

2020 Aug 23

Mapping and Viewing Geotagged Photos in QGIS

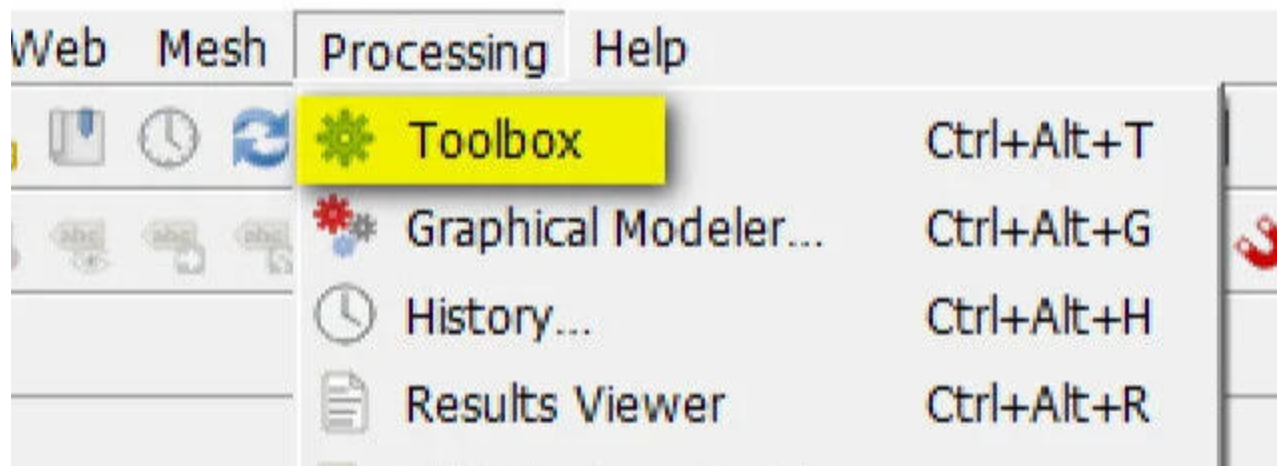
Today's post is inspired by Joseph Kerski, who works at ESRI doing GIS in Education. You can read his post on [Using the Photos with Locations Tool in Education](#). It provides some very useful information for on using ESRI software (AGOL) to map and view geotagged photos. We had an interesting discussion on teaching GIS in the academia (although I am no longer in academia - I still enjoy teaching and doing trainings). You can get a free public ArcGIS Online (AGOL) account if you'd like to give it a try. If you are a student, you can look into the [Learn ArcGIS Student Program](#) (launching September 1, 2020) that gives qualified students free access to AGOL and ArcGIS Pro for a year through a membership in the Learn ArcGIS organization. I think it's good idea to learn both ArcGIS and QGIS.

Anyway, enough on ArcGIS. I thought I would a complementary posting on mapping and viewing geotagged photos in QGIS. If you have a need to map and view your geotagged photos then this post is for you. A geotagged photo has associated geographic location added to it by a process called geotagging. The geographic information (latitude, longitude, altitude, bearing or direction, and date/time stamp, etc.) are stored in the image's EXIF header. If you have ever taken photos with your smartphone then most likely your photos as geotagged (assuming geolocation is enabled on your phone). Geotagged photo can be mapped and viewed in QGIS.

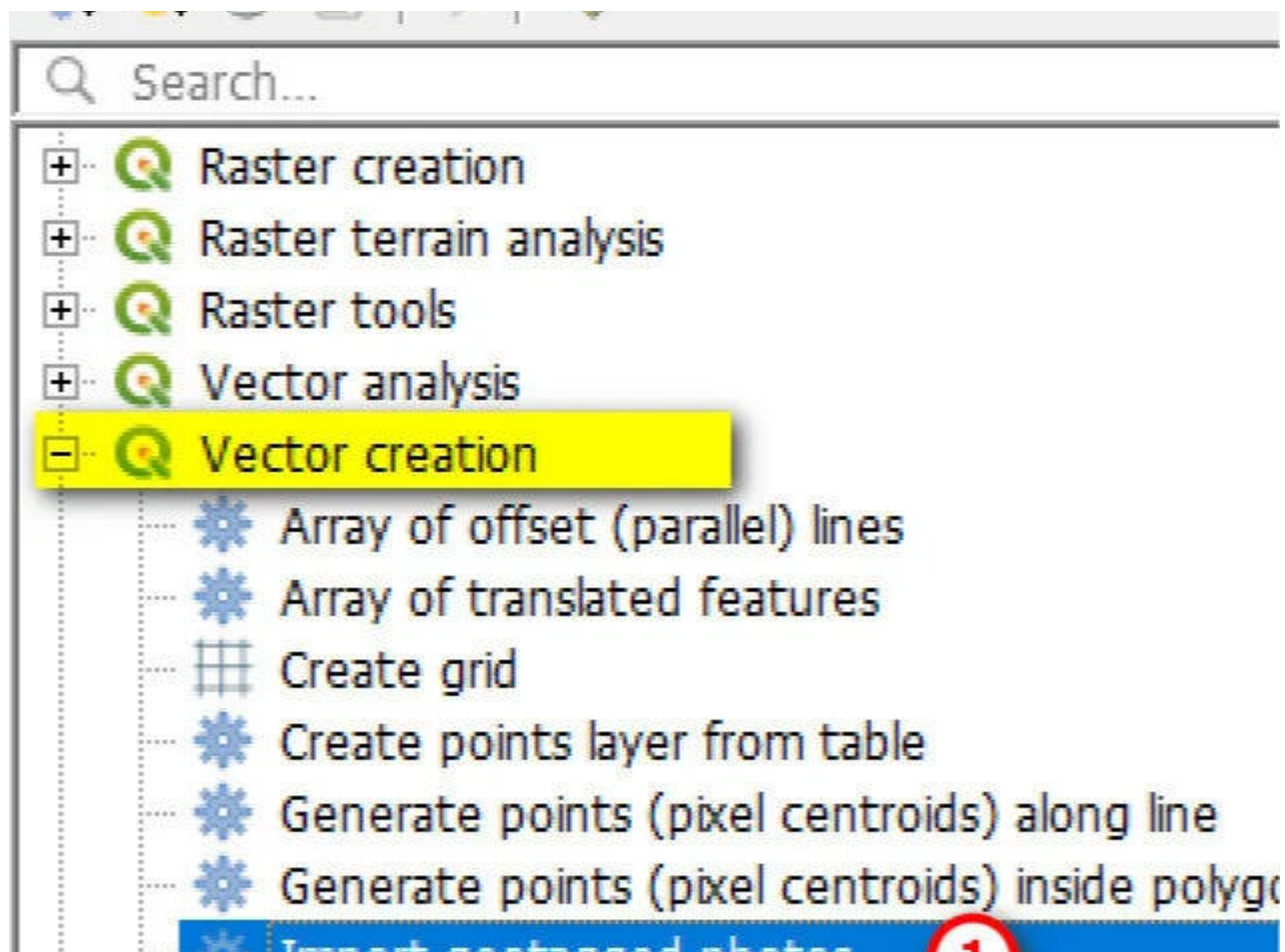
The only requirement to this short tutorial is that you must have photos that are already geotagged. Also, if you wan to create a web map then you need to have qgis2web plugin installed. As for QGIS version, I am using QGIS 3.14 Pi.

