Managing Structures

Standard web tilesets (Google Maps, Bing Maps, Google Earth, and NASA World Wind) are conceptually simple hierarchical directory structures that can contain millions of small individual raster files in several very common formats. After a tileset structure is created, it may be desirable to delete, remake, or add lower-detail zoom levels without remaking the entire tileset. The Tileset Manager process in TNTmips provides this capability. A large tileset can also confound even the lastest versions of Windows and Mac OS, which cannot efficiently handle operations on millions of files in a single directory or directory hierarchy. This is especially true of operations on the entire tileset, such as copying, zipping, or deleting. The Tileset Manager can zip the tile files into one zip file per directory to reduce the overall file count to a level that these operating systems can handle efficiently. It can also unzip a directory-zipped tileset.

You can also edit the TSD file linked to a tileset or create or recreate a TSD link to a tileset. The HTML and KML auxiliary files of a tileset can also be updated in this process to take advantage of new capabilities

image fits within a single image tile at that zoom level, even if you have requested even lower-resolution zoom levels.

Alternatively, the *Delete levels* option on the Settings panel allows you to delete a range of existing zoom levels from the selected tilesets. In both the Build and Delete operations the TSD link file that describes the tileset structure is automatically updated to reflect the addition or removal of the specified zoom levels.

If you have adequate space on the drive hosting your input tileset, additional zoom levels created using the *Build levels*
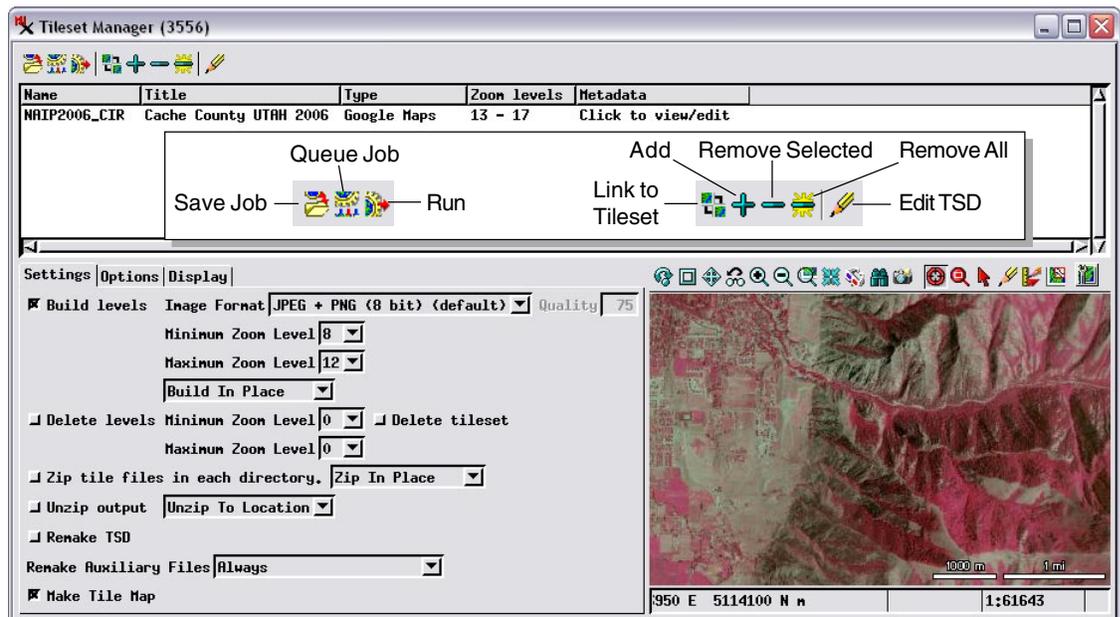
In this illustration the Tileset Manager is set up to compute additional lower-resolution zoom levels (12 through 8) for a Google Maps tileset with existing zoom levels 17 through 13. To facilitate later copying of the modified tileset to a new location, the option to *Zip tile files in each directory* is also turned on.

that are added and supported in upgrades to TNTmips. You can operate on tilesets one at a time or select several tilesets with similar structures to process together. Tileset Manager operations can be run immediately using the Run button or directed to the TNTmips Job Manager using the Save Job or Queue Job icon buttons.

