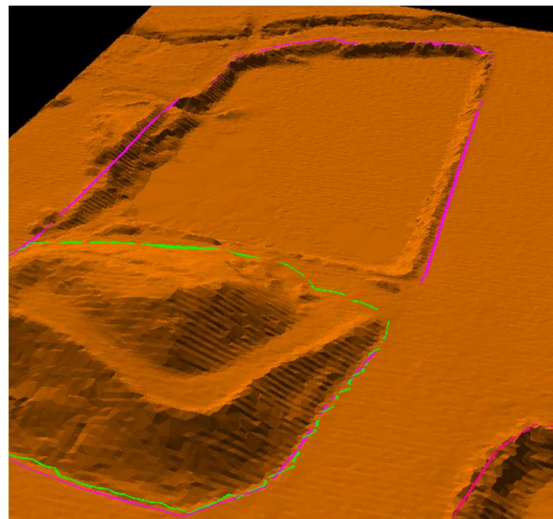
For objects above the boundary feature, such as a hill, you would use the **Cut** option to measure. For objects below the boundary feature, such as a ditch, you would use the **Fill** option to measure.

There are also options for **Fill-Cut** and **Cut-Fill** volumes for areas that have objects above and below the boundary feature (such as a pond and a stockpile bounded by the same feature layer).

Each computation method has the same output options.

There are three output file options that can be generated from Volumetric Analysis:

- Volume Polygon Shapefile
- Volume Area LAS file
- Volume Area colorized Raster



## PCT Configuration

The Volumetric Analysis PCT can only be executed with the **By Feature Layer**  option.

The Volumetric Analysis PCT has setting pages that need to be configured before executing the task. Below are descriptions of the individual tabs:

- **Base Tab** – Boundary to be measured.
  - Typically, the shapefile to be used as the “toe” or outer boundary of the surface to be measured.
- **Hull Tab** – Surface to be measured.
  - Typically, the LAS surface that the volume is being calculated from.
- **Cut/Fill Tab** – Optional Raster - Output
  - This tab allows you to configure the colorization of the Output Raster (if desired).
- **Volume Tab** – Computation method and Units for measurement - Output
  - Configure the Volume Computation Method, Output Volume Units, and/or additional attributes for the Output Shapefile.
- **LAS Output Tab** – Specify LAS Output
  - Configure LAS Point Source (Hull or Base), the attributes, and/or tile the output file for larger datasets.

## Contact Us

GeoCue  
520 6<sup>th</sup> Street Madison  
AL 35756

1-256-461-8289

Visit us on the Web:  
<https://www.lp360.com/>