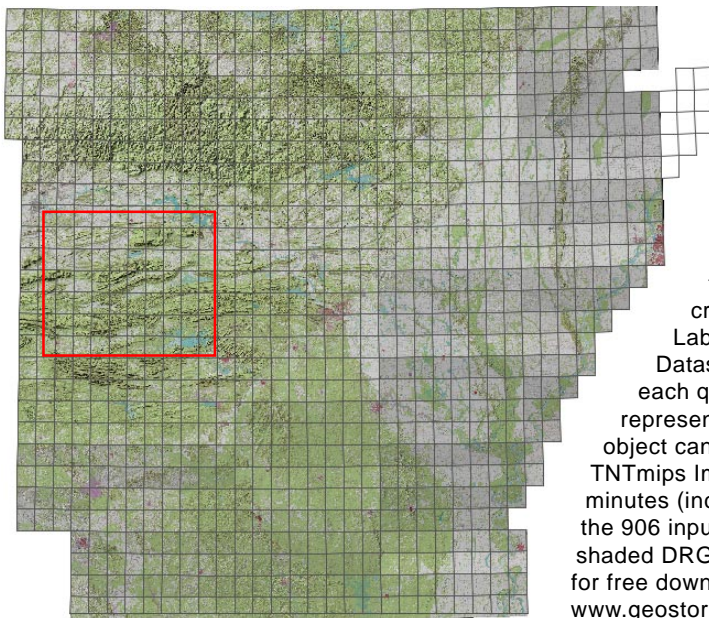


Multifile Raster from Map Quadrangles

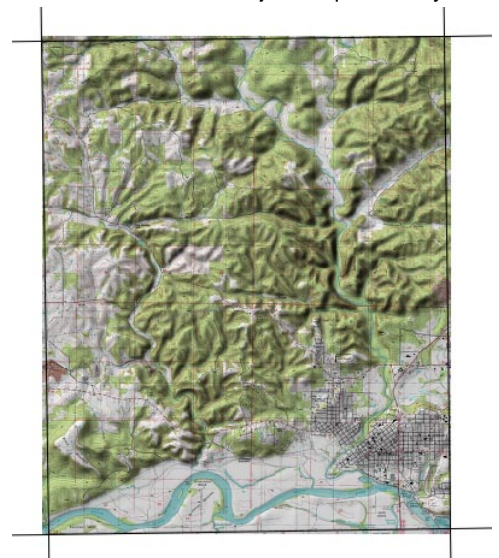
Several kinds of raster geographic data, including digital elevation models, topographic maps, and nautical and aeronautical charts, are distributed by map quadrangle or similar geographically-defined units. Although the quadrangles in a given series have uniform geographic extents, the raster files for a set of quadrangles covering a large area may vary in line and column dimensions (for example, due to differing orientations of the quadrangles with respect to the coordinate reference system used). Despite these variations, you can easily create a multifile raster object linked to a set of quadrangle files (in JP2/GeoJP2, MrSID, TIFF/GeoTIFF, or SRTM formats) in the TNTmips Import process. The files to be linked into a single multifile raster object can overlap, have **differing raster dimensions**, and can vary to a small degree in cell size. However, the files must be in the same file format and must have the **same**

coordinate reference system. Topographic map files must be collarless (that is, omitting the portion of the map sheet outside the map boundary).

The multifile linking procedure does not provide edge reconciliation or special processing of overlapping areas in adjacent files. Thus if the quadrangle raster files have empty (black) cells along their edges, outside the quadrangle boundary, you should use the TNTmips Mosaic process to assemble them into a single internal raster object. The Mosaic process provides various options for handling overlap areas between adjacent input rasters to insure that black cells along the edge of a quadrangle are excluded from the mosaic and the valid data from the adjacent quadrangle is used instead. After the mosaic is completed, you can use it in the Create Tileset process (Raster / Create Tileset) to make a multifile raster object linked to a tiled set of external files in the desired format.



Left, multifile raster object linked to 906 shaded-relief topographic map files (MrSID with 15:1 compression, 2-meter cell size) for 7.5-minute quadrangles covering nearly all of the state of Arkansas. An overlay of the quadrangle boundaries is shown for reference; a zoomed-in view of the area outlined by the red box is shown below left without the quadrangle boundary overlay. Note that there are no visible gaps along the quadrangle boundaries in the multifile raster object at any viewing scale. The input files were created by the University of Arkansas at Monticello Spatial Analysis Lab (UAM SAL) by fusing shading images from the National Elevation Dataset with collarless Digital Raster Graphic topographic images for each quadrangle. The aggregate size of all the linked files is 6.8 GB, representing about 102 GB of uncompressed data, yet the multifile raster object can be displayed at any scale in under 1 second. Linking in the TNTmips Import process to create the multifile raster object required only 8 minutes (including selecting the 906 input files). The input shaded DRG files are available for free download from www.geostor.arkansas.gov.



Above, one shaded DRG quadrangle file. The files were processed by UAM SAL so that the edge portion of each raster outside the quadrangle boundary (overlay of black lines) includes data from the adjacent quadrangles, leaving no blank edge cells. This processing allowed assembly of a seamless multifile raster with no blank cells along the seams between adjacent quadrangles.