Step 1: Import Geotagged Photos

In QGIS: Go to the Processing Toolbar panel. If you don't see the Processing Toolbar Panel then go to Processing Menu >> Toolbar.



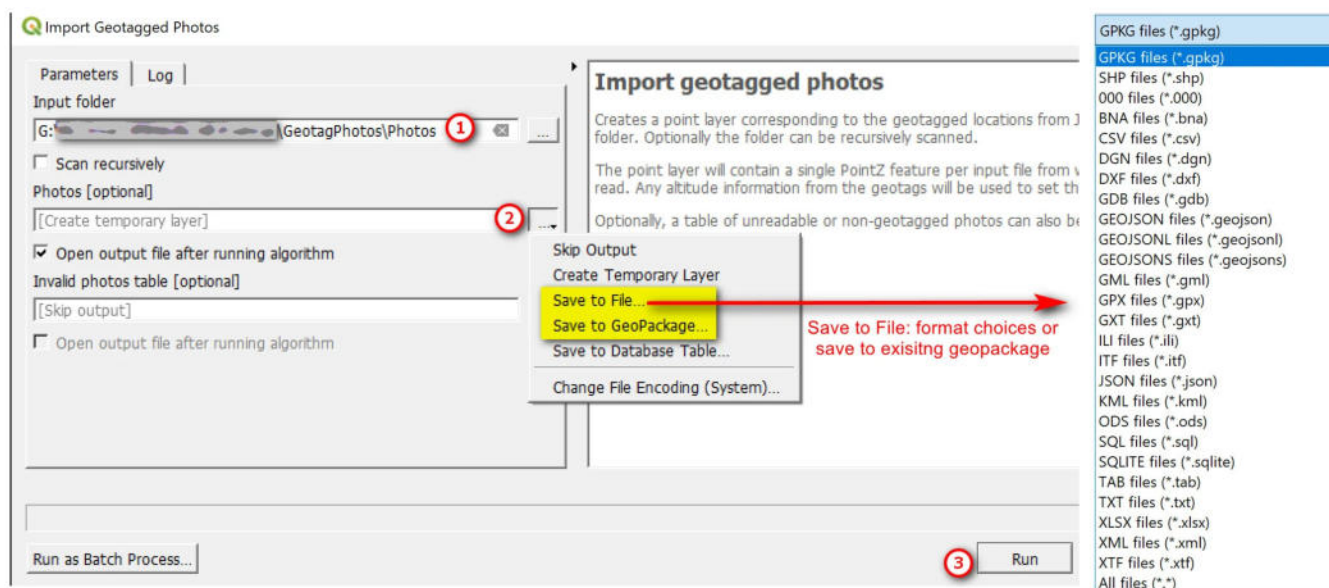
In the Processing Toolbar panel >> **Vector Creation** >> Double click on **Import Geotagged Photos**.



In the Import Geotagged Photos window:

1. Input Folder: Browse to where your photos are stored
2. Photos [optional]: Click the drop down arrow >> Save to File. Select a file format. In this example, I'm just saving as a SHP.

3. Click Run



After running the tool, you should have the point file added to your map. If you open up the attribute table of the point file, you should see something similar to the table below. **Note that photo field contains the file path to the photos** - you use this field below in the HTML Map Tip and to “symbolize” the points later.

GeotagPhotosPts — Features Total: 6, Filtered: 6, Selected: 0								
	photo	filename	directory	altitude	direction	longitude	latitude	timestamp
1	G:\GeotagPhotos\Photos\AjiTrainglePark.JPG	AjiTraing...	G:\My Dr...	19.571...	130.860...	-157.79684...	21.2600972...	2018/09/...
2	G:\GeotagPhotos\Photos\Bacon ThePig.JPG	Bacon Th...	G:\My Dr...	17.300...	349.168...	-157.795775	21.2585972...	2018/04/...
3	G:\GeotagPhotos\Photos\CatusGardenKCC.JPG	CatusGar...	G:\My Dr...	48.711...	27.5868...	-157.80300...	21.2702305...	2020/08/...
4	G:\GeotagPhotos\Photos\DiamondHeadTrailSign.JPG	Diamond...	G:\My Dr...	25.592...	212.781...	-157.80006...	21.2679361...	2020/08/...
5	G:\GeotagPhotos\Photos\DiamondHeadView.JPG	Diamond...	G:\My Dr...	15.016...	112.757...	-157.82067...	21.2669666...	2020/02/...
6	G:\GeotagPhotos\Photos\Rainbow.JPG	Rainbow	G:\My Dr...	23.990...	85.9839...	-157.79440...	21.2632638...	2020/03/...

Step 2: View Photos in Popup

Open the point layer properties:

1. Go to the Display option.
2. For HTML Map Tip: you can just simple use the HTML tag with the source to your photo.
3. Click Ok with done

Here is my example using the photo field (from attribute table). Note if file path is local - that is on your local drive then you will need to include **file:///** to indicate the photo stored locally.

