Displaying weather data with the Google Maps API and OpenWeatherMap

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Contents

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Introduction

This document shows you how to use the Google Maps API Data layer to load and display weather data from OpenWeatherMap. By following the steps in this document, you can build a replacement for the Google Maps Weather layer.

Using this document, you'll complete the following steps:

1. Register for OpenWeatherMap.
2. Configure a Maps API sample application.
3. Customize the sample application.

1. Register for OpenWeatherMap

The OpenWeatherMap API has been selected for this demonstration since it provides an easy way to search for weather data within a map's viewport (`/bbox`). You should perform your own analysis to determine whether this is the best solution for you. See Alternative solutions for other approaches and guidance on how to choose between them.

The first step is to register for OpenWeatherMap. This will give you an API key that grants access to the OpenWeatherMap API.

Note: The free tier of OpenWeatherMap is limited to 10 requests per minute per user, and does not support HTTPS (SSL). You may wish to consider a paid tier if these are too limiting.

2. Configure a Maps API sample application

The Google Maps API Data layer turns GeoJSON data into an interactive layer in your Google Maps application. The following sample application takes JSON from OpenWeatherMap, converts it to GeoJSON on the fly, and displays the result using the Data layer.

1. Download the sample application from https://github.com/google/maps-for-work-samples/tree/master/samples/OpenWeatherMapLayer

2. Add your Maps API client ID or API key to the `<script>` tag loading the API:

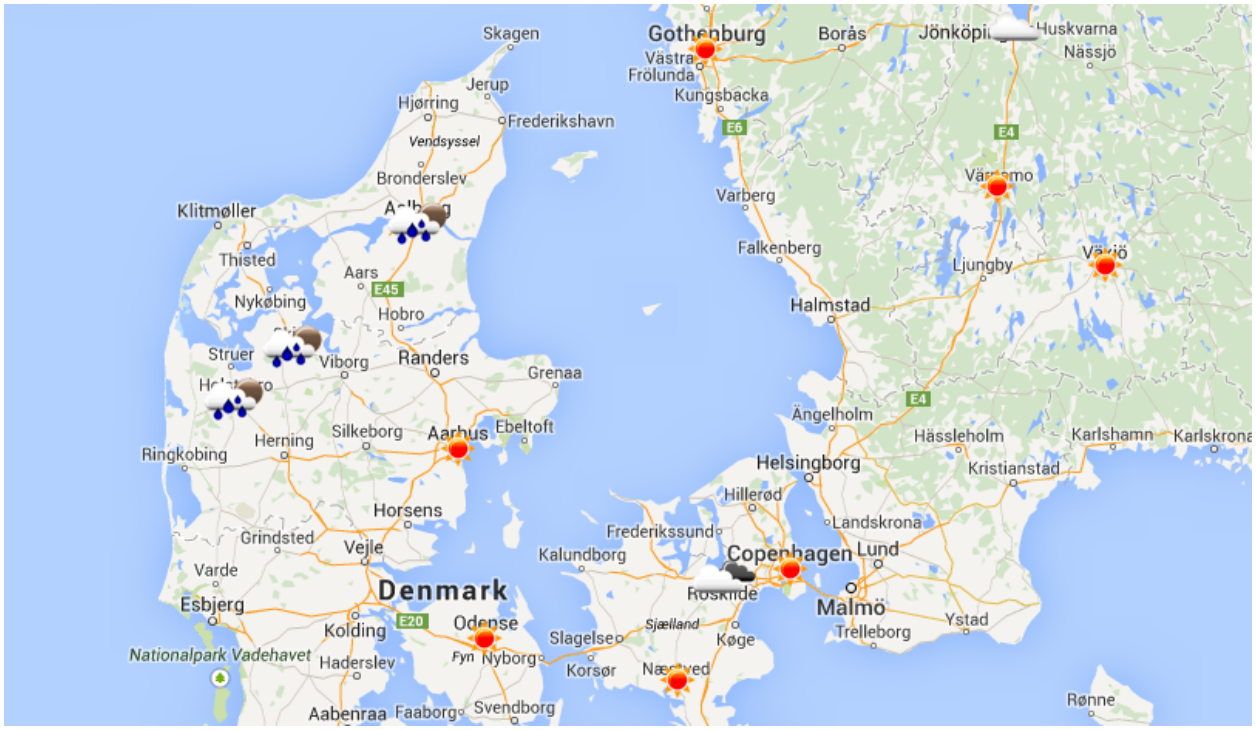
```
<script type="text/javascript"
src="https://maps.googleapis.com/maps/api/js?client=CLIENT_ID">
```

3. Define your OpenWeatherMap API key:

```
var openWeatherMapKey = "ABC..."
```

4. Open the sample application in a browser.

You can also see the entire sample in action:



3. Customize the sample application

The final step is to customize the sample to suit your needs. Take a look at the Google Maps API developer documentation on how to get started and putting markers on a map.

Optimizing performance

Here are some tips to help optimize the performance of your weather map.

Reducing the number of OpenWeatherMap API calls

The sample listens for the idle event and refreshes the weather data whenever the map stops moving. You may wish to restrict the number of refreshes and/or implement longer timeouts between API calls.

Using city names instead of a bounding box

The sample queries the API for all weather stations in the viewport (currently visible area) of the map. If you are interested in a specific city or cities, you can ask the API for locations by name or ID instead.

Alternative solutions

While this document describes one solution for displaying the weather with the Maps Javascript API, there are other approaches you can take.

The right technical solution is driven by considerations such as data size (number of weather points) and performance requirements. Other solutions may include:

- Use an ImageMapType to load Web Map Service (WMS) tiles from a third-party provider like NOAA or OpenWeatherMap. Suitable if you need raster data, eg. images of current clouds or radar data.
- Generate and serve tiles from a Cloud infrastructure like the Google Cloud Platform. Suitable if you need a self-contained solution not reliant on a third-party provider.