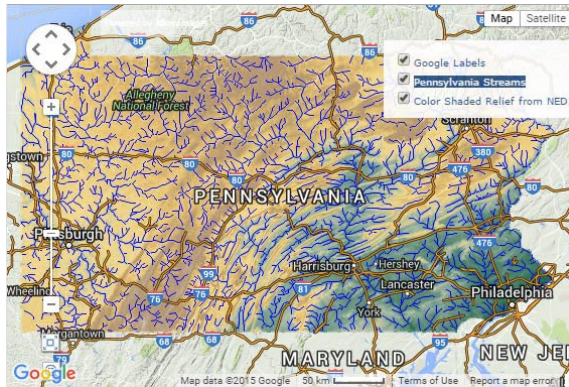# Render to Tileset

The Display process in TNTmips Pro allows you to render any spatial object (vector, shape, CAD, raster, or database pinmap) or combination of spatial objects to a standard web tileset in Google Maps, Bing Maps, Google Earth, or World Wind tileset format. Any styles, symbols, labels, and other visual enhancements that you have designed for viewing your geospatial layers are also used for rendering these objects to a tileset. For geometric objects (vector, shape, and CAD) you can use the familiar methods for controlling the elements that are drawn: selection by attribute, by query, or by map scale. Your geospatial layers are rendered to a tileset in essentially the same form and appearance as they are rendered to the View window. However, the full extents of the displayed spatial data are rendered to the tileset, not just the portion currently shown in the View. Each zoom level in the output tileset is rendered separately from the source data.

You access the Render to Tileset control window from the Display Manager (Display / Render To / Tileset). Use the Output tabbed panel (illustrated on the reverse) to specify the target geobrowser, image for-
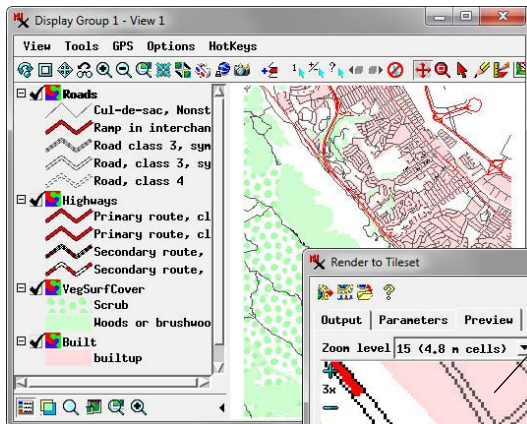

Left, a geomashup of tilesets created using the Render to Tileset option in the Display process in TNTmips. This Google Maps geomashup can be viewed at the web address shown below.

The Color Shaded Relief tileset in this geomashup was rendered from an elevation raster with color palette overlaid with partial transparency by a shaded-relief raster computed from the same elevation raster (below left).

http://www.microimages.com/geodata-htm/geomashups/image/PAstreamsRelief_GM.htm
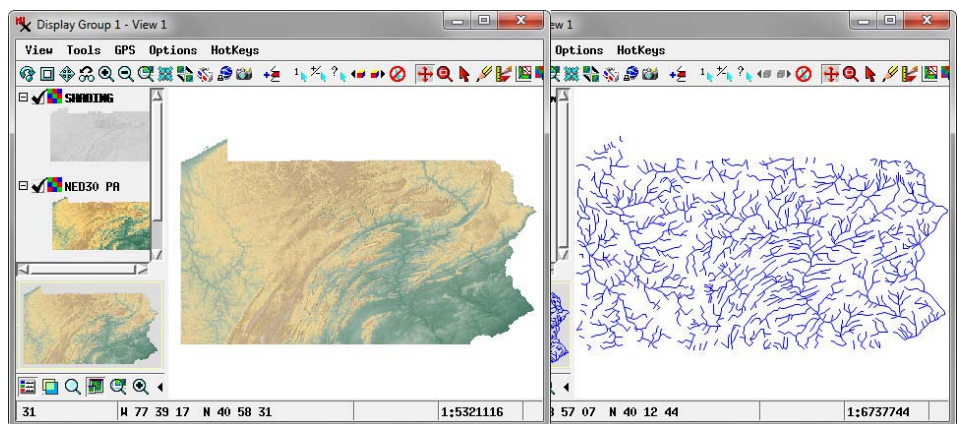
The Pennsylvania Streams layer in the geomashup above was produced from a suite of TNTgis vector objects representing stream courses. PNG tiles were used for all zoom levels in this stream tileset to allow areas between the stream lines to be transparent.

mat, maximum zoom level, and number of zoom levels, along with other settings specific to the selected geobrowser.

