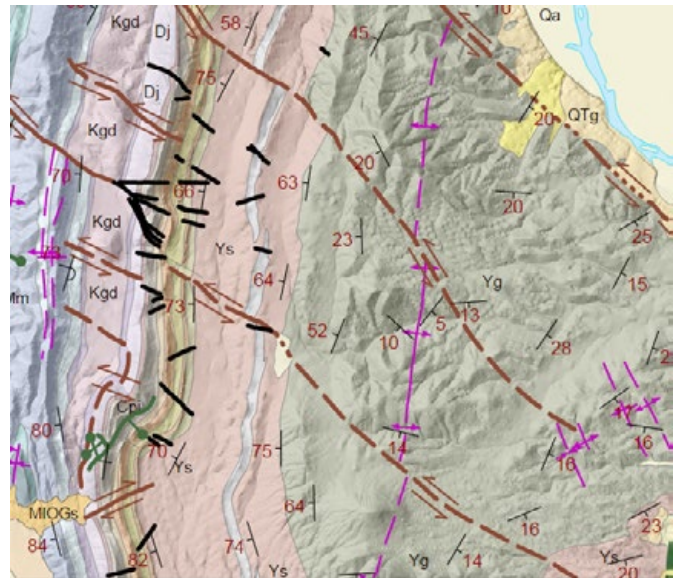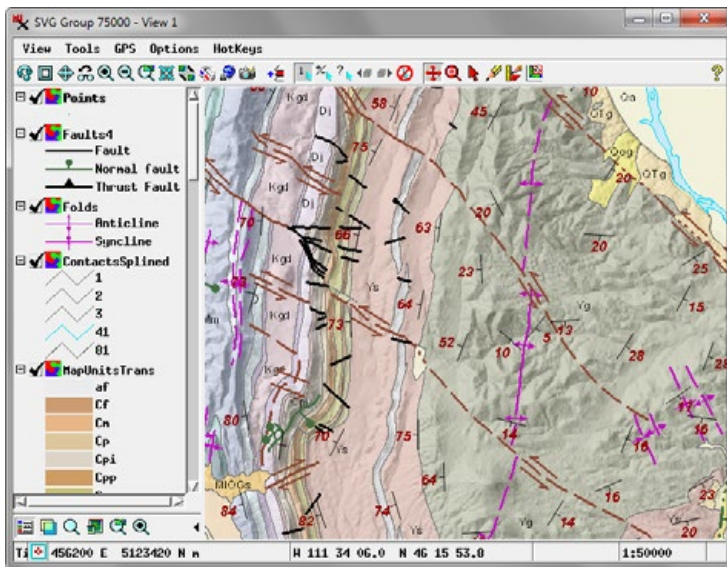# Render to SVG

Scalable Vector Graphics (SVG) is a graphic file format developed to present high-quality vector graphics in web pages. The Render to SVG operation in TNTgis allows you to render one or more displayed geodata layers to an SVG file. The operation can render geometric and raster layers, map grids, legends and scale bars, and text labels. You can choose to render the full extents of the data layers or restrict the rendering to the area shown in the View, and set the coordinate accuracy of the result. To use the Render to SVG operation, choose Display / Render to / SVG from the Display Manager in TNTmips or TNTedit. The Render to SVG operation is not available in TNTview.

to PNG format. Raster layers are reproduced in either PNG or JPEG format, and these images can be embedded in the SVG file itself or saved to separate files linked to the SVG file.

Modern web browsers include direct support for reading and rendering SVG graphics. These browsers also automatically apply standard graphic enhancements such as anti-aliasing lines to produce a smooth, high-quality rendering of the vector data at the desired graphic size in the browser window. The ability of SVG to present both image and styled geometric data make it well suited to web illustrations of GIS data.

Geologic map rendered to SVG (right) from multiple TNTgis layers (left), including relief shading raster, map polygons with dynamic labels, contact lines, fold and fault lines styled by CartoScript, and CartoScript point symbols and labels indicating strike and dip of rock layers.

Scalable Vector Graphics (SVG)

SVG files are XML-based text files that can include points, lines, closed shapes (polygons, circles, ellipses, rectangles), and text along with associated style information. The rendering operation is able to reproduce in SVG the complex styles you have set up in TNTmips for points, lines, and polygons (including varying transparency of fill colors). Custom point symbols and line renderings created by TNTgis CartoScripts are also reproduced in SVG, along with styled text from label elements and dynamic labels. Bitmap point symbols in geometric layers are rendered

Render to SVG Options

The Options tabbed panel on the Render to SVG window allows you to set general options for the render operation.

