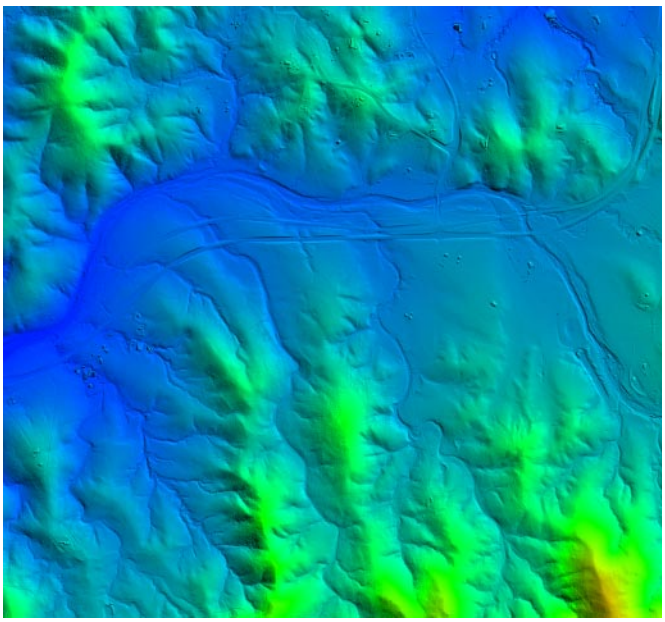
Use LAS Files as Single Seamless Dataset

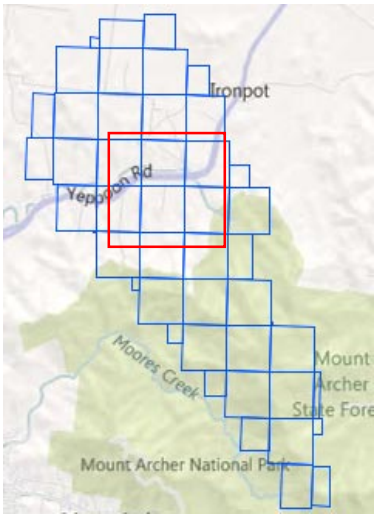
Lidar surveys can cover large areas and record hundreds of millions to billions of return points. Because the large size of the resulting merged data poses a challenge for further processing and analysis in some software, survey data are commonly subdivided into a set of separate LAS files on a square tile grid. Individual tile files can then be processed, viewed and analyzed separately. However, it is also useful to be able to view and use the entire set of Lidar point files together in a convenient and seamless fashion. The Lidar Manager in TNTmips makes this possible by allowing you to create a single Lidar DataSet (LDS) file that links to an entire set of LAS files. You can create a Lidar DataSet from any set of LAS files, including LAS tile files or original flight line files that are mixed, contiguous, or disjoint.

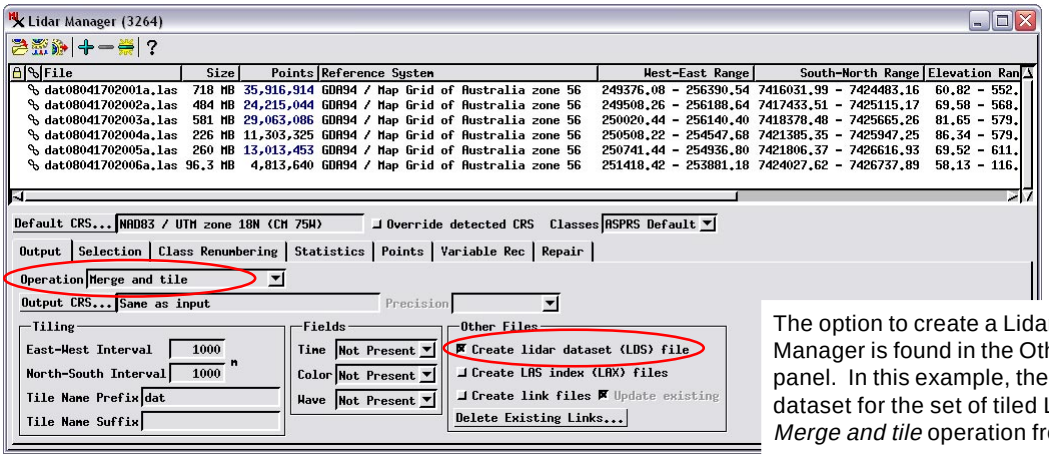


Color shaded-relief TNTmips display of virtual surface created on-the-fly from point elevation values in a Lidar Dataset. This sample Lidar dataset was loaded as a single display layer that links to points stored in 44 tiled LAS files produced by the Merge and Tile operation in the Lidar Manager in TNTmips. Point statistics from the entire dataset are used to present seamless renderings of Lidar point elevation, point intensity, and virtual terrain elevation and shading from all of the component tiles in the view. The area of the view above encompasses a number of component LAS tile files. The extents of this view are indicated by the red box in the illustration below, which also shows the rectangular extents of the component LAS tile files in blue.

