GeoJPG version 2
Project Overview and Status Report
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> No one should ever be lost for the reason that they do not have a good offline map on their phone. Maybe GeoJPG can help fix that.

The GeoJPG project started over two years ago when I tried to make a 'web app' to display maps offline. And while I did post a version 1 of this software, looking back now that early work was more of a proof of concept than anything useable as an offline map. The good news is that as of a few months ago I have been back to this project full time. This post is an overview of the project and status report.

GeoJPG is not intended to compete on features with CalTopo, All Trails, Gaia GPS, OsmAnd+, etc. Instead, the goal is to let anyone have a **high quality map** on their device that works **offline** and provides basic features with **no ads, no tracking, no signup - none of that nonsense**. There also is no cost however you need to invest your time to learn how to make your own custom maps. Version 2 will show your geolocation and has various other features. One basic feature that version 2 will not have is GPX support. That feature is on the list for the next update.

Map tiles

Most map apps display maps as a series of images ('tiles') that are 256 pixels on each side. For example, here is a link that displays one tile for the Snoqualmie Pass area from Open Topo Map. https://c.tile.opentopomap.org/14/2666/5734.png

The numbers that you see at the end of the above link are a standard naming convention that indicates the zoom level and georeference data. In other words, each of these tiles is a georeferenced image. When you buy a subscription for a map app such as CalTopo, All Trails, Gaia GPS, OsmAnd+, etc, part of that fee pays for the server and bandwidth to host and deliver the tiles to your device.

GeoJPG also uses georeferenced images. However, those images ('tiles') can be any size and have an almost unlimited variety of content. GeoJPG v2 requires that before any georeferenced map image can be installed on your device for offline use, that image has to be hosted on a server someplace. Good news. Google gives everyone 15GB of free storage. This means that georeferenced images for GeoJPG can be hosted on Google Drive for free.

GeoJPG (offline maps) and GISsurfer (online maps) both use the Leaflet map API (Application Program Interface). That API can display georeferenced images. Below are 2 GISsurfer link that each display a georeferenced JPG that is hosted on Google Drive. The GeoJPG web app can (1) install these same georeferenced JPG images on almost any device and (2) display these JPG maps when your device is offline and show your geolocation.

This GISsurfer map shows a small georeferenced JPG showing the Open Topo Map plus some reddish GIS trail data. Open Topo Map shows the OSM trail data. This is often the best trail data.
https://mappingsupport.com/p2/gissurfer.php?center=47.440193,-121.383390&zoom=13&basemap=USA_NAIP_aerial&data=WA_Kendall_Katwalk_small_open_topo_jpg^https://drive.google.com/uc?export=download&id=1z3PVLJOY_B4Km4LCBdnC_uHD17KpsW8L^47.416415,-121.427336,47.463960,-121.339445

The following GISsurfer map shows 2 big georeferenced JPGs showing scanned USGS topos plus a variety of GIS data. These maps have the best contour data for off-trail travel in the USA.
https://mappingsupport.com/p2/gissurfer.php?data=WA_US_2_south_big_usgs_gis_jpg^https://drive.google.com/uc?export=download&id=1Yz1oUnD3ITOypABfAf18Xy6qpoYlEzx9^47.609288,-121.586809,47.798570,-121.059465||WA_I-90_west_of_pass_big_usgs_gis_jpg^https://drive.google.com/uc?export=download&id=1ist8hh1mHwQGwVJnZH6eJ7FpY5eRibbE^47.386903,-121.761646,47.624562,-121.322193

GISsurfer screenshot mode

The georeferenced JPGs that are displayed by the above map links were made with GISsurfer's screenshot mode. This feature lets you takes a series of screenshots that (1) exactly adjoin and (2) are 100% map - the user interface is not on the screen. Because the screenshots exactly adjoin they are easy to stitch together into a larger image. You can also skip the stitching step and place each screenshot online. Either way, GISsurfer provides all the georeference data.

I have made a bunch of georeferenced JPGs that cover much of the Washington State Cascades and Mt. Rainier National Park. One set shows the Open Topo Map and the other set shows the scanned USGS quads. All those JPGs are hosted on Google Drive. When I release GeoJPG v2 I will provide an easy way for anyone to install and use any of those JPG maps offline.

Of course, you are not limited to the georeferenced JPG maps that I made. Screenshot mode means you can make **your own custom maps** that show almost any data that GISsurfer can display. Note that Open Topo Map with the OSM trail data covers most of the world.

Any georeferenced JPG image from any source can be viewed offline by GeoJPG as long as:
1. The JPG is in the Web mercator map projection
2. The JPG is online either on Google Drive or with a link that ends in .jpg
3. You know the latitude longitude for the 4 edges of the image

For GISsurfer video and PDF tutorials, including screenshot mode, see
https://mappingsupport.com/p2/gissurfer-help.html

Progressive Web Apps (PWA, or just 'web app')

Web apps are built with the same kind of coding (html, css and javascript) that drives web pages. The difference is that a web app includes some special coding and support files that allow the web app files to be installed on your device so the web app can work offline. The web app is installed in a dedicated part of your device's memory.

The idea is that a web app will not display browser controls but instead will look to the user just like a native app.

Typically a web app can be installed on any device that has a browser. In fact, I am doing the GeoJPG development work on my windows 10 PC using the firefox browser. Of course before releasing GeoJPG v2 I will test everything on an iPhone, iPad and Android phone.

One huge advantage of building web apps is that you only need to know one programming language. By contrast, if you are going to develop a native app for both iOS and Android then you need to know two programming languages - one for each operating system.

The GeoJPG web app will ***not*** be available in any app store. Instead, you will open GeoJPG in your browser and follow a short series of steps to install it.

Status of GeoJPG version 2

In the world of software development it is common to realize that earlier code you wrote needs to be redone for one reason or another. We call it 'refactoring'. I think most of that work is now done. One benefit of doing that work is that it will be much easier to maintain and enhance the code going forward. There is still one feature left to code.

In addition to the web app there is also a web site with documentation. I have a version 2 of all the website files but I need to make a final pass through all that stuff. Also I plan to make at least one video tutorial.