

Geomashup Data Management Options

You can use the Assemble Geomashup process in TNTmips to combine your own standard web (raster) tilesets, geometric tilesets, and KML files with geodata layers from other sources on the Internet for viewing in a web geobrowser (Google Maps, Bing Maps, Google Earth, or Open Layers). You can create geomashups for private use on your local computer or network or for public use on the Internet. Geomashups intended for Internet use can be created by selecting tilesets and KML files that are already on the web. Alternatively, you can create a web geomashup by selecting your custom tilesets and KML files that are currently stored on a local or network drive, but which you intend to copy to a web location later along with the geomashup. The Options tabbed panel in the Assemble Geomashup window provides data management settings that allow you to ensure that the geomashup will work properly in its intended final location.

Data Links in Geomashup Files

An HTML/JavaScript file (*.htm) is created by the Assemble Geomashup process with links specifying the location of the tiles folder for each tileset you have selected as a custom base map or overlay (or the location of the KML file for a simple KML overlay). The JavaScript code in the file uses each of these links (stored as a “base URL” setting) to construct a template enabling the web mapping API you have selected (e.g., Google Maps) to access and display each tile in your custom tilesets when needed. The type of data links that are embedded in the HTML/JavaScript file created by the TNT Geomashup process depends on the locations of the tilesets that you select and your settings on the Options panel. The data link type in turn affects the scope of use and portability of the geomashup. The three possible types of data link are web address (URL), relative directory path, and absolute directory path. These link types and their characteristics are shown in the table at the bottom of this page and are explored further below.

Internet Tilesets

In the Assemble Geomashup process you can use the Add Remote Tileset and Add Remote KML icon buttons to select tilesets and KML files that are already on the Internet. You can directly choose one of the tilesets hosted by MicroImages or enter the URL for a

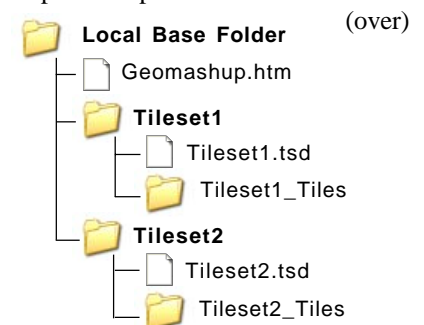
Other aspects of the Assemble Geomashups process are covered in the *Geomedia Publishing* Technical Guides entitled *Introduction to Geomashups*, *Managing Custom Base Maps for Geomashups*, *Managing Custom Overlays for Geomashups*, *Geomashup Control Options*, and others.

custom tileset or KML file you have posted on your website (see the Technical Guide entitled *Geomedia Publishing: Adding Custom Web Layers to Geomashups* for a description of these procedures). When you select only overlays or custom base maps that are already on the Internet for a geomashup, the resulting HTML/JavaScript geomashup file includes the full web address for each of these layers. As a result, these web links remain valid regardless of the location of the geomashup HTML file, as long as the computer hosting the geomashup has an Internet connection. If the geomashup includes only standard web (raster) tilesets or SVG geometric tilesets, the geomashup file is completely portable; it can be used on any local computer that has an Internet connection, or it can be posted on the Internet for proprietary or public use. If the geomashup includes KML files or KML geometric tilesets, however, security restrictions built into web browsers place limits on the portability of the geomashup file. These restrictions require that any KML data to be viewed in the browser must be hosted within the same web domain as the geomashup HTML/JavaScript file; any KML data from other domains are not shown.

Local Tilesets to be Copied to the Internet

You can create geomashups that use local tilesets as custom base maps and overlays and later copy these tilesets and the HTML/JavaScript geomashup file to your website for public use. To do so successfully your local data must be properly organized. Before creating the geomashup, make sure that all of the component tilesets (and/or KML files) to be selected are stored in a single local folder, which we can term the *base folder*, as illustrated below for a geomashup of two local tilesets. Save the geomashup HTML file in the base folder as well. The tileset links in the geomashup file are written as relative paths starting at the base folder (see the table below left). You can then copy the base folder and all its contents to the desired web location for public or private use on the Internet.