Simple example: ``

Another example: description is a new field I added to my attribute (see step further down)

`<table>`

`<tr>`

`<th>[% descriptio %]</th>`

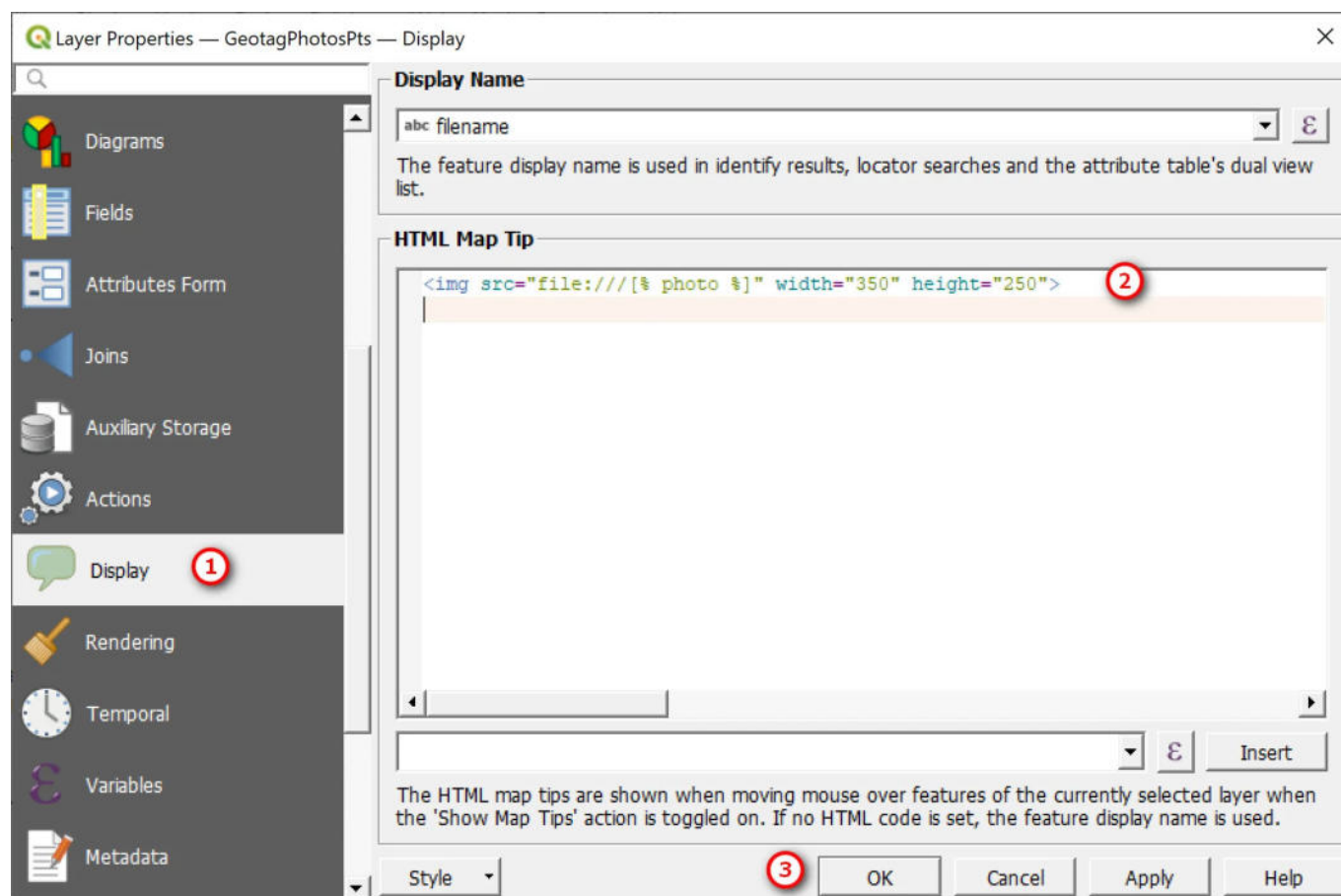
`</tr>`

`<tr>`

`<th></th>`

`</tr>`

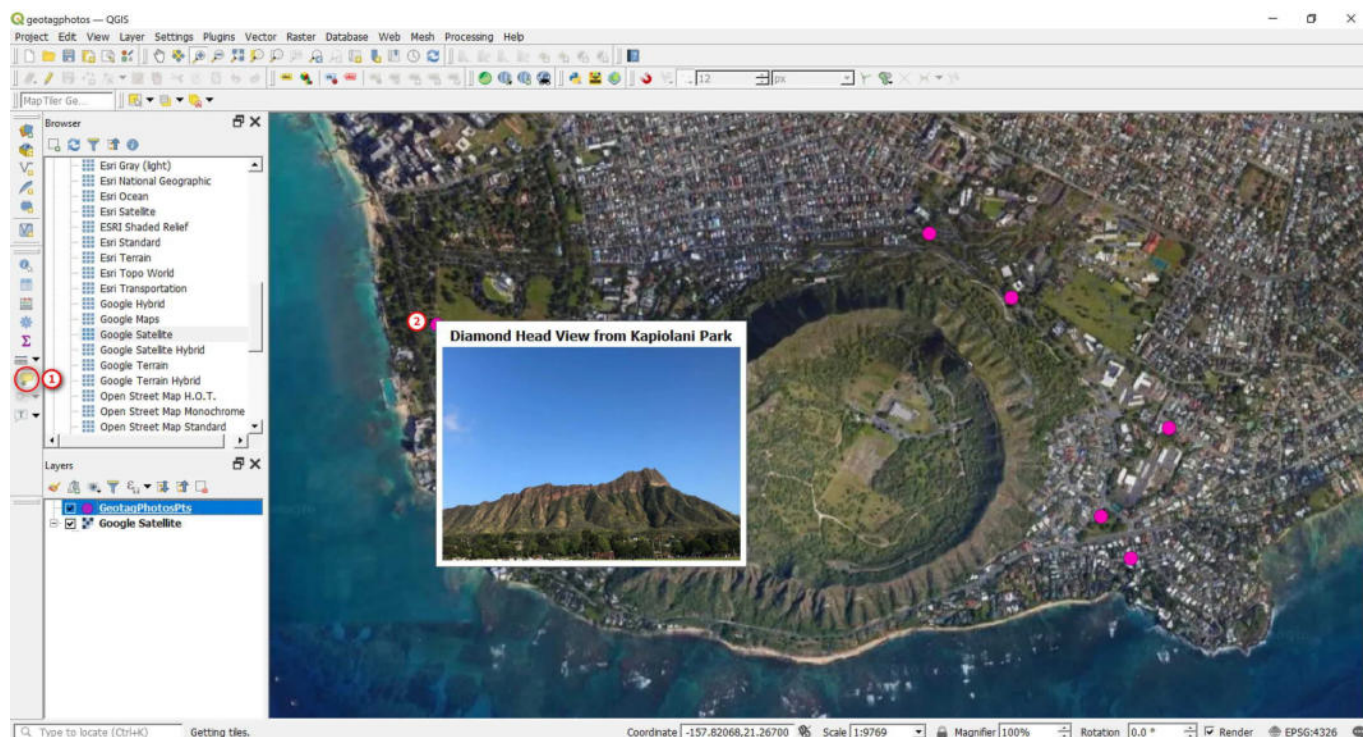
`</table>`



To view the photos in a popup:

1. Turn on or enable the Map Tip and

2. Hover your mouse on a point on your map to view your photo. Note my photo also include a description at the top — which you can add by editing the attribute table (see Optional Steps below)

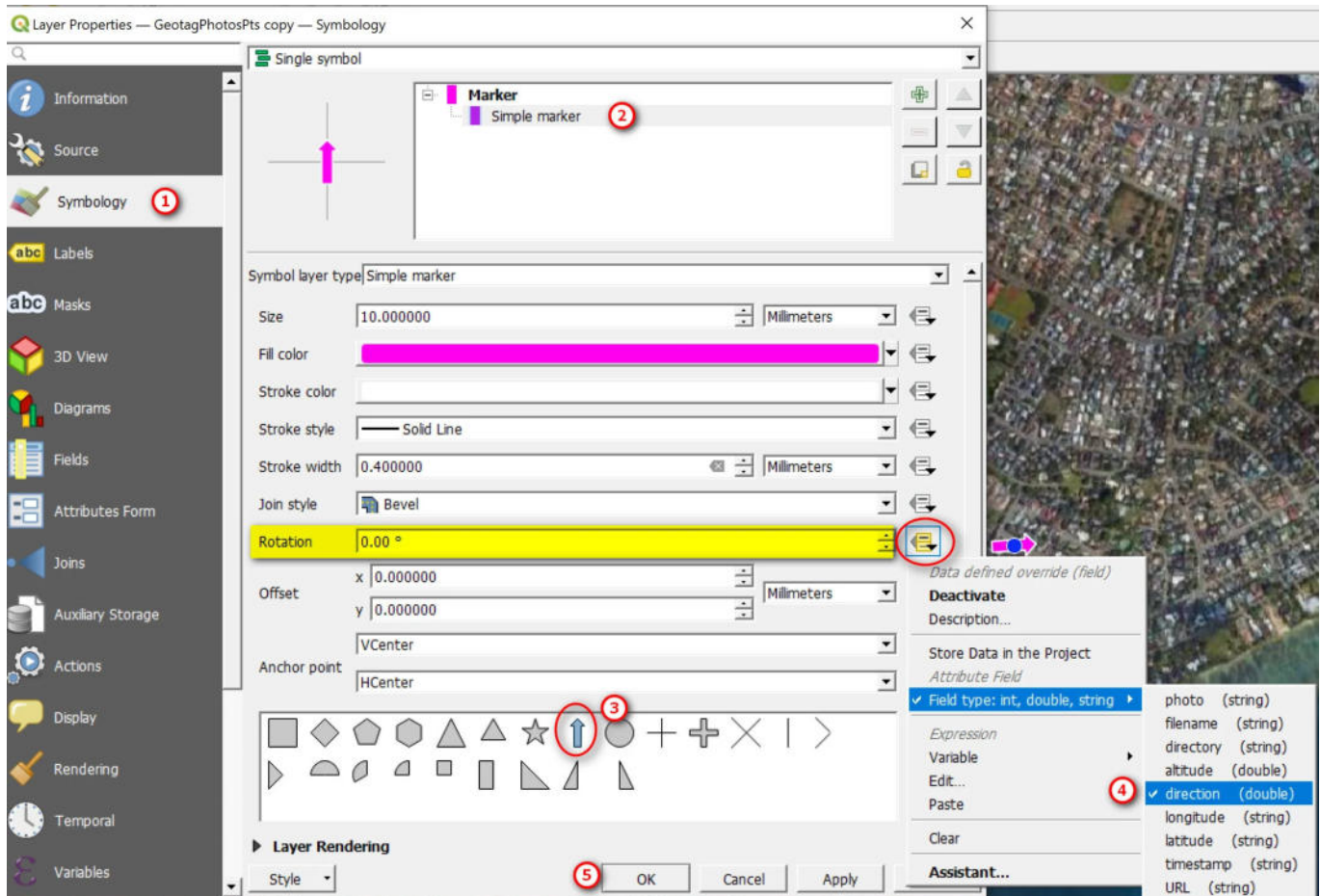


Step 3: Show Direction Photos were Taken (OPTIONAL)

If you want to show the direction in which the photos were taken, you can do that. Just use an arrow symbol and rotation based on the Direction field (that is in your attribute table).

Open up the Layer Properties:

1. Go to Symbology
2. Select a Simple Marker
3. Select arrow symbol or whatever symbol you want
4. Rotation: Click the drop down arrow >> Field Type >> Direction
5. Click OK and you should see the arrow symbol pointing in the direction that the photo was taken



Here is my example. I just made copies of my geotagged photo point layer and showed it as points and arrow to indicate direction.

