# Use LAS LIDAR Point Files as Shape Objects

The LAS file format is a public format for the storage and exchange of LIDAR point data. These binary files store point coordinates, intensity values, and other LIDAR-specific attributes for raw or processed LIDAR points. LAS files can be used to store varied types of LIDAR point data, from raw swath points for individual flight lines to final processed, aggregated, and spatially-tiled data.

An LAS file representing a single flight strip may contain tens of millions of LIDAR points and associated attributes. The TNT products allow you to simultaneously view and use many of these huge LAS files without the need for a separate time-consuming import procedure. When you choose a particular LAS file for the first time for use in any TNT process, you are prompted to provide the appropriate coordinate reference system parameters (if they are absent in the LAS file) and to build a search table (which is required for efficient display and selection of the points). Building the search table takes no more than a few minutes for even huge files. A linked LAS file is presented in the TNT products as a shape object that
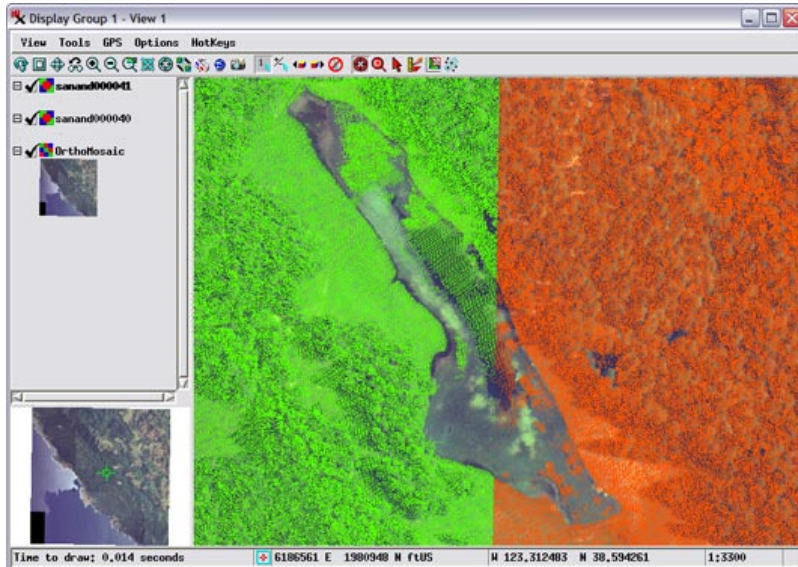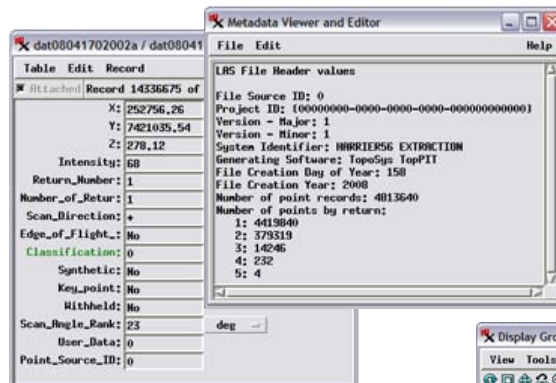

Detail of two linked LAS LIDAR shape layers (green and orange point clouds) displayed over a reference 1-meter color orthoimage (shown to the right at the same scale for comparison). The gaps in the point clouds are due to missing LIDAR returns from the largely al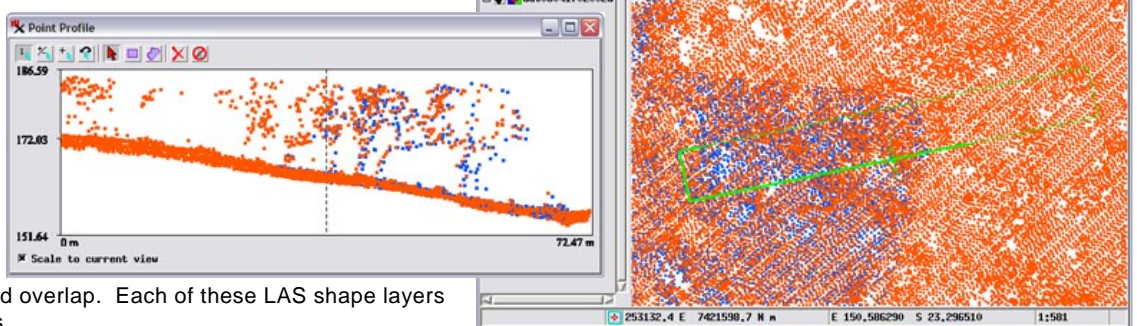gae-covered pond surface. These LIDAR points, acquired and processed by the US Geological Survey, have been subdivided spatially into rectangular tiles, with one LAS file for each tile. The tile on the left includes over 20.5 million points, while the right-hand tile has over 32.5 million points.

can be directly viewed or edited. The LIDAR elevation point attribute information stored in the LAS file is presented as a standard TNT database table that you can view in either tabular or single-record format. LIDAR points can be individually marked in the View to examine their attributes or for editing, or you can use the Point Profile tool to visualize the 3D relationships within groups of points for one or more flight strip LAS files (see the Technical Guide entitled *Spatial Display: Point Profile Tool*).

Coordinates, return intensity, and other LIDAR point attributes stored in the LAS file can be examined in standard TNT table views (tabular or single-record). LAS file header information is automatically stored in a metadata subobject that can be opened from the LAS shape layer's right mouse button menu in the Layer Manager or from any Object Selection dialog.

Detailed view and point profile of points in two linked LAS LIDAR shape layers (orange and blue points) representing point clouds from adjacent overlapping LIDAR swaths. The point profile plots points from the green rectangle in the View, with the profile plane oriented crossing part of the point cloud overlap. Each of these LAS shape layers includes over 24 million points.