NOTE: Rendering from web tilesets, including Bing Maps and MapQuest public reference layers, is not permitted in TNTgis software.

If necessary, the spatial data layers are automatically reprojected to the coordinate reference system required for your selected geobrowser target before the lay-

(continued)

The TNTgis view above includes four vector layers showing built surface area and vegetative surface cover polygons (with solid and patterned fills) and lines with complex styles showing highways and roads. Render to Tileset uses the displayed styles for each of the layers to create each tile in the output tileset.
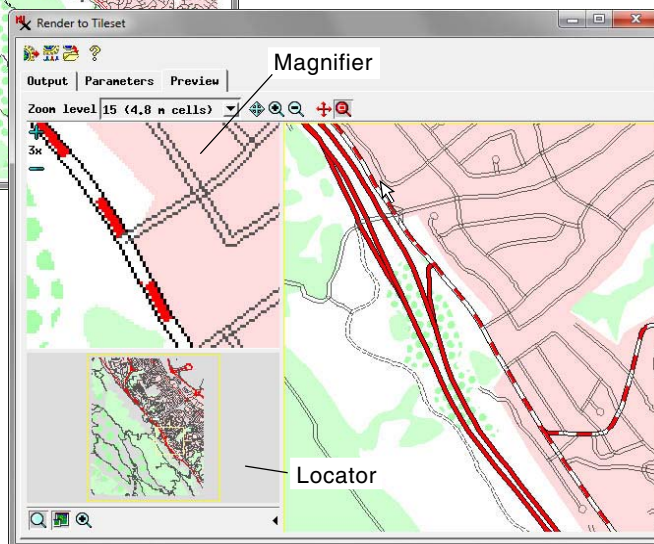
The Preview panel allows you to see a preview rendering at any zoom level for any area of the data. The preview shown here is rendered from the four vector layers illustrated far left. The Preview panel includes an optional Magnifier that lets you examine the rendering in the area surrounding the cursor at 2X, 3X, 4X, or higher magnification. Standard zoom and reposition icon buttons are provided to let you quickly change the area or zoom level of the preview. You can also use the box graphic in the Locator pane (which indicates the size and location of the current preview) to pan and zoom the preview.

Save Jobs   Queue Jobs   Run
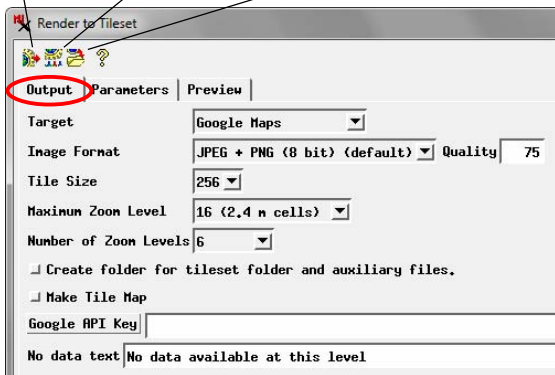
Use the controls on the Output tabbed panel to choose the target geobrowser, image format, maximum zoom level, and number of zoom levels. These controls are similar to those found in the Export to Tilesets process and the Mosaic process.
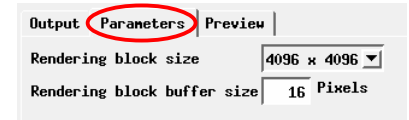
The displayed layers are rendered to tiles in memory in blocks of predefined size. To minimize tile-edge artifacts with styled geometric elements, blocks are rendered with a buffer and then clipped to the designated block size. Use the controls on the Parameters tabbed panel to choose the block size and block buffer size.

ers are rendered to the output tiles. To manage memory, the spatial layers are rendered in memory in square blocks of predefined pixel dimensions. You can choose a rendering size of 2048 x 2048, 4096 x 4096, or 8192 x 8192 pixels. Choose the largest size that is appropriate for your computer's physical memory. To reduce potential rendering artifacts with styled geometric elements at the boundaries between rendering blocks, the spatial layers are actually rendered to a slightly larger block area and then clipped to the specified rendering block size. You can set the size of this rendering block buffer in pixels.