Types of Geomashup File Links to Custom Tilesets	
Link Type	Example, Conditions and Characteristics
web address (URL)	http://web1.mysite.com/mashups/Landsat432/Landsat432_Tiles Tileset is on the Internet. HTML/JavaScript geomashup file need not be stored with the tileset, and can be local or on the Internet. This tileset can be viewed in any web geobrowser including 3D versions (Google Earth browser plugin and Bing Maps 3D).
relative path	/Landsat432_Tiles Tileset and HTML/JavaScript geomashup file are in the same folder. Geomashup folder can be used locally or posted on the Internet for use in 2D geobrowsers (Google Maps, Bing Maps 2D, and Open Layers).
absolute path	file =//G:/CacheCnty/Landsat432_Tiles Local tileset folder and the HTML/JavaScript geomashup file are in separate folders. The geomashup can only be used locally and the HTML/JavaScript file is only portable within the local computer or network.



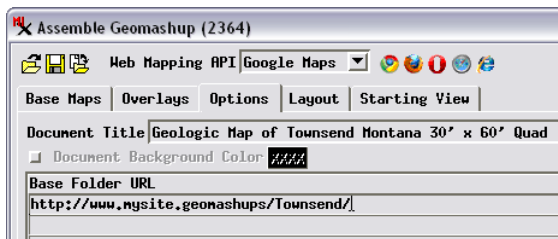
Example of proper organization of local tilesets and geomashup file to be copied to the web. The geomashup file and its component tilesets should be contained in the same base folder, which can then be copied in its entirety to the desired web location.

(In order to speed up copying the geomashup data, you may wish to first create a Zip file or RAR or TAR archive of the base folder contents.) This procedure is applicable to geomashups designed for 2D geobrowsers (Google Maps, Bing Maps, and Open Layers). You can also continue to use the local copy of the geomashup data as long as your local computer is connected to the Internet.

The procedure described above is appropriate for a related set of tilesets that will be used in a single 2D geomashup. If you have a large number of tilesets that you wish to use in different combinations in a number of geomashups, it will be more convenient to copy the individual tilesets to your website first before creating the geomashups as described in the Internet Tilesets section above.

Setting the Base Folder URL

Geomashups designed for 3D geobrowsers (using the Google Earth browser plug-in or Bing Maps 3D) require full web addresses in the geomashup HTML/JavaScript file for all linked components. A geomashup with relative links created from local data as described in the preceding section will not work in these 3D geobrowsers. You can still create a valid 3D geobrowser geomashup starting with local tilesets if you first determine the web location (URL) where you plan to copy the geomashup and its data. You can then enter this URL (including the name of the folder you will copy) in one of the Base Folder URL fields on the Options panel of the Assemble Geomashup window. The geomashup process concatenates this URL with the relative path to each tileset or KML file to create a full web URL for each layer in the resulting HTML/JavaScript geomashup file. For example, in the illustration below the Base Folder URL settings are for a local base folder named Townsend that will be copied into the .../geomashups/ folder on the website.



Upper part of the Options tabbed panel in the Assemble Geomashup window for a Google Maps geomashup. When you are creating a geomashup using local tilesets that you plan to post on the Internet, you can enter one or more web addresses (URLs) specifying the location of the folder that will contain the referenced tilesets. The Geomashup HTML/JavaScript file will then contain a full web URL to the tiles folder of each of the tilesets you have selected. A full web URL is required for tilesets that are to be used in a 3D geobrowser (Google Earth browser plugin or Bing Maps 3D).

Tilesets That Remain Local

If you are not planning to relocate local tilesets and their geomashup file to the Internet, you can save the geomashup HTML/JavaScript file in any location in your local file system. If the geomashup file is not saved in a directory containing its referenced tilesets, it then contains an absolute local directory path to the Tiles folder for each included tileset. The geomashup file remains useable if relocated anywhere within the file system where it was created, as long as the tilesets remain in their original locations. Moving such a tileset, either locally or to the Internet, however, invalidates the absolute path links in the geomashup file. The HTML/JavaScript

geomashup file would then need to be remade with proper links to the new locations of the tilesets.