Building and Deleting Levels

If you have tilesets with only one (or a few) higher-resolution zoom levels, you can use the *Build levels* option on the Settings panel to build additional lower-resolution zoom levels that are computed from the existing tileset and added to its structure. You specify the range of additional zoom levels by setting the Minimum and Maximum levels. If the zoom level range you specify overlaps with the range of existing zoom levels, only the new levels are created. In addition, building of low resolution zoom levels ceases when the total tileset

operation can be stored in the same directory structure with the existing tileset using the *Build in place* menu option. For massive tilesets (e.g., the MicroImages global Landsat tileset), there may not be space on a single hard drive to store all of the desired zoom levels. In this case you can choose the *Build to location* menu option, which prompts you for a new directory location (which can be on another hard drive) to store the directories and tiles for the added zoom levels. The TSD file is automatically modified to reference the correct drive location for each zoom level, allowing a single massive tileset to be spread across several drives.

Zip and Unzip Tile Files

To facilitate copying and moving large tilesets, TNTmips processes that create tilesets offer the option to package the tile files in each subdirectory in the structure in zip files. If you did not choose this option when creating a tileset, the Tileset

Manager allows you to create zipped tileset subdirectories. You can choose to zip the existing tileset structure (using the *Zip in place* menu option) or make a zipped copy of the original tileset using the *Zip to location* menu option.

Although TNTmips can display and process tilesets that are zipped by subdirectory, a directory-zipped tileset must be unzipped in order to be displayed in a browser via one of its standard HTML files created with the tileset or via a geomashup. You can choose the *Unzip output* option on the Settings panel to automatically unzip all of the zip files in a directory-zipped tileset. You can do this in place or choose the *Unzip to location* menu option, which makes an unzipped copy of the tileset in the designated location, leaving the input zipped tileset intact.

Link to Tileset

If you have obtained a standard web tileset from an outside source, this tileset requires a TSD link file in order to be viewed or processed in TNTmips. You can use the Link to Tileset icon button on the Tileset Manager window to open the Link to Tileset window, select the directory containing the tileset, and create the required TSD file. This procedure can also be accessed directly from the TNTmips menu using the Tileset / Link To menu selection (see the Technical Guide entitled *Tilesets: Link to a Structure*).

Edit TSD

If you have made manual changes to the structure of a tileset (e.g., using the operating system to delete or relocate one or more zoom level directories), the Tileset Manager allows you to manually update the tileset's TSD file to bring it into conformity with the new tileset structure. The Edit TSD icon button at the top of the Tileset Manager window opens the Edit TSD window, which is illustrated to the right. This window provides interactive controls for modifying different parts of the TSD file. You can add a descriptive title and metadata to the tileset using the fields at the top of this window. (Right-clicking on the Title or Metadata field of a tileset's list entry in the Tileset Manager window opens a simpler window for editing the title and metadata). The information in the Title and Metadata fields is added to the TSD file. If the auxiliary HTML files are remade, the information is also added to appropriate tags in these files. When the tileset and HTML files (which allow it to be viewed in a geobrowser) are posted on the web, the title and metadata in the HTML file can be indexed by Google and other web search services, allowing your tileset to be found by web searches.

You can adjust the geographic extents of the tileset by entering new values in the extents fields and specify the

new minimum and/or maximum zoom level. The Location/Level grid in the bottom portion of the window allows you to specify the new directory paths for any specific zoom levels that have been manually relocated.

Other Tileset Manager Operations

From time to time MicroImages adds features to the structure of the TSD tileset link file to refine the way in which it describes the tileset structure or to store additional information with the tileset. Even if you are making no structural changes to the input tileset with the Tileset Manager, you can turn on the Remake TSD toggle on the Settings panel to remake the tileset's TSD file using the current TSD format. (As noted above, any Tileset Manager operations you perform that alter the structure of the tileset automatically remake the TSD file.)

The *Remake auxiliary files* menu choices determine whether the standard HTML files accompanying the tileset are remade when the tileset's structure is updated. You can choose to always or never remake these files, or to only recreate missing auxiliary files.

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

The Options tabbed panel on the Tileset Manager window allows you to provide the Google Maps Key that is necessary for your tileset to be viewed by anyone in Google Maps from your website. You can also specify the location of the PHP script that allows viewing of a hierarchical (Google Maps) tileset in Bing Map's 3D mode (see the TechGuide entitled *Geomedia Publishing: Geomashup Data Management Options* for more information).

The Edit TSD window provides controls that allow you to manually update the contents of a TSD file whose tileset structure has been altered manually rather than by standard TNTmips tileset processes.