LGO Display in MineSight® 3D

Large Gridded Object (LGO) files are used in MineSight 3D (MS3D) to store very large surfaces. As their name implies, the surfaces are "gridded" with each grid cell containing an elevation. An LGO can accommodate a grid containing 2 billion x 2 billion cells. Displaying such a large surface can quickly overload the display capabilities of your computer so this article will discuss some simple ways to avoid overload including:

- Limiting the LGO View extent
- Thinning the LGO View
- Using the Object Contents Browser (OCB) chooser to pick the LGO View in MS3D CAD functions

LGO Structure

LGOs are similar to Gridded Surface Files (GSFs): both file types contain gridded surface data stored at the center of each grid cell (Figure 1).

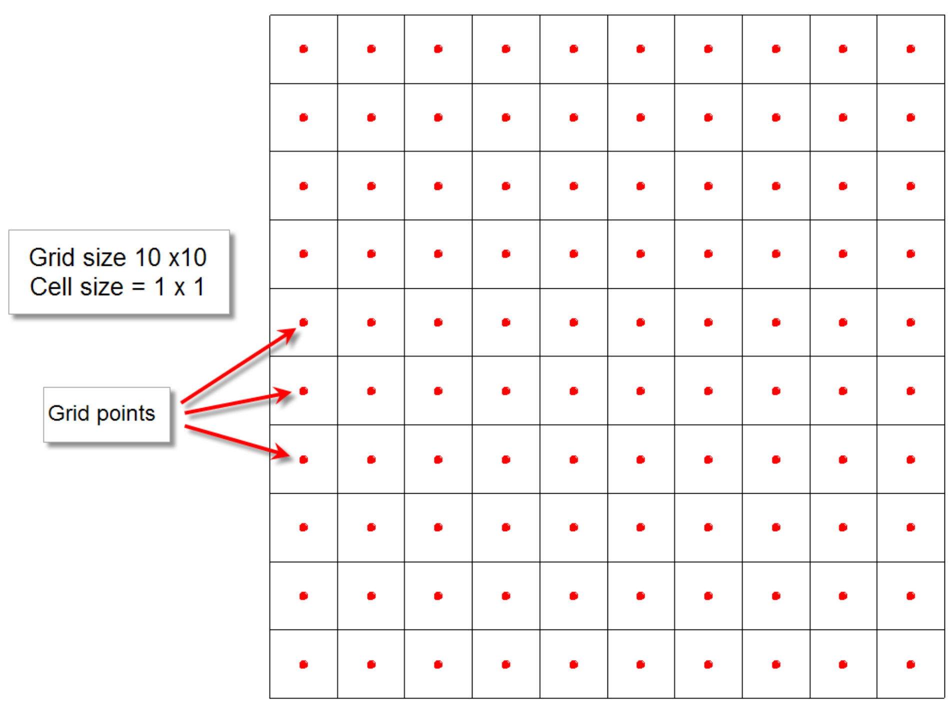

Figure 1. A gridded surface is shown.

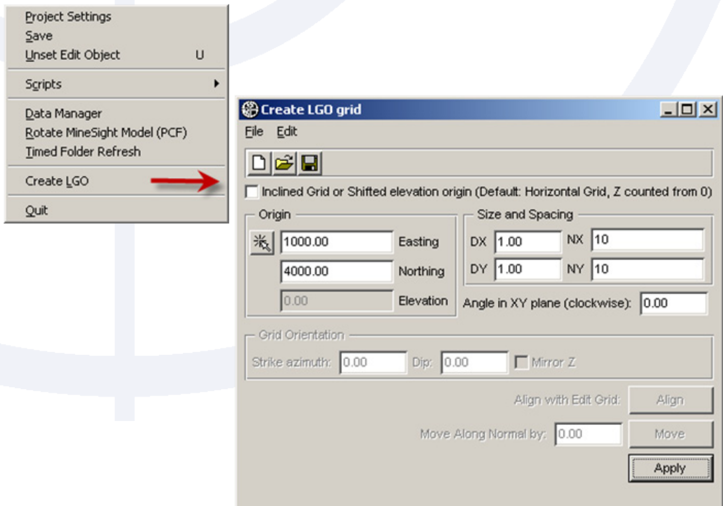

Figure 2. LGO creation from the MS3D File menu. LGOs are not tied to a PCF and the grid size and spacing is user-specified.