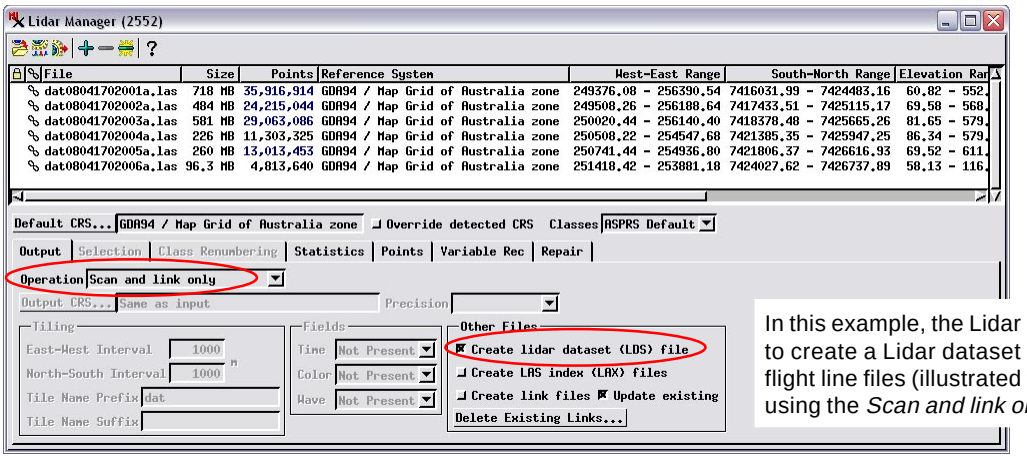
The LDS file records the path to each of the component LAS files, their areal extents and elevation ranges, available point classes, and other statistics for the set of files. To use the set of LAS files in the Lidar dataset in the TNTmips Display process, simply select the single LDS file that links to the set. You can view the data seamlessly using color spreads for point elevation and intensity, or display a virtual terrain surface constructed from the point elevations (using an elevation color spread, relief shading, or a combination; see the LIDAR Technical Guides entitled *LAS Point Cloud Display Options*, *Style Points by Class*, *Elevation*, *Intensity*, and *View LAS Point Cloud as Surface*). Point data are read automatically from all of the LAS files in the current view, and the dataset statistics are used to ensure that all of the data is rendered using consistent ranges of values so that no boundaries are visible, as shown in the illustration to the right. Lidar DataSets of tiled LAS files provide faster display performance than flight line datasets, as only the small tile files in the current view need to be processed for each redisplay.

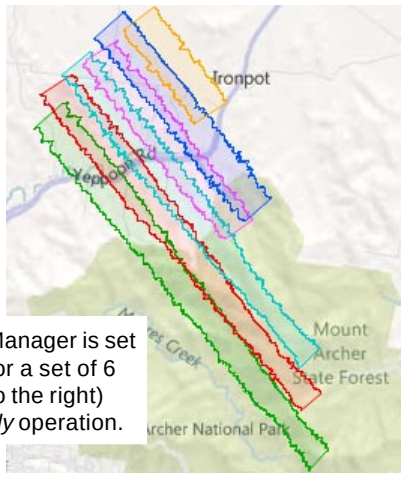
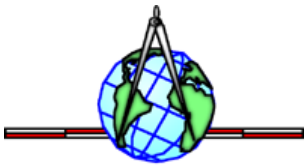
The option to create a Lidar DataSet (LDS) file is set in the Lidar Manager using a toggle button in the Other Files section of the Output tabbed panel (see illustration below). You can create an LDS file for an existing set of LAS files by selecting all of the files as input and using the *Scan and link only* operation. You can also make LDS files when you create tiles using either the *Tile inputs separately* or *Merge and tile* operations. (over)





The option to create a Lidar dataset (LDS) file in the Lidar Manager is found in the Other Files section of the Output tabbed panel. In this example, the Lidar Manager is set to create a Lidar dataset for the set of tiled LAS files being produced by the *Merge and tile* operation from a set of flight line files.





In this example, the Lidar Manager is set to create a Lidar dataset for a set of 6 flight line files (illustrated to the right) using the *Scan and link only* operation.