

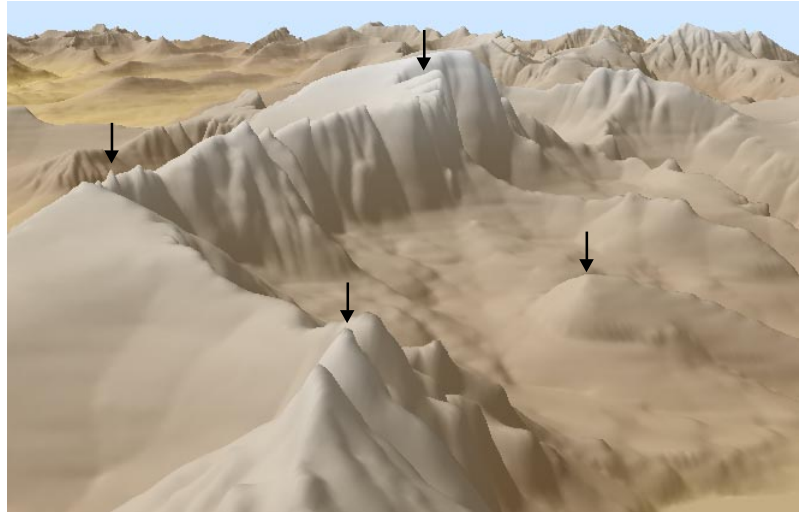
# 3D Surface Rendering Modes

3D perspective views in TNTmips provide several surface rendering modes that let you control the trade-off between terrain accuracy and speed of rendering in solid view. The available modes are Dense Ray Casting, Variable Triangulation, and Sparse Triangulation.

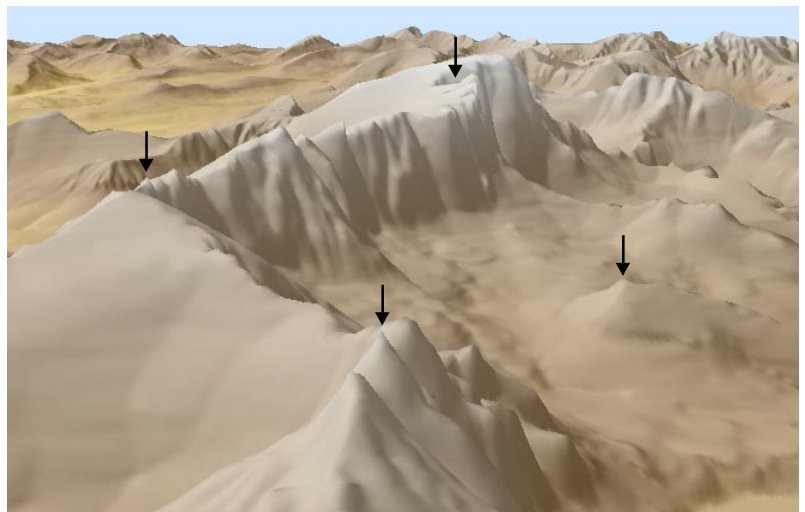
The Dense Ray Casting mode provides the highest surface fidelity at the expense of longer redraw times than the other modes. It seamlessly combines a dense, highly-accurate foreground triangulation with ray casting (using the surface raster cell values) for the background. Dense Ray Casting brings out the finest terrain details that may be missing in views using the less accurate modes (compare locations marked by arrows in the illustrations). Use Dense Ray Casting when you need to see maximum detail in complex, high-relief terrain surfaces and when printing large-format layouts that contain 3D Groups.

The Variable Triangulation mode provides faster solid rendering with only a minor loss in surface detail. This mode uses a triangular mesh to model the entire surface but varies the surface triangle size to provide higher detail in the foreground and in high-relief areas and less detail in the background and in low-relief areas. There is a modest time lag when you first select this mode (to compute the surface properties), but subsequent redraw times are significantly faster than the Dense Ray Casting mode.

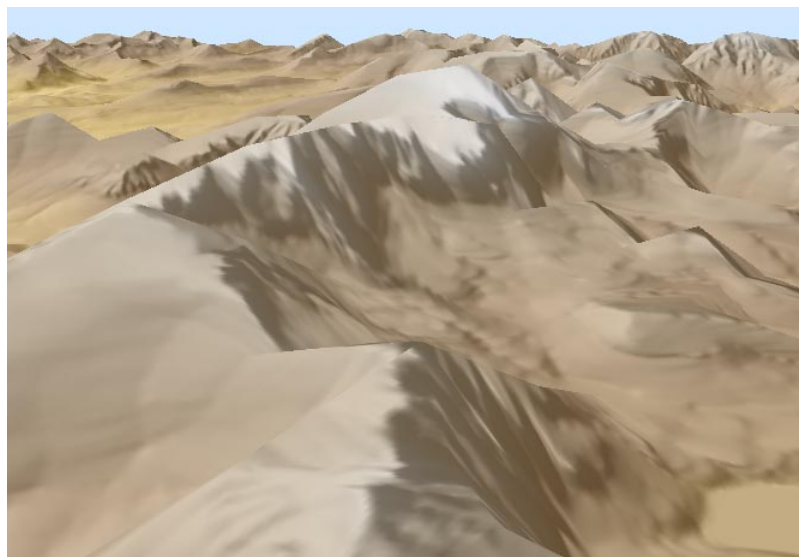
The fastest but least accurate mode is Sparse Triangulation, which samples the surface raster to create a sparse triangular mesh to approximate the surface. Use Sparse Triangulation when your work requires frequent redraws and speed of solid rendering is more important than terrain accuracy. For example, use Sparse Triangulation when you are beginning to set up a new 3D view for a layout or when you are using a 3D Reference View while editing 3D vector objects in the Spatial Data Editor.



**Dense Ray Casting: Highest Surface Detail Slower Display**



**Variable Triangulation: Good Surface Detail Fast Display**



**Sparse Triangulation: Less Surface Detail Fastest Display**

## Comparative Display Times\*

Surface Rendering Method:	Initial Triangulation Computation Time (sec)	Redraw Time (sec)
Dense Ray Casting	0	13
Variable Triangulation	50	8
Sparse Triangulation	0	7

\* Surface raster and color-shade texture raster each 2823 lines x 3395 columns, MipMapAnisotropic texture filter, 2.4 GHz Pentium 4 with 1.0 GB RAM.

Display times in 3D perspective views also vary depending on the texture filter(s) used for the drape raster(s) and on whether any layers are set to use transparency effects. All drape rasters should also have a full set of pyramid tiers to optimize both speed and quality of texture rendering.