Mosaic To Google Earth Super-Overlay

The Auto Mosaic process in TNTmips Pro can convert a large collection of your maps and images into a tileset with the native Google Earth Super-Overlay structure for optimal viewing in Google Earth. The Super-Overlay includes the tileset structure and a master KML file that references and overlays your data as a temporary layer on the native Google Earth imagery in your local Google Earth application or in the Google Earth browser plugin. This KML file and the map or image tileset it references can be distributed on a DVD or other media for local use or accessed directly from your web site. The Mosaic process creates a companion HTML file that you can add to your web pages to allow anyone to view the Super-Overlay in their browser with the Google Earth browser plug-in.

> **Super-Overlay** is Google's term for a tiled, multi-resolution image that provides the most efficient and responsive 3D perspective viewing of your very large images in Google Earth. Each tile in the hierarchical structure is accompanied by an individual KML file that specifies that tile's extents and appropriate level of detail and also references the corresponding tiles in the next higher resolution level. This structure allows Google Earth to rapidly load only those tile areas that are currently in view and to determine the appropriate resolution level to show for each area depending on the closeness of the user's viewpoint.

1 Reference System

Choosing *Google Earth* as the mosaic target on the Output tabbed panel automatically sets the Reference System option on the Extents tabbed panel to the WGS84 / Geographic coordinate reference system required by Google Earth.

2 Image Format

A Google Earth Super-Overlay can include tiles in JPEG, TIFF, and / or PNG format. The default format option automatically uses PNG format for any tile that crosses any border of your valid image area (to provide transparency for null areas) and JPEG User Defined format for all other tiles (to provide maximum compression). More information about choosing tile formats can be found in the Technical Guide entitled *Tilesets: Tile Image Formats*.

3 Tile Size

The tile size (linear dimension of the square tiles) in a Google Earth Super-Overlay must be a power of 2. Google recommends a tile size of 256 or 512 pixels, but MicroImages has found that a tile size of 1024 for large tile overlays provides excellent performance in Google Earth while reducing the number of tile files by a factor of 16 compared to a 256-pixel tile size. The Tile Size field is set to a default value of 1024 the first time you choose Google Earth as a mosaic target, but the last-used value is retained as the default for subsequent Google Earth mosaics.

Google Earth Zoom Levels

A Google Earth Super-Overlay includes sets of precomputed reduced-resolution tiles for viewing at different levels of detail ("zoom levels") in Google Earth. Because Google Earth does not require a single fixed tile size, levels-of-detail in a Google Earth Super-Overlay are not required to conform to a global, pre-defined numbering system. Rather, the zoom level numbers and the ground pixel size at any particular level vary depending on the selected tile size. For more information see the *Tileset* Technical Guides entitled *Google Earth Structure* and *Setting Zoom Levels*.

4 Maximum Zoom Level

The Mosaic process automatically sets a default value for the Maximum Zoom Level setting so that the highest-resolution level in the Google Earth Super-Overlay has a cell size equal to or smaller than the input raster with the highest resolution. You can set a lower value to produce a tileset with a lower maximum resolution if desired.
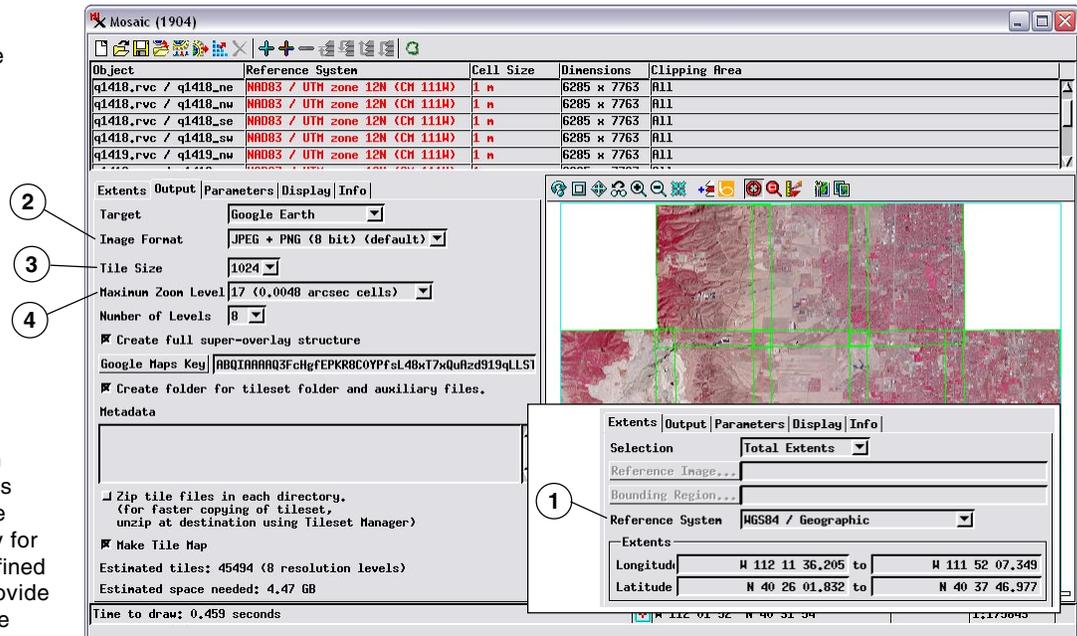
Perspective view in Google Earth of the Super-Overlay created from the small mosaic layout shown on this page. Google's Super-Overlay tileset structure provides the fastest possible display of your very large overlays in Google Earth.