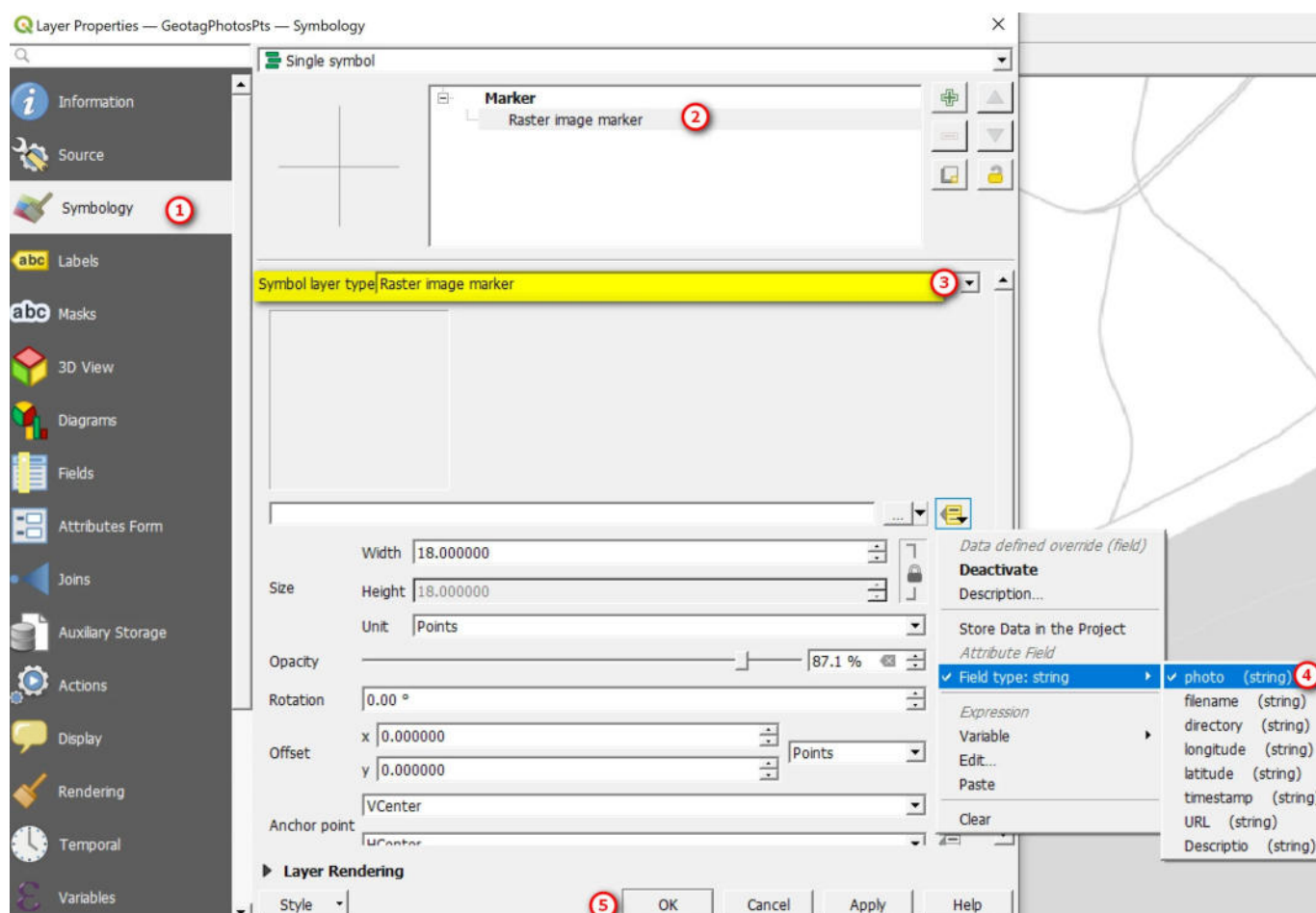


Step 3A: Symbolize Points Using the Photos (OPTIONAL)

So what if you wanted to show the point locations using the photos themselves? You can do this with the raster

Open up Layer Properties >>

1. Go to Symbology
2. Click on Simple Marker
3. Symbol Layer Type: click the drop down >> Raster Image Marker
4. Click the Data Define Override button >> Field Type >> Photo (this is field in your attribute table)
5. Make any other changes to the size if you want (e.g. size = 30 to make thumbnail images bigger)



Here is what my example looks like, using the photos as raster images to symbolize my point locations.



Step 4: Create Web Map with Popup (OPTIONAL)

For this portion you will need to have your photos stored on the web somewhere and be accessible using a direct link (e.g. <https://www.yourwebsite.com/filename.jpg>). Also you will need the [QGIS2Web Plugin](#) installed.

I've edited the attribute table of my geotagged photo layer to include a Description and URL fields that I'm going to use later for a quick web map. The URL and Description Fields are new fields that I've added to my table (which you won't have in your table).

Edit Attribute Table to include photo uRL

1. Toggle the Edit (pencil) button
2. Add New Field: input field name (e.g. URL) and field type (text or string) and length (e.g. 100). I've also added a description field to describe my photo.

e.g. ``

Note: I chose to use the full `<img>` html tag in my URL (with widget type = text edit) as it's easier to specify the width and height. The QGIS2Web plugin seems to only show the full photo size, which isn't

what I want. I've seen others use the photo field or a URL without tag with widget type = Attachment and Integrated Document Viewer option as either Image or Web View with width and height set to either auto or actual values — Using these options doesn't work for me and doesn't produce the result I want.

