Subject: Google Static Maps in IDL
Posted by David Fanning on Wed, 11 Jul 2012 15:38:42 GMT
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Folks,

As long as I am talking about updating your Coyote Library distribution this morning, let me give you another reason to do so.

I have built a pretty nifty MABEL lidar browser recently that you can download from an SVN repository if you are interested in this new photon counting lidar data. Complete directions are available in the Wiki you will find on the MABEL project page.

http://sourceforge.net/projects/mabelidl/

In addition to the zooming/panning capability that I built into cgZPlot, I wanted the user to be able to see the lidar track on a map. If the map showed the topography of the location that would be a HUGE plus for me. And, of course, I wanted to be able to annotate the map with features that were pertinent to the lidar flight.

To this end, I built a small object that exposes quite a bit of the Google Static Map API:

https://developers.google.com/maps/documentation/staticmaps/

Static maps are actually images that come back from Google. You can't interact with them in the same way you can with a Google map in a web browser. There are definite limitations. For example the image that returns can be no larger than 640x640 pixels. But, you can set the zoom level and the type of map you want: terrain, satellite, roadmap, or hybrid. You can also add Google markers to the map.

Displaying the image is straightforward, of course. The tricky part was figuring out how to set up the map coordinates to be able to navigate the map and annotate it myself. (The images are returned in GIF, JPEG, or PNG formats, but NOT in the more useful GeoTiff format. That can't really be an oversight!)

All this to say that is built a compound widget/object named cgGoogleMapWidget to retrieve and work with these static Google map images. I have added this to the most recent version

of the library.

I have put a picture of the MabelBrowser here so you can see
how the map can be used:

   http://www.idlcoyote.com/misc/mabelbrowser.png

The window at the top allows me to zoom into and pan to
the relevant lidar location. The window at the bottom is
the cgGoogleMapWidget compound widget, shown here as a terrain
map. As you can see, buttons allow you to choose different
map and marker types to display on the map, and I have annotated
the map with box axes and grid lines. (I am displaying
user-defined markers, rather than Google markers on this map.)
Both the zoom/pan plot and the map can be saved as high-quality
raster and PostScript output should you want to make slides
of them, etc.

There is a delay when the map is updated, comparable to the
delay you would experience with function graphics, while I
go out to the Internet and get a new map from Google,
but it is not bad, and it allows me to center the map at
a location where I click, etc. If I click near a map marker,
it will update the zoom/pan plot to that marker location.

If you are just interested in the cgGoogleMapWidget program itself,
you can run the program to see where Coyote lives. If it is not
passed the identifier of a parent widget, it will create it's
own top-level base.

   IDL> object = cgGoogleMapWidget()

You can find all the necessary programs in the latest version
of the Coyote Library:

    http://www.idlcoyote.com/programs/zip_files/coyoteprograms.z ip

Cheers,

David
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David Fanning, Ph.D.
Fanning Software Consulting, Inc.
Coyote's Guide to IDL Programming: http://www.idlcoyote.com/
Sepore ma de ni thui. ("Perhaps thou speakest truth.")