Specifying the JavaScript Library Location

When you view a geomashup in a browser, the JavaScript code stored in the geomashup file calls functions stored in an external JavaScript library specific to the Web mapping API being used. MicroImages supplies a JavaScript library for each of the supported Web Mapping APIs (Google Maps, Google Earth, Bing Maps, and Open Layers) with your TNTmips installation in a folder named WebAPIs. Each geomashup HTML/JavaScript file requires a valid link to the location of an accessible copy of the relevant JavaScript library.

In the Assemble Geomashups window, the JavaScript Library Extensions portion of the Options tabbed panel provides two options for the library location. You can choose to automatically create a copy of the library with the geomashup; when you save the geomashup, the library files are then copied to a subdirectory (named for the Web Mapping API) within the folder that contains the geomashup file. With this option the geomashup HTML/JavaScript file contains relative path links to the local library location. These library links are maintained if the geomashup file and all of the contents of the enclosing folder are copied to a web location.

If you plan to host a number of geomashups on your website, you may wish to first copy the set of JavaScript libraries to a single location on your website. You can then choose the Link From URL option on the Options tabbed panel and enter the URL to the location of the specific library on your site, as shown in the illustration below for a Google Maps geomashup. The saved geomashup then includes the full web URL of the library folder, and can be used on your website or on a local computer with Internet access.



Specifying the location of a JavaScript library that has been copied to your website.

Options Specific to Bing Maps

Bing Maps can display, in its 2D mode, custom tilesets with either the native, flat Bing Maps structure with quadkey filenames, or hierarchical tilesets (in the Google Maps structure) with tile addresses indicated by zoom level, tile row, and tile column (see the TechGuides on Tilesets entitled *Bing Maps Structures* and *Google Maps Structure*). The Assemble Geomashup process (and the TNT processes that create Bing Maps tilesets) create HTML/JavaScript files with a tile address template that is appropriate for the tileset structure you have specified. In order for Bing Maps to display a custom tileset in 3D, however, the tile addresses must be specified to the Bing Maps API using its native quadkey filenames.

MicroImages has developed a small PHP script that translates, on the fly, individual tile addresses from the hierarchical Google Maps/Bing Maps zoom-row-column format to the corresponding Bing Maps 3D quadkey identifiers. If you are creating a Bing Maps geomashup with custom hierarchical tilesets for the Internet, you can turn on the *Create getPath.php* toggle button on the Options tabbed panel to create this PHP file (getPath.php) to enable the hierarchical tileset to be viewed in Bing Maps 3D as well as 2D. This PHP file is created in the same folder as, and is referenced by, the geomashup HTML/JavaScript file. Path translation by this PHP script works automatically on web servers as long as they

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have PHP script execution enabled.

If you will have a number of Bing Maps geomashups of hierarchical tilesets on your web site, or are making them for use on a local computer, you can post a single copy of the getPath.php file in an accessible location in your web domain and have each Bing Maps 2D/3D geomashup reference that file. The Options panel for Bing Maps geomashups provides a field below the Base Folder URL list where you can specify the web address (URL) of the directory where the getPath.php file is or will be posted on your website.

Microsoft requires that a Bing Maps geomashup must include a Bing Maps Application ID. Once you have applied a Bing Maps key while creating a tileset in any TNTmips process, that key value is stored with your TNTmips process settings and is automatically inserted into the Bing Maps Application ID field in the Assemble Geomashup window's Options tabbed panel for Bing Maps. The ID value is then embedded in your geomashup file when it is created. If you have not yet obtained the needed ID, you can press the Bing Maps Application ID pushbutton next to the ID field on the Options panel. This action opens your default web browser at the Microsoft web page where you can apply for and obtain an Application ID for use with all of your Bing Maps tilesets and geomashups.

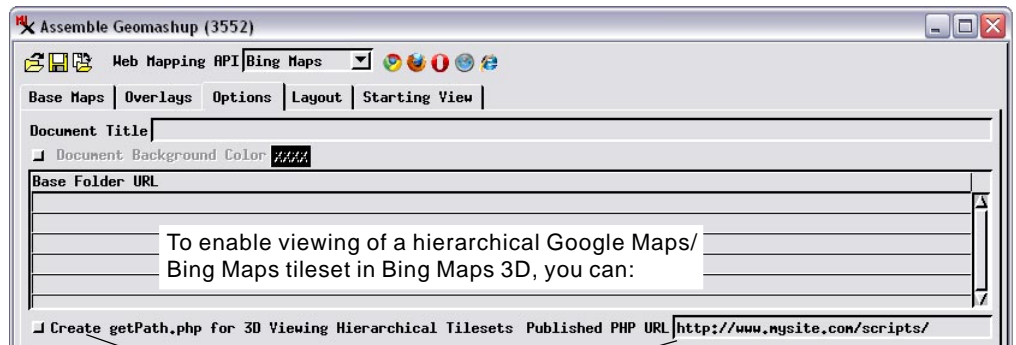
Configuring Geomashups and Tilesets for Multiple Servers