3. When done editing table, save it
4. Don't forget to toggle off the Edit

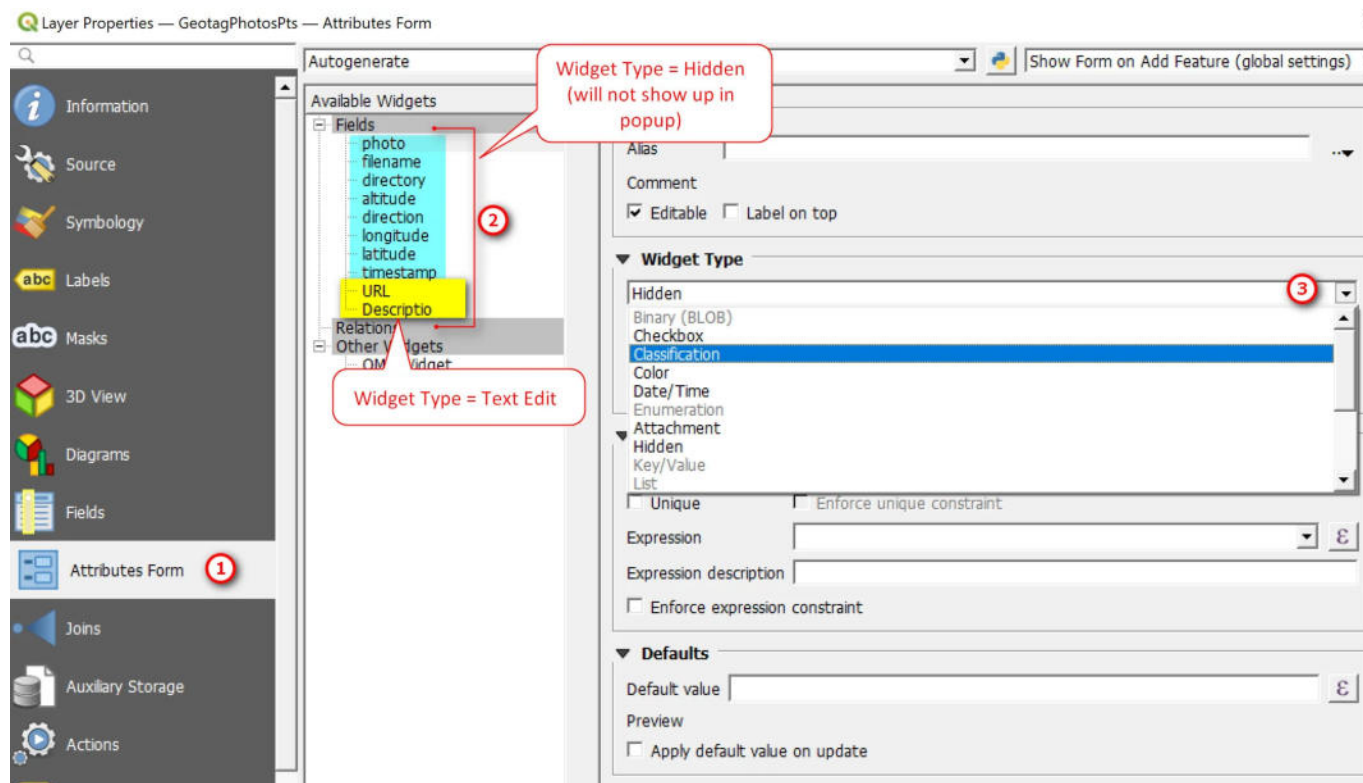
	photo	filename	directory	altitude	direction	longitude	latitude	timestamp	URL	Description
1	G:\Geotagged Photos\AjiTrianglePark.JPG	AjiTraing...	G:\My Dr...	19.571...	130.860...	-157.79684...	21.2600972...	2018/09/...		Aji the Dog
2	G:\Geotagged Photos\BaconThePig.JPG	BaconTh...	G:\My Dr...	17.300...	349.168...	-157.795775	21.2585972...	2018/04/...		Bacon the pig
3	G:\Geotagged Photos\CatusGardenKCC.JPG	CatusGar...	G:\My Dr...	48.711...	27.5868...	-157.80300...	21.2702305...	2020/08/...		Catus Garden at...
4	G:\Geotagged Photos\DiamondHeadTrailSign.JPG	Diamond...	G:\My Dr...	25.592...	212.781...	-157.80006...	21.2679361...	2020/08/...		Diamond Head Trail Sign
5	G:\Geotagged Photos\DiamondHeadView.JPG	Diamond...	G:\My Dr...	15.016...	112.757...	-157.82067...	21.2669666...	2020/02/...		Diamond Head ...
6	G:\Geotagged Photos\Rainbow.JPG	Rainbow	G:\My Dr...	23.990...	85.9839...	-157.79440...	21.2632638...	2020/03/...		Rainbow

Hide Unwanted Fields in Popup

Lets say for my web map popup I only want to show the photos (i.e. URL field) and Description only. You can do this by hiding all the other fields you don't want to display.

Open Layer Properties:

1. Go to Attributes Form
2. Click on a field (e.g .photo)
3. Widget Type: Click drop down arrow >> Hidden
4. Make sure URL field and Description both have Widget Type = Text Edit
5. Click OK when done



Create Web Map Using QGIS2 Web Plugin

You must already have the qgis2web plugin installed to do this portion.

