

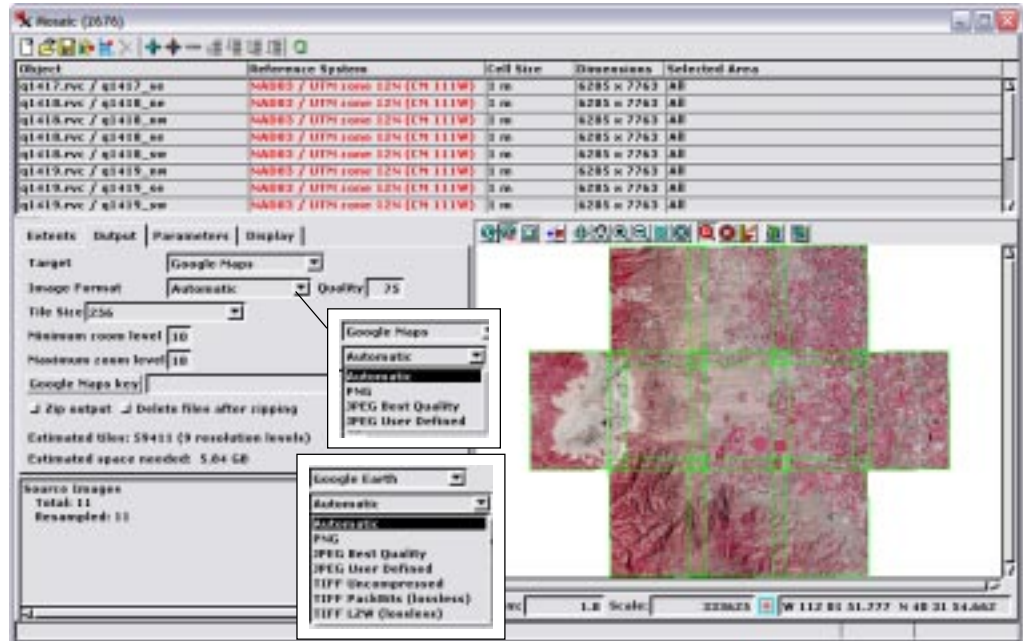
Tile Formats for Google Earth and Google Maps

Optimal performance of your geodata in Google Earth and Google Maps requires use of Google's standard tile structures and file formats. Super-Overlay is Google's term for the optimal structure for a Google Earth tileset that it can use as a Temporary Layer. Tile Overlay is Google's term for the mandatory tileset structure for use with the native Google Maps map, satellite, and other layers.

The tiles in a Google Maps Tile Overlay must be JPEG and/or PNG files. Google Earth is more flexible with regard to tile formats, which can be JPEG, PNG, and/or TIFF files. TNTmips Pro's Auto Mosaic process can assemble your maps and images into these standard, optimal tilesets with tiles in the proper formats. The Automatic format option (described below) provides an optimal combination of these tile formats for most uses.

The JPEG format provides greater compression than PNG or TIFF, reducing the storage required for the tileset, but the compression is always lossy and thus most appropriate for continuous-tone images. If you choose the JPEG User Defined format option you can specify the desired compression quality using the Quality numeric field. If there are null areas around the edge of the input image set, JPEG tiles that cross this boundary are black in the null area.

PNG tiles use a lossless compression scheme that is appropriate for continuous-tone images as well as map images with a few



Mosaic window showing input color infrared orthoimages, with target set to Google Maps. Insets show format options for Google Maps and Google Earth. These format options are also summarized in the table below. Google Maps tilesets from this layout using different file format options are shown at the bottom of the page.

colors and large areas of uniform color. However, PNG tiles of continuous-tone images are usually significantly larger than JPEG tiles, which use lossy compression. Unlike the other two formats, PNG tiles incorporate transparency. For example, each PNG tile that spans the edge of the mosaic image is automatically set to be transparent over the non-image area of the tile. You can also choose PNG format for your Google tilesets derived from shapefiles and other geometric objects which require transparent areas in each tile.

The Automatic format option produces a tileset with mixed tile formats. It uses JPEG User Defined format for interior tiles to provide maximum compression and automatically switches to PNG format for any tile that spans the border of the valid image area to provide transparency for null areas.



Google Maps overlays created from the mosaic layout shown at top of page. The tile overlay on the left was created using the Automatic format option, which uses JPEG format but automatically switches to PNG format for tiles that cross the edge of the image to provide transparency for null areas. The tile overlay on the right was created with the JPEG Best Quality format option. Null pixels around the edges of the image in the tile overlay are black. In zoomed-out views these marginal black areas may extend far beyond the edges of the image because Google Maps tiles have a fixed size of 256 by 256 cells at all zoom levels and are aligned on a predetermined grid.

You can use TIFF files in a Google Earth tileset for better image quality. They are actually GeoTIFF tiles that can also be used as georeferenced images in other processes. TIFF format options include uncompressed and two lossless compression options (PackBits and LZW). TIFF format is suitable for any type of image but provides less compression than JPEG and does not provide transparency for non-image pixels. If you wish to use a format with lossless compression, PNG format is thus preferable to TIFF.