Coordinate Accuracy and Units: You can set the cell size of rendered raster layers and the spatial accuracy of geometric elements by entering a value in the Coordinate Accuracy field and choosing a distance unit from the Units menu. Setting a smaller Coordinate Accuracy value increases the size of the

(continued)
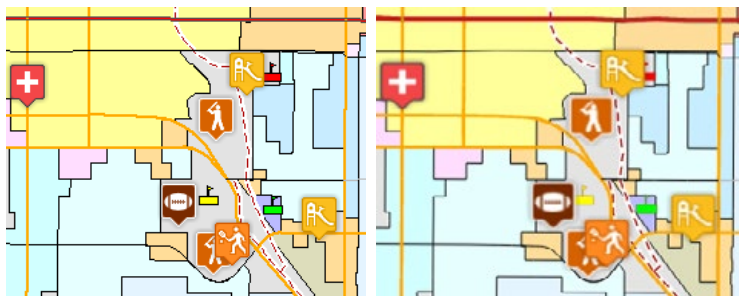
Polygons, styled lines, and bitmap and graphic point symbols in TNTgis view (left) and rendered to SVG (viewed in web browser, right).
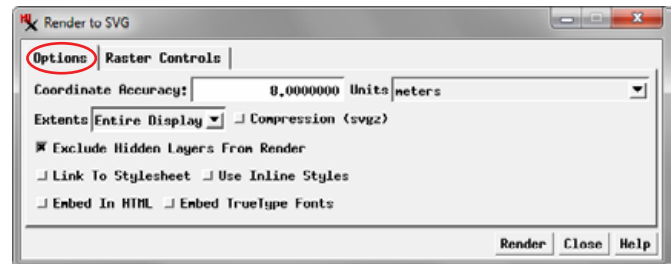
NOTE: Rendering from web tilesets, including Bing Maps and MapQuest public reference layers, is not permitted in TNTgis software.

arbitrary coordinate space that contains the data in the SVG file, allowing for greater spatial accuracy for geometric data. For raster layers the Coordinate Accuracy value sets the cell size of the rendering.

Extents: The Extents menu allows you to set the extents of the display to be rendered. The Entire Display option renders the entire extents of the display, including areas outside the extents of the current View window(s). The menu also provides a Match View option for each open View window, allowing you to render just the area shown in a particular View.

Compression: Turning on the Compression toggle creates a gzipped SVG file with the "svgz" file extension. Compression can substantially reduce the file size and result in faster down-loading of the file when used in a web page.

Exclude Hidden Layers from Render: When this toggle is turned on, any layers that have been manually hidden in the view are not included in the SVG output.

Style Options: The Render to SVG operation creates style definitions for text and graphic elements using Cascading Style Sheet (CSS) syntax. In the default mode, any elements that are styled by attribute are detected, a list of the unique styles is created in the SVG file, and each graphic element or text string is linked to the appropriate style definition. All style information is thus contained in the file in the most compact form.

If you turn on the *Link to Stylesheet* toggle, the style definitions are written to a separate CSS file with the same root name as the SVG file, and the SVG elements are linked to the styles in this external file. If you create a number of SVG files from the same dataset, these text-based files could be edited rather easily to link to a single common CSS style file to avoid duplicating style information.

If you turn on the *Use Inline Styles* toggle, style information is written independently for each graphic element and text string. If multiple text strings or elements share the same style, the style defintion is duplicated, increasing the size of the file. This

option is provided for older web browsers that may not support CSS style definitions.

Embed in HTML: This option embeds the SVG code within a simple HTML file which can then be edited to provide additional text or graphic content.

Embed TrueType Fonts: Turning on this toggle transfers font definitions to the SVG file for any TrueType Fonts used in the rendering. Use this option if the source data includes unusual fonts that may not installed on the destination computer or web server. In this case embedding the font definitions allows the text in the SVG file to be rendered with the intended font.
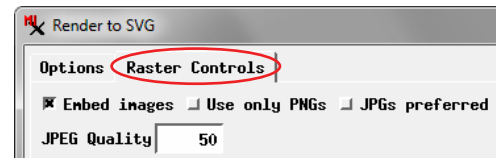
Raster Controls

The Raster Controls tabbed panel provides settings for raster layers being rendered to SVG. Turn on the *Embed images* toggle to embed rendered images in the SVG file itself rather than saving as separate files linked to the SVG file. Embedding images simplifies file management and transfers to other computers.

Raster layers can be rendered in either PNG format, which supports lossless compression and transparency (such as for null cells in TNTgis rasters) and JPEG, which provides lossy compression but does not allow for transparency. By default the Render to SVG operation automatically uses PNG format if it detects that the raster layer uses transparency, otherwise JPEG format is used. The *Use only PNGs* and *JPGs preferred* toggle buttons (which are mutually exclusive) allow you to override the default behavior and specify the output raster format. The value in the JPEG Quality field (0 to 100) sets the image quality by varying the amount of lossy compression applied. Higher values result in less compression and more faithful reproduction of the original image, but result in larger file sizes.