<u>Import</u>

Linking to Create a Multifile Raster

The Import process in the TNT products allows you to create links to external geospatial data files in a range of formats so that you can maintain the data in their original format without duplication but still use them with your other TNT spatial data. For external sets of raster files that have a "tiled" arrangement (see below), you have the option to set up a link that creates a single, multifile raster object that links simultaneously to all of the external files. A linked multifile raster object appears to you in the TNT processes as a single raster object (see the color plate entitled *System: Using the Multifile Raster Object*). Meanwhile, the original data files remain available for individual use in the TNT products or by other software products.
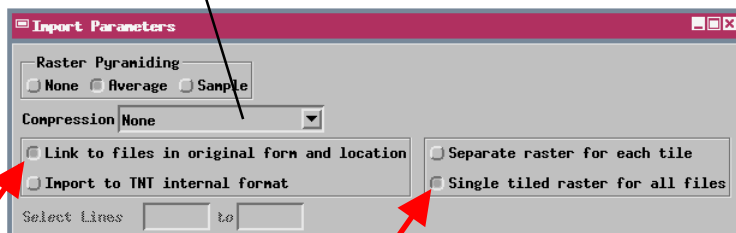
In order to be suitable for multifile linking, the components in a set of external raster files must be georeferenced, have uniform line and column dimensions, and be arranged in a regular rectangular grid with aligned edges. If adjacent tiles overlap, the amount of overlap must be the same for all tiles. These requirements are imposed in order to provide the most rapid display of very large multifile datasets. Some currently-available raster datasets that meet these criteria are the elevation files produced by NASA's Shuttle Radar Topography Mission (SRTM) and orthoimage bundles produced by the United States Geological Survey for metropolitan areas in the United States.

Multifile linking is available in the TNT import process for the SRTM, JP2/GeoJP2, TIFF/GeoTIFF, and MrSID formats. The multiraster linking procedure first checks to see that the selected files have the requisite tiled arrangement and valid georeference (either embedded in the image file or as an auxiliary file such as a World file). It then builds a proprietary wrapper file that links to each of the external files and contains an optimized structure for displaying the tiled files. This proprietary structure provides very fast display times at all scales regardless of the size of the linked dataset (including multi-gigabyte sizes). A multifile linked raster object can be created in just a few minutes even for large tiled raster datasets, as shown by the compressed orthoimage example illustrated here (see the illustration caption for details).

Multifile raster object linked to 641 tiled MrSID files with 10:1 compressed color orthoimages of Lincoln, Nebraska. Each orthoimage file is 5000 lines by 5000 columns with a cell size of 0.3 meters. The area covered by this detailed imagery is 34.5 by 43.5 kilometers, and the compressed imagery collection is spread over two directories occupying 4.5 GB of hard drive space (uncompressed size 44.8 GB: 641 x 5000 x 5000 x 3 bytes/cell). Despite the large aggregate size of the 641 linked files, the proprietary structure built during the link procedure allows this multifile raster object to display in under 1 second at any scale, from full extents (above), to maximum detail (below), or any fractional scale in between. This large multiraster object was created in the Import process in 20 minutes (including selecting the MrSID files) on a 1.8 GHz G5 PowerPC Mac.

Choose a compression method to apply to the pyramid tiers constructed and stored for the external files.

Choose link settings as shown above in the Import Parameters window to create a multifile raster simultaneously linked to multiple external files.