

Google Maps Utility



This utility allows you to create a background image based on image tiles retrieved from Google. One of the more interesting aspects of this utility is the fact that you will see this feature on a few low cost applications. However, if you dig deeper, you will find that these applications provide maps in a latitude/longitude system and are not capable rendering maps in a grid coordinate system. The GPSeismic utility not only makes it simple to download and stitch image tiles to form one large high resolution image, but it also performs the required ortho-rectification necessary to provide a precisely registered image in the grid coordinate system of your choice. The utility requires an Internet connection and what is called a Google Maps API Key. The API Key is a long string which is issued to you from the following Google Website page:

<http://code.google.com/apis/maps/signup.html>

On the web page above you request the key and will need to supply your Google account information and website URL, therefore, it is important to coordinate this activity with others in your company. According to the website, you can alternatively supply a folder in lieu of a website. With your API key, up to 1000 images can be requested each day. After that, Google might prevent you from requesting any more images so you need to make sure that you are creating a composite image made up of the fewest image tiles you can, but a resolution that suits you. The higher the resolution, the more image tiles will be required.

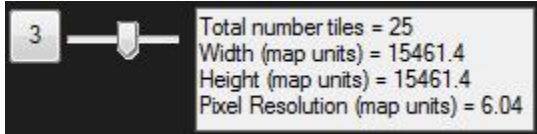
Your API Key can be copied and pasted into the Google Map Key text box at the bottom of the utility dialog. Once entered, it will be remembered and displayed each time the dialog is displayed.

When the parent application displays the utility, it informs the utility as to the extents that need to be covered. When the utility dialog is displayed, you need to execute the following steps:

- 1 - Step one is to select the grid coordinate system of the input data. This is required because the image requests are all handled in WGS84 latitude and longitude coordinates. Therefore, the local grid system must be specified. Note that this only has to be done once (unless the system changes). When the local grid coordinate system is specified, it is remembered the next time the dialog is displayed.



- Step two is a simple test that you have an Internet connection and that you have entered a valid Google API key. When you press the button, an image request is made and the image is displayed to the right of the button. This action also enables the next step.



- Step three is extremely important so you should spend some time getting this right. As mentioned before, you can request many image tiles which will be stitched together to give you a single image of high resolution, or few tiles which

will produce a single image of less resolution. The reasons for minimizing the number of tiles is to reduce the time it takes to retrieve and stitch the images as well as make sure you do not exceed your limit imposed by Google. The one reason for maximizing the number of tiles is to obtain the highest resolution of the composite image. Try creating a image comprised of 10 tiles or less to start with. If the resolution is not sufficient, try the next higher number of tiles.

As you change the slider bar to the right of button 3 you will see the total number of images that would be used to make the composite and what each single tile image is in terms of distance. Because the images retrieved from Google are essentially squares bounded by latitudes and longitudes, once they are stitched together, the composite image is then ortho-rectified to remove all distortion that is inherent in contraction of the longitude distances with increasing latitude.



- Step 4 performs the request for the image tiles. This can take a while depending on your connection speed. For a fast connection of, say cable-type speeds, expect to retrieve a tile every 2-3 seconds. There are three image formats available, namely, Tiff, Png 8 bit and Jpg. There are four map types that can be requested:



Hybrid



Satellite



Terrain



Road Map

5

- Step five prompts you for the name and location of your image. It will then stitch the images to form the composite image and then ortho-rectify. When complete, your image will become visible in the background of the parent application map. If you look in the folder where the composite image was made, you will see that there is also a world registration file for the image which will allow you to import the image in any GPSeismic application.