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(5) Number of Levels

The Number of Levels setting defaults to a value such that at the minimum zoom level the image area in your Super-Overlay covers no more than 256 by 256 pixels. The geographic extents of your image may cause it to cross the tile grid boundaries, resulting in up to 4 tiles in this level. You can change the Number of Levels setting to reduce the number of zoom levels created in your tileset.

(6) Create Full Super-Overlay Structure

A Super-Overlay works best in Google Earth if the master KML file links to a minimum zoom level with a small number of tiles (2 to 4) and accompanying KML files. If you choose to produce a reduced set of zoom level tiles, such that the minimum zoom level produced still has a large number of tiles, the Auto-Mosaic process can produce "dummy" lower zoom levels with linked KML files but no image tiles to complete the low-zoom-level portion of the Super-Overlay Structure. The resulting structure can then be viewed correctly in Google Earth.

(7) Google Maps Key

Using your Google Earth Super-Overlay in the Google Earth browser plug-in may require a Google Maps API key. If you have already obtained a Google Maps API key, enter your key value in the field. If you don't yet have an API key, press the *Google Maps Key* pushbutton. Your web browser then opens and shows the web page where you can sign up for the Google Maps API and obtain a key. The Mosaic process writes this API key value into the required section of the sample companion HTML file produced with the tileset.

(8) Create folder for tileset

The Google Earth tileset you create consists of a folder containing all of the zoom level tiles as well as a number of auxiliary files that enable the tileset to be used in the TNT products and viewed in web geobrowsers. Turning on this toggle creates a folder that encloses all of the files and folders produced. This folder is automatically given the tileset name.
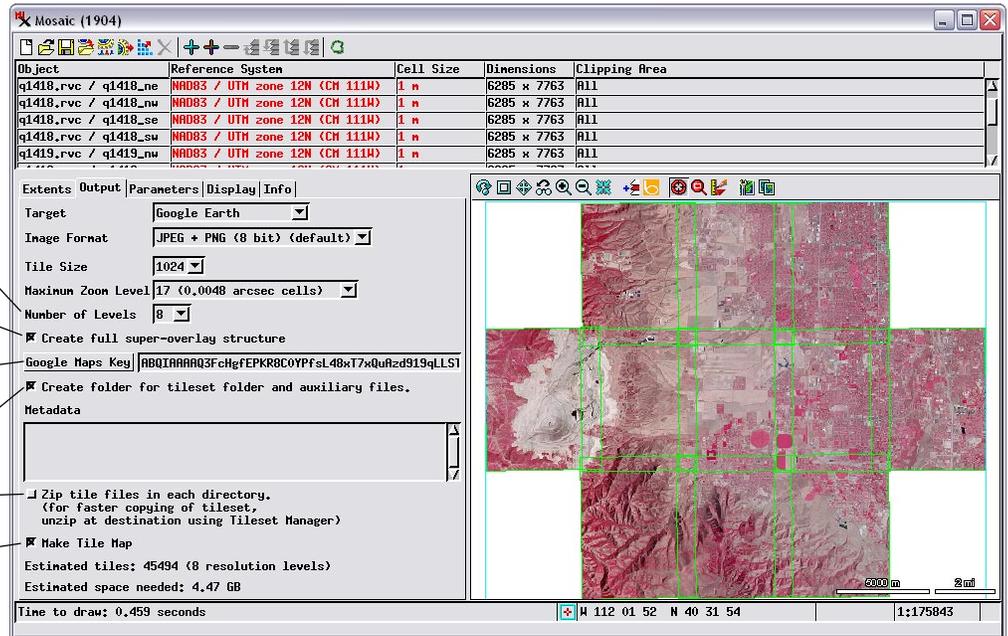
(9) Zip output

A Google Earth Super-Overlay can consist of hundreds of thousands of small individual tile files and KML files organized in a series of subdirectories. Copying this tileset to another drive location or medium can be time-consuming because of the large number of directories and files involved. Copying the tileset is much faster if it has been archived in a single Zip file.

If you plan on moving or redistributing your Google Earth Super-Overlay, turn on the *Zip output* toggle to copy the entire tileset into a single Zip file. Turn on the accompanying toggle if you want the original tileset files to be deleted after the Zip file is created. The Tileset Manager can be used to automatically unzip a directory-zipped tileset (see the TechGuide entitled *Tilesets: Managing Structures*). As an alternative, you can use a third-party compression application to archive the entire tileset into a single Zip or RAR archive for copying.

(10) Make Tile Map

The Make Tile Map toggle enables creation of a tile map that records the spatial distribution of tiles along with their image formats and sizes. You can use tile maps to check the integrity of your tilesets and identify and correct problems (see the TechGuide entitled *Tilesets: Checking Spatial Properties Using Tile Maps*).