However, unlike GSFs, LGOs are not tied to a Project Control File (PCF) and their grid extent and cell size are user-specified when the LGO is created (Figure 2).

Limiting the LGO View Extent

The LGO is displayed by defining an **LGO View** in the **Data Manager** and importing elevation data into the grid to create a surface.

To see how much of the LGO surface you can display in MS3D, open the **LGO View Properties** dialog (Figure 3). Note that the **LGO View** itself does not need to be opened in order to open its properties dialog.

On the **Display** page, choose the **Display Method**. It takes more memory to display the LGO as a surface than as polylines. The X and Y range sliders define the extent of LGO to be displayed and the extent is outlined in the viewer.

Test the memory required to display the surface by entering a value in the **Max. Memory Usage per Surface** field and click the **Test Limits** button. The X and Y ranges will automatically be adjusted if the memory required exceeds the memory specified.

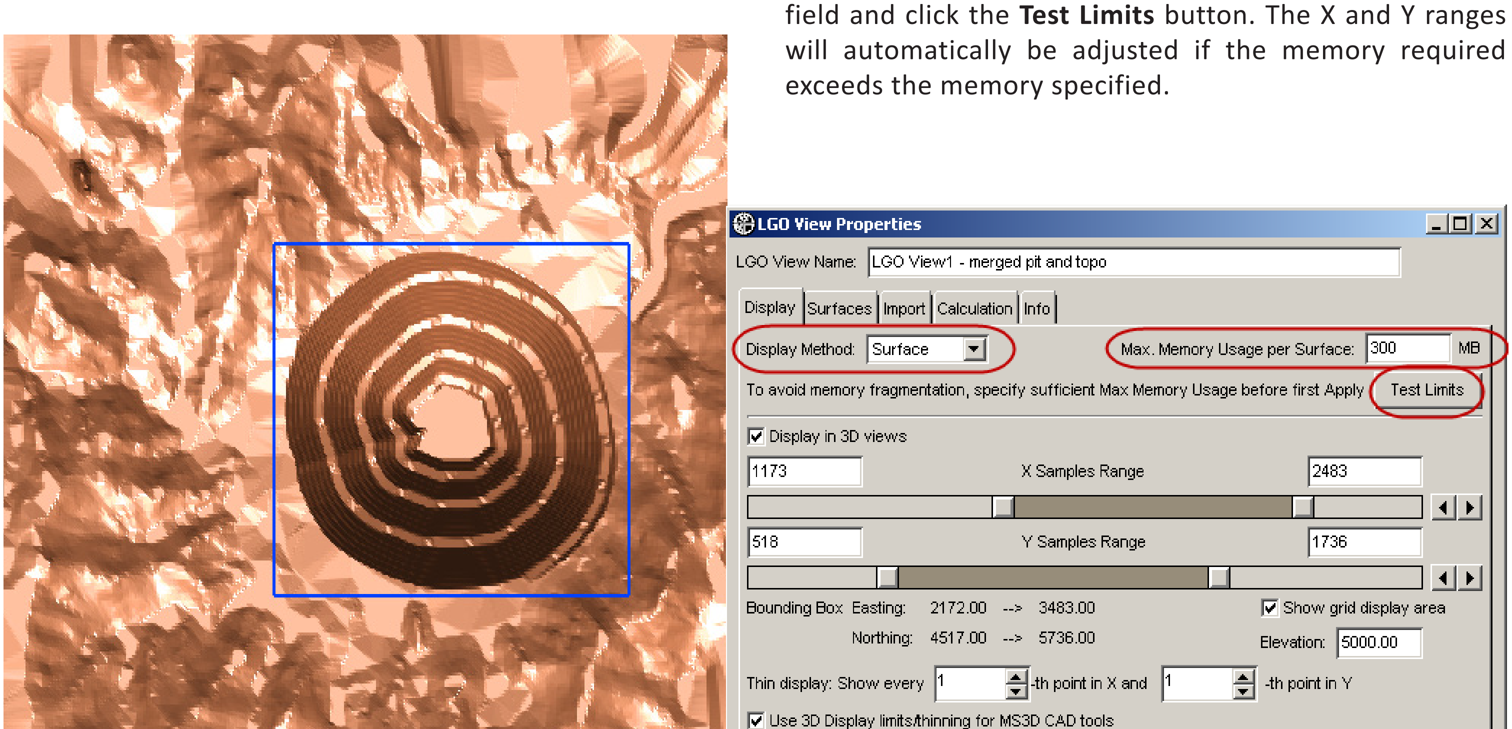

Figure 3. The ***LGO View Properties*** *dialog and an LGO surface are shown. The area outlined in blue is the extent of the LGO display area when using parameters defined in the properties dialog. The LGO surface (shown in brown) is displayed at its full extent but thinned (discussed below) for illustrative purposes to show how the LGO extent outline is overlaid in the surface.*