Go to Web Menu >> qgis2web >> Create Web Map

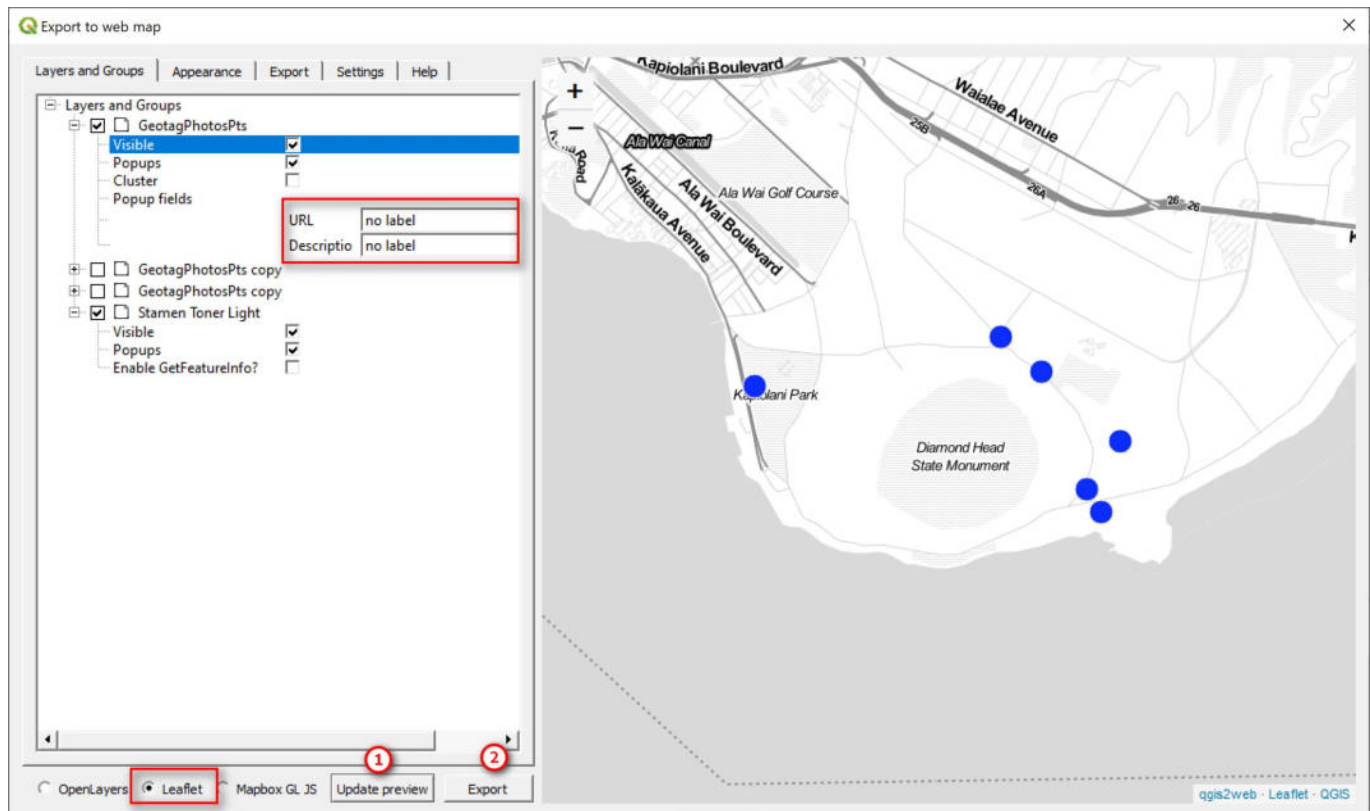


In the Export to Web Map window:

1. Make sure your Geotagged Photo points are visible and popups are turned on. Noticed that only the URL and Description fields are visible. Also make sure you have a basemap (e.g. Stamen Toner Light).

View the other tab options and make any changes you want.

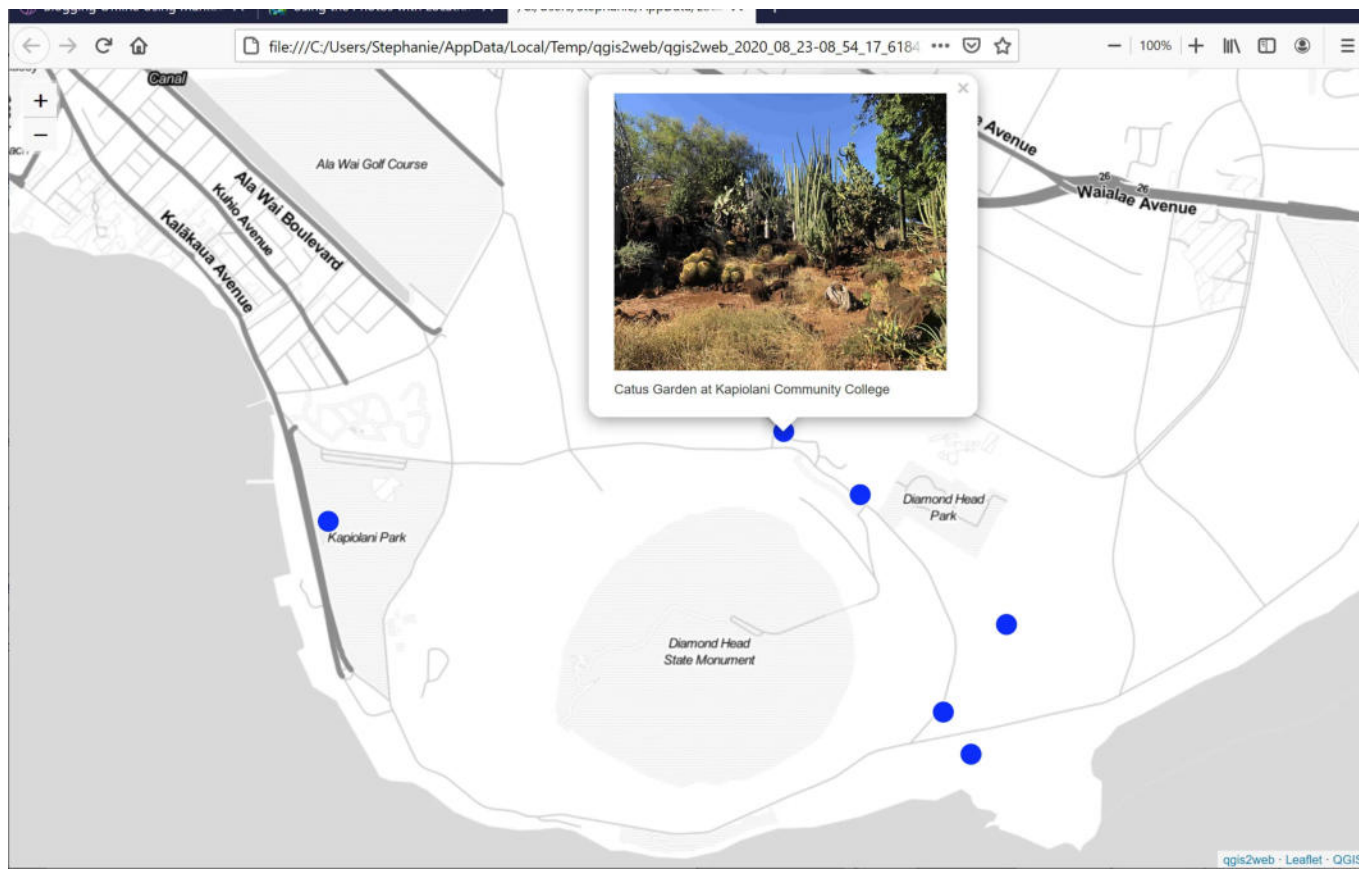
2. Select Leaflet (seems to be option that works best)
3. Click Update Preview button to preview your map
4. Click Export if preview looks good



The Export tab has an option to Export to Folder or to an FTP site. The qgis2web plugin with export web files which you can put on a web server.



The exported Leaflet web map (shown locally)



That's it for this post on mapping and viewing geotagged photos in QGIS. I hope you find it useful, and thanks

for reading as always. Until next time :).

Comments (22)

Newest First

Victor 5 years ago · 0 Likes

Good afternoon, I hope I have made the proper translation.