Render to Tileset can take advantage of your computer's multiple processor cores via the TNTmips Job Processing system to speed tileset rendering. Use either the Save Jobs or Queue Jobs icon button at the top of the window to partition the rendering procedure into a separate job for each rendering block and enable simultaneous processing of multiple blocks. The TNTmips Job Manager automatically opens to show the list of held and/or queued jobs and allows you to set the number of simultaneous jobs to process. You can easily run as many simultaneous jobs as your computer has processor cores (e.g., 4 or 8 simultaneous jobs), speeding the overall tileset rendering process. If you do not wish to use job processing, simply press the Run icon button to run the

rendering as a single process. For more information, consult the Technical Guide entitled *System: TNTmips Job Process System*.

Rendering tilesets from views containing geometric layers (vector, shape, or CAD) may necessitate special preparation of the geometric data. Map data layers represented by geometric objects are prepared at a particular map scale. Zooming out from the intended map scale (as occurs when rendering geometric data to a tileset with multiple zoom levels) may result in excessive data density, line complexity, and poor rendering of styles and symbols at progressively lower resolutions. To enable you to design the proper rendering of complex data, you can preview the tileset rendering at any desired zoom level for any data area using the Preview panel (illustrated on the front side of this page). The preview can be panned and zoomed and provides a magnified view of the rendering.

For the geomashups with vector layers illustrated on these pages, each source vector was progressively filtered and edited in TNTmips to reduce line density and complexity for the lower-resolution zoom levels. Render to Tileset was then used to produce a separate, single-level image tileset for each zoom level from the vector object appropriate for that display scale. The zoom level tilesets for each map theme were then assembled into a single tileset using the Merge Tilesets process for use in the geomashup.
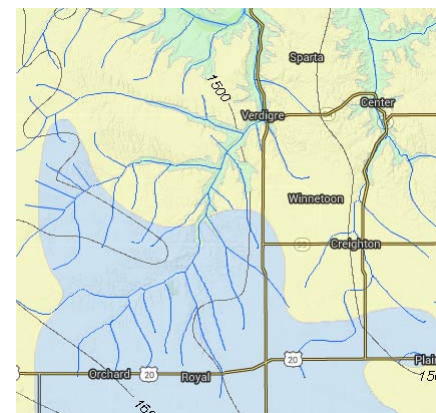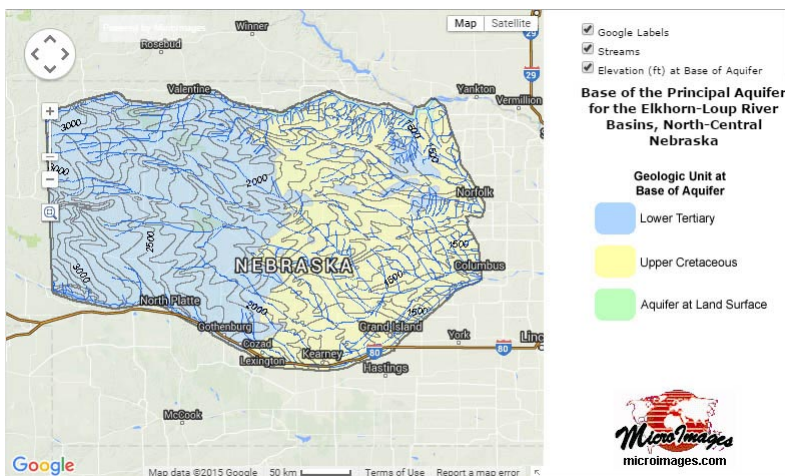
http://www.microimages.com/geodata-htm/geomashups/imageMaps/ElkhornLoupAq_GM.htm

Shown above is a geomashup of three tilesets, each produced in TNTmips from vector objects. The three tilesets depict map data for a groundwater aquifer in northern Nebraska. The layers include a map of geologic units below the aquifer, contours (with labels) of the elevation of the base of the aquifer, and surface streams. The geomashup in Bing Maps can be viewed at the web address noted above.