
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 I 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](http://www.idlcoyote.com/programs/zip_files/coyoteprograms.zip)

Cheers,

David

--

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.")

Subject: Re: Google Static Maps in IDL
Posted by [Fabzi](#) on Thu, 12 Jul 2012 11:59:52 GMT
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Great stuff David!

It works perfectly on my machine and on my university network:

```
{ x86_64 linux unix linux 7.1.1 Aug 21 2009    64    64 }
```

Subject: Re: Google Static Maps in IDL
Posted by [DavidF\[1\]](#) on Thu, 12 Jul 2012 18:00:55 GMT
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On Thursday, July 12, 2012 5:59:52 AM UTC-6, Fab wrote:

> Great stuff David!
>
> It works perfectly on my machine and on my university network:
>
> { x86_64 linux unix linux 7.1.1 Aug 21 2009 64 64 }

The problem appears now to be related to an environment variable on Macs. I am trying to store the image that comes back from Google in a temporary directory located with the GetEnv command like this:

```
tempdir = GetEnv('IDL_TMPDIR', /ENVIRONMENT)
```

This directory either doesn't exist, or can't be written into, on this particular Mac. Can someone with a Mac help me understand what this directory might be?

Thanks,

David

Subject: Re: Google Static Maps in IDL
Posted by [Michael Galloy](#) on Thu, 12 Jul 2012 18:16:57 GMT
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On 7/12/12 12:00 PM, Coyote wrote:

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> Thanks,
>
> David
>

For me on my Mac with IDL 8.1 and 8.2, both

```
IDL> print, getenv('IDL_TMPDIR')  
/var/folders/j2/hhx4tc4d6wn13qkl4mj_dksr0000gz/T/  
IDL> print, filepath("", /tmp)  
/var/folders/j2/hhx4tc4d6wn13qkl4mj_dksr0000gz/T/
```

yield the same thing and I can write to files in that directory.

-Mike

--

Michael Galloy
www.michaelgalloy.com
Modern IDL: A Guide to IDL Programming (<http://modernidl.idldev.com>)
Research Mathematician
Tech-X Corporation

Subject: Re: Google Static Maps in IDL
Posted by [David Fanning](#) on Thu, 12 Jul 2012 18:43:03 GMT
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Michael Galloy writes:

> For me on my Mac with IDL 8.1 and 8.2, both
>
> IDL> print, getenv('IDL_TMPDIR')
> /var/folders/j2/hhx4tc4d6wn13qkl4mj_dksr0000gz/T/
> IDL> print, filepath("", /tmp)

> /var/folders/j2/hhx4tc4d6wn13qkl4mj_dksr0000gz/T/
>
> yield the same thing and I can write to files in that directory.

This particular Mac was returning the name of a directory that didn't exist. Once we created it, all was well. Don't know, but I'm adding a check for this now.

Cheers,

David

--

David Fanning, Ph.D.
Fanning Software Consulting, Inc.
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Sepore ma de ni thui. ("Perhaps thou speakest truth.")

Subject: Re: Google Static Maps in IDL
Posted by [Craig Markwardt](#) on Thu, 12 Jul 2012 20:36:46 GMT
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On Thursday, July 12, 2012 2:16:57 PM UTC-4, Mike Galloy wrote:

> On 7/12/12 12:00 PM, Coyote wrote:
> > On Thursday, July 12, 2012 5:59:52 AM UTC-6, Fab wrote:
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>
> yield the same thing and I can write to files in that directory.

Yep, same success here!
Craig

Subject: Re: Google Static Maps in IDL
Posted by [natha](#) on Fri, 13 Jul 2012 02:05:50 GMT
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On Wednesday, July 11, 2012 11:38:42 AM UTC-4, David Fanning wrote:

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