Tools, Tips, and Workflows
Adjusting LP360 Memory Usage

B S A U | A W G

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Did you know that you can "tune" how LP360 uses memory? This is accomplished via the Performance tab on the LAS Layer Properties dialog (Figure 1). A word of caution is in order before modifying these settings. If you are running a 32 bit version of LP360 (and, unfortunately, LP360 for ArcGIS® is forced to be 32 bit because ESRI has not ported their desktop applications to 64 bit as of yet), you will be severely limited in the amount of memory available to do tuning. If you are able to use LP360 x64, you are using a 64 bit operating system and have extended physical memory; you will see some significant improvements via these tuning parameters. Thus if you are using LP360 for interactive editing of LIDAR data, move to Windows 7, 64 bit and put 16 GB of RAM in your machine - you'll be cooking with gas!
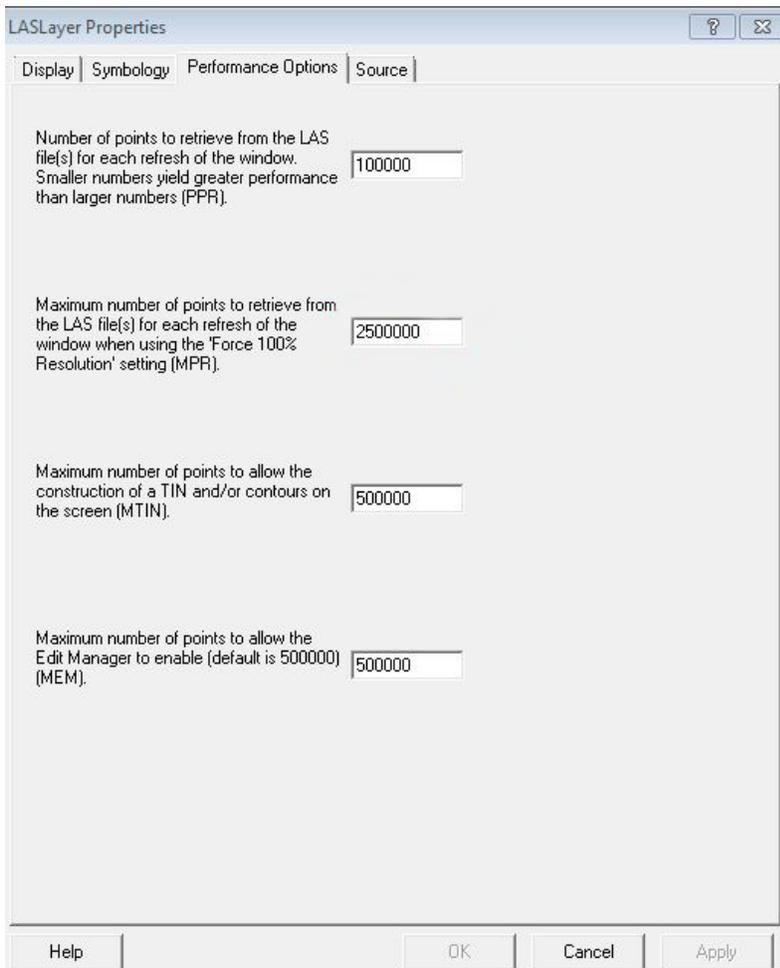

Figure 1 - Performance Tab

B LP360 Basic Edition   A ArcGIS
S LP360 Standard Edition   W Windows
U LP360 sUAS Edition   G GeoCue
A LP360 Advanced Edition

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The parameters and their impact are:

- **PPR (Points Per Refresh)** - LP360 uses a pyramiding scheme for fast data access. The maximum number of points to use in a display update (when 100% display is not being forced) is governed by this setting. The default is 100,000. This means that LP360 will select the level of detail to display such that this number is not exceeded. Increase this value if you would like to see greater detail on each refresh. Note that the detail in contours is directly a function of the point density thus increasing this value will also increase contour detail.

- **MPR (Maximum Points to Read)** - This value sets the limit of the number of points that can be displayed when you force 100% display resolution. 100% display resolution is forced when you deliberately do so via pressing the red and white triangle tool on the main LP360 tool bar. There is a lot of detail on this feature in the main technical article of this issue of LP360 News.

- **MTN (Maximum points to TIN)** - This parameter sets the maximum number of points that can be used to generate a Triangulated Irregular Network (TIN). Creating a TIN requires much more memory than simply displaying points because an edge feature has to be created between adjacent points. Thus this value always must be less than (or equal to) the PPR parameter. Note that if you are seeing what you might consider to be odd behavior with the display of TINs upon forcing 100% display, it is probably due to this setting. Forcing 100% display (controlled by the MPR parameter) can cause the number of points displayed to exceed the MTN parameter. When this occurs, the display will revert from TIN to points, even though you have not changed this display mode. A bit more subtle is that contours will cease to display when this condition occurs.

- **MEM (Maximum Points to Edit)** - This parameter (which must be less than or equal to the MPR parameter) sets the maximum number of points that can be visible in the Map View (LAS View) when you toggle interactive classify mode via the pencil tool on the Classify toolbar. Thus if you press the pencil tool but no classify tools highlight, your display is exceeding the MEM parameter. Either increase MEM (if you can do so without exceeding the memory capabilities of the system on which you are running LP360) or zoom the display in.

So how should you set these values? First of all, if you are using the ArcGIS version of LP360, we recommend that you stick with the factory settings. Since ArcGIS is still a 32 bit application (and a memory hungry one at that), all of the loaded extensions (such as LP360) are forced to be 32 bit as well. This severely limits available additional memory, regardless of how much physical RAM you may have. For the 64 bit version of LP360 (included with all LP360 licenses), use this simple rule of thumb - for each additional gigabyte (GB) of RAM that you have above 4 GB, increase each of the above values by 1 million. Thus if you have a machine with 8 GB of RAM, you should be able to increase each of the above parameters by 1 million. You will note a significant increase in the number of points you can display in a TIN and in editing sessions.