If the website hosting your tilesets and geomashups has more than one web server, you can copy the geomashup data to each of these servers to spread the load and speed delivery of the tileset data to those viewing your geomashups. Each of the web servers on your site would have its own URL, for example:

http://m1.mysite.com/ http://m3.mysite.com/
 http://m2.mysite.com/ http://m4.mysite.com/

A single geomashup file can include a list of base URLs for each referenced tileset, with each link in the list referencing a different server, so that tiles for any particular tileset can be delivered from any of the host servers. These lists of base URLs can be set up automatically in several ways in the Geomashup process, as detailed below.

MicroImages has also found that configuring a single web server with multiple web addresses, and using those multiple URLs in geomashups, provides significantly faster geomashup load times compared to geomashups using only a single URL. If you run your own website and Domain Name System (DNS) server, you can simply add new DNS entries that serve as aliases for your single web server. If your website is hosted outside your organization, the web host would have to make the required changes to their DNS server.



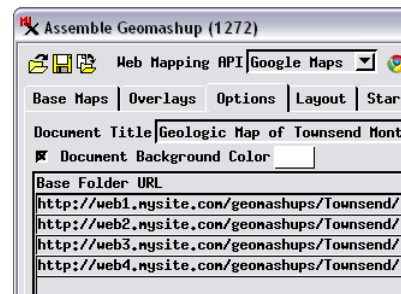
...store a tile address translation PHP script with each geomashup.

...or provide the web address of a copy of the PHP translation script on your website.

Pushbutton for obtaining and applying a Bing Maps Application ID.



There are two ways in which the Assemble Geomashup process can automatically create a geomashup HTML/JavaScript file with multiple-server links to each tileset. If the tilesets you have selected are currently on a local or network drive, but you will later move them to the web, you can use the Base Folder URL on the Options tabbed panel as described on the previous page. Enter one Base Folder URL for each of the real or virtual server address on your website as shown in the illustration below. When the geomashup file is created, each of these Base Folder URL values is concatenated with the relative path to the Tiles folder for each tileset to form the proper list of server links in the file.



Base Folder URL field with URLs for four different web servers (or web server aliases), set up for a geomashup of a tileset on a local drive that you intend to move to the designated location on one or more servers.

If the tilesets you wish to use are already on your web server (or on multiple servers), you need to have a single TSD link file for each tileset, with each TSD file containing links to all of the real or virtual locations of that tileset. Each TSD file created with a tileset has a Locations element that can contain either a relative path or a web URL to the Tiles directory. You can manually edit the Locations element to list a web location for each of the real or virtual locations of the tileset, as shown in the example at the bottom of this page. When you select the edited TSD file for this tileset in the Assemble Geomashup process and save the geomashup, all of the locations listed in the TSD file are automatically transferred to the geomashup HTML file so that the tiles are accessed from all available servers.

<p>Excerpt of a tileset TSD link file edited to include URLs for multiple server locations.</p>	<pre> <Locations> <href>http://m1.mysite.com/geomashups/Townsend/RockUnits/RockUnits_Tiles/[z]/[y]/[x].[ext]</href> <href>http://m2.mysite.com/geomashups/Townsend/RockUnits/RockUnits_Tiles/[z]/[y]/[x].[ext]</href> <href>http://m2.mysite.com/geomashups/Townsend/RockUnits/RockUnits_Tiles/[z]/[y]/[x].[ext]</href> <href>http://m2.mysite.com/geomashups/Townsend/RockUnits/RockUnits_Tiles/[z]/[y]/[x].[ext]</href> </Locations> </pre>
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