Everything the guide shows is great but I have a problem.

I am configuring the form to export to Qfield, what I want is that when capturing field information the logo of a url appears, but it does not work in Qfiel. Use this script:

```
'<a href="https://empresas.blogthinkbig.com/wp-content/uploads/2019/11/Imagen3-245003649.jpg?w=800">  
  
</a>'
```

I hope you can help me.

Greetings

Kaveh Ekbia 5 years ago · 0 Likes

Hi

Thank you for this wonderful guidance. Is it possible for me to add a clickable link preview instead?

Kaveh

Human 5 years ago · 0 Likes

Thanks a lot!

I have a question thou, what if instead of manually writing the description as text, I'd like the display to show specific Exif metadata fields that the images already contain

Ken Norris 5 years ago · 0 Likes

Thanks for that. Works well except dealing with a mix of landscape and portrait photos. I tried various inputs but didn't manage to get them viewable in the correct orientation and size. Any hints?

Stephanie Saephan 5 years ago · 0 Likes

Hi Ken,

Please see if my comments to Tony (further down comments list) to see if it will help.

I would say the simple thing to do is create a rotate field in your attribute table then put in the rotation values for the photos. Then use this "rotate" field with the style transform:rotate. This will rotate your image based on the values (0 or 90) in your rotation field but your frame (width=350 and height=250) remains the same..won't be flipped.

Something like this (supposing I have a fieldname called rotate). Eg. [%fieldnamegoeshere%]

Hope this helps.

m 5 years ago · 0 Likes

" "

this doesnt work at all, I see nothing despite having relative filepath in the project assign to "photo" field

Stephanie Saephan 5 years ago · 0 Likes

Hi,

I'm not sure why you're not seeing your photos. But this: works for me.

My photo field attribute is: C:\Postings\GeotagPhotos\Photos\AjiTrainglePark.JPG

The photo field that has the path to where your pictures are stored is written automatically by QGIS tool so do not change it - this is the absolute path name to your photos on your local drive.

You could try: adding `</img>`

```
 </img>
```

Maybe try using double slashes instead of 3 (some OS only requires 2 not 3 //)

```

```

Also don't forget that you also must have the map tip (popup tool) activated for the photos to display when you hover over the points.

Good luck.

Angel 5 years ago · 0 Likes

Hello from Spain.

The error is in the spaces before and after `///` when copying and pasting the text from the web page.

It works for me by removing them:

```
<img src = "file:///[% " photo "%]" width = "350" height = "250"> </img>
```

Evan Roy 5 years ago · 0 Likes

Thank you for sharing this awesome post! You have put together everything so clearly. However, I have a problem 🙄 The images show up correctly within qgis but when I export with qgis2web the images are way too big! I can't fix this...can you please help?

Stephanie Saephan 5 years ago · 0 Likes

Hi Evan,

Are you talking about the popup box being too big (e.g. you have to scroll to see the picture in the popup?). Did you see my note in the section about Edit Attribute Table to Include Photo URL (Step 4

#2)

Note: I chose to use the full `<img>` html tag in my URL (with widget type = text edit) as it's easier to specify the width and height. The QGIS2Web plugin seems to only show the full photo size, which isn't what I want. I've seen others use the photo field or a URL without `<img>` tag with widget type = Attachment and Integrated Document Viewer option as either Image or Web View with width and height set to either auto or actual values — Using these options doesn't work for me and doesn't produce the result I want.

Maybe try specifying the width and height in the attribute table field (e.g. "URL"), like so
``

I much prefer this way as I can specify different width and height for individual photos.

Then in the Display HTML Map Tip just use [% URL %].

I hope this helps.

Good luck with making it work.

Tony Spiess 6 years ago · 0 Likes

Hi, thanks nice clear instructions. Inserted my photos with ``

Hope this helps.

Andrea 6 years ago · 0 Likes

Hi Stephanie,

I follow your tip but it doesn't work and I don't understand why.

I used the script:

```
<table>
<tr>
<th>[% descriptio %]</th>
</tr>
<tr>
<th></th>
</tr>
</table>
```

copying inside the [% photo%] the path of my jpg file indicated in the attribute table, but the question mark is always there. I have Windows 10, maybe depends on that. Thanks for your time.

Best regards

Stephanie Saephan 6 years ago · 0 Likes

Hi Andrea,

I'm not sure what kind of error you are getting. But I assume your photos are stored on your computer (local drive). Using this example `` still worked for me.

I don't understand what you mean by copying inside the [%photo%] the path to your jpg file. Do you mean you are doing something like this?

```

```

If so then it will not work - QGIS can't find your photo. No need to copy and paste the path of your jpg file into the [%path%] portion. You are using a variable, that is [% photo%] to automatically tells QGIS where to look for the photos (i.e. the attribute value or path of your photo).

Hope this helps. Good luck :)

Andrea 6 years ago · 0 Likes

Hi Stephanie,

I solved. I found the problem that was in some setting of my computer.

I really like your site, I'm spending plenty of time on it to improve my knowledge. Thanks for your reply!

Vito 5 years ago · 0 Likes

what is your problem?

i have test the tutorial but doesn't work..

Bertram 6 years ago · 0 Likes

Hi, thank you so much for this amazing tip!

Fly 6 years ago · 0 Likes

Hi, thanks for that tip, but my images are mostly rotated because I am left handed.

The images are shown top to bottom.

How can this be solved without rotating the images before ... we are talking about thousands of photos ...

thanks

Stephanie Saephan 6 years ago · 0 Likes

Hi -

You could try using including the style transform rotate in the HTML Map Tip . This would be the simplest solution (only if all your photos need rotating in one direction).

Something like this

```

```

This would rotate all your images 90 degrees.

Good luck. Hope it works for you.

Stephanie

Fred Lali 6 years ago · 0 Likes

I finally got this done by you. Thank you!

Luke 6 years ago · 0 Likes

FINALLY!! Just what I was looking for. Thanks for documenting this.

Daniel 6 years ago · 0 Likes

You can also use photos2shp command from <https://github.com/idnael/daniGIS>

< Exploring MapStore as an
Opensource Web Mapping
Framework

Setup QGIS Print Layout to
use Inch Instead of Millimeter >

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