*Figure 4. From the **LGO View Properties** dialog shows the input fields for thinning the node display.*

Thinning the LGO View

When viewing an LGO, you can thin the data in the X and Y directions to display every n^{th} point in the grid. This is accomplished on the **Display** page of the **LGO View Properties** dialog (Figure 4). Although thinning decreases the resolution, it also uses less memory. If you need to visually position the display extent over a specific area of the LGO (as shown in Figure 3), consider displaying a greatly thinned surface and performing the **Test Limits** check again.

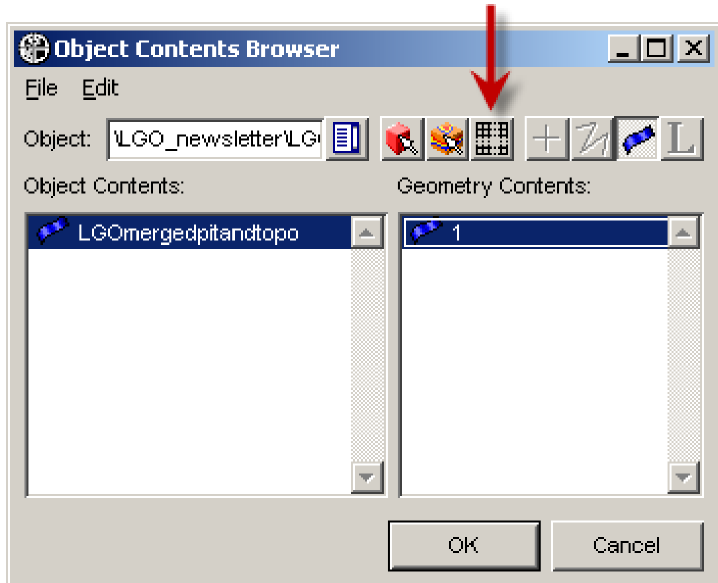

Figure 5. The OCB dialog with an active LGO selection button is shown.

LGO OCB Selection in CAD Tools

When using an LGO surface in an MS3D CAD tool, such as the Contour Tool, select the LGO via the OCB (Figure 5). In this way, the LGO does not have to be displayed at all.

By default, the entire LGO is used by the CAD tools. You can, however, choose to use the limited LGO by toggling **Use 3D Display limits/thinning for MS3D CAD tools** (Figure 6).

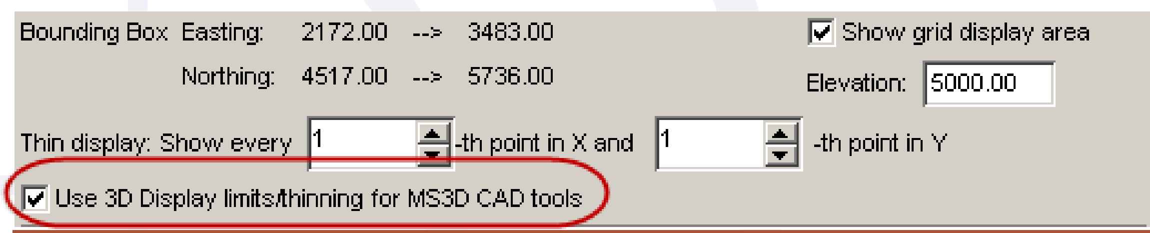

Figure 6. From the LGO View Properties dialog shows the option for Use 3D Display limits/thinning for MS3D CAD tools.

CONCLUSION

In general, displaying LGO surfaces require considerable memory so displaying should be avoided if possible. Use the OCB chooser to select the LGO View in CAD functions. If you must display the LGO make sure to test if you have enough memory beforehand. If not, limit the LGO View extent or use thinning to reduce memory requirements.