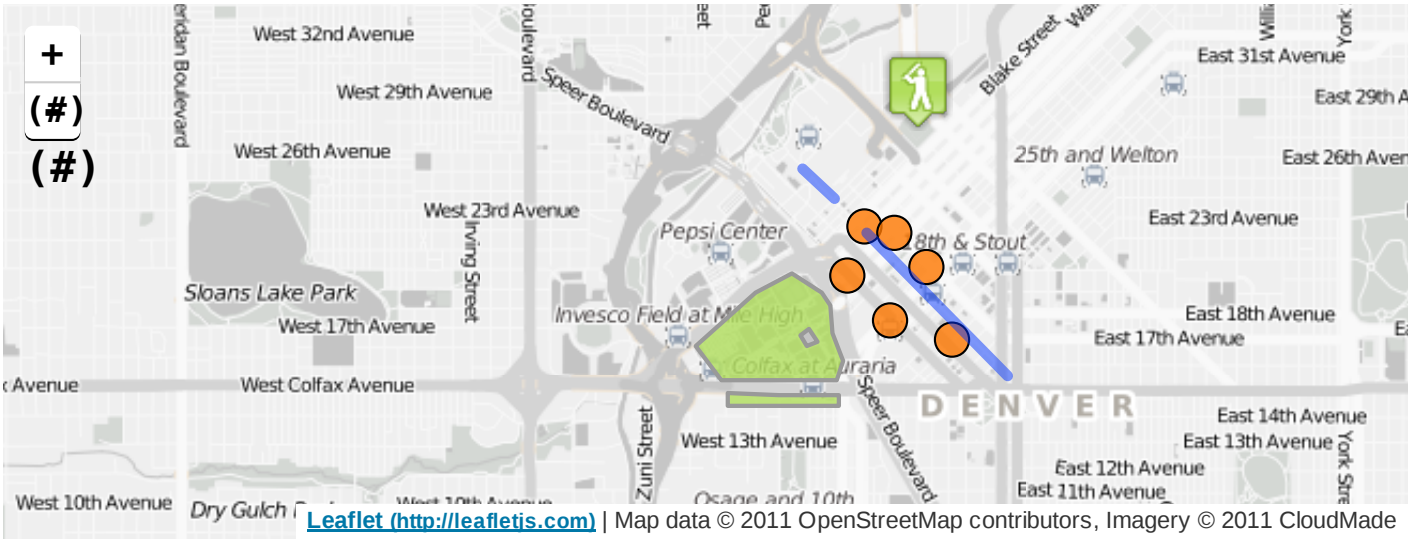
Leaflet (http://leafletjs.com)

An Open-Source JavaScript Library for Mobile-Friendly Interactive Maps

Using GeoJSON with Leaflet

GeoJSON is becoming a very popular data format among many GIS technologies and services — it's simple, lightweight, straightforward, and Leaflet is quite good at handling it. In this example, you'll learn how to create and interact with map vectors created from GeoJSON (http://geojson.org/) objects.



View example on a separate page → (geojson-example.html)

About GeoJSON

According to http://geojson.org (http://geojson.org):

> *GeoJSON is a format for encoding a variety of geographic data structures. A GeoJSON object may represent a geometry, a feature, or a collection of features. GeoJSON supports the following geometry types: Point, LineString, Polygon, MultiPoint, MultiLineString, MultiPolygon, and GeometryCollection. Features in GeoJSON contain a geometry object and additional properties, and a feature collection represents a list of features.*

Leaflet supports all of the GeoJSON types above, but **Features (http://geojson.org/geojson-spec.html#feature-objects)** and **FeatureCollections (http://geojson.org/geojson-spec.html#feature-collection-objects)** work best as they allow you to describe features with a set of properties. We can even use these properties to style our Leaflet vectors. Here's an example of a simple GeoJSON feature:

```
var geojsonFeature = {
    "type": "Feature",
    "properties": {
        "name": "Coors Field",
        "amenity": "Baseball Stadium",
        "popupContent": "This is where the Rockies play!"
    },
    "geometry": {
        "type": "Point",
        "coordinates": [-104.99404, 39.75621]
    }
};
```

The GeoJSON layer

GeoJSON objects are added to the map through a **GeoJSON layer (http://leafletjs.com/reference.html#geojson)**. To create it and add it to a map, we can use the following code:

```
L.geoJson(geojsonFeature).addTo(map);
```

Alternatively, we could create an empty GeoJSON layer and assign it to a variable so that we can add more features to it later.

```
var myLayer = L.geoJson().addTo(map);
myLayer.addData(geojsonFeature);
```

Options

style

The `style` option can be used to style features two different ways. First, we can pass a simple object that styles all paths (polylines and polygons) the same way:

```
var myLines = [{
    "type": "LineString",
    "coordinates": [[-100, 40], [-105, 45], [-110, 55]]
}, {
    "type": "LineString",
    "coordinates": [[-105, 40], [-110, 45], [-115, 55]]
}];

var myStyle = {
    "color": "#ff7800",
    "weight": 5,
    "opacity": 0.65
};

L.geoJson(myLines, {
    style: myStyle
}).addTo(map);
```

Alternatively, we can pass a function that styles individual features based on their properties. In the example

below we check the "party" property and style our polygons accordingly:

```
var states = [{
    "type": "Feature",
    "properties": {"party": "Republican"},
    "geometry": {
        "type": "Polygon",
        "coordinates": [[
            [-104.05, 48.99],
            [-97.22,  48.98],
            [-96.58,  45.94],
            [-104.03, 45.94],
            [-104.05, 48.99]
        ]]
    }
}, {
    "type": "Feature",
    "properties": {"party": "Democrat"},
    "geometry": {
        "type": "Polygon",
        "coordinates": [[
            [-109.05, 41.00],
            [-102.06, 40.99],
            [-102.03, 36.99],
            [-109.04, 36.99],
            [-109.05, 41.00]
        ]]
    }
}];

L.geoJson(states, {
    style: function(feature) {
        switch (feature.properties.party) {
            case 'Republican': return {color: "#ff0000"};
            case 'Democrat':   return {color: "#0000ff"};
        }
    }
}).addTo(map);
```

pointToLayer

Points are handled differently than polylines and polygons. By default simple markers are drawn for GeoJSON Points. We can alter this by passing a `pointToLayer` function in a **GeoJSON options (http://leafletjs.com/reference.html#geojson-options)** object when creating the GeoJSON layer. This function is passed a **LatLng (http://leafletjs.com/reference.html#latlng)** and should return an instance of ILayer, in this case likely a **Marker (http://leafletjs.com/reference.html#marker)** or **CircleMarker (http://leafletjs.com/reference.html#circlemarker)**.

Here we're using the `pointToLayer` option to create a CircleMarker:

```
var geojsonMarkerOptions = {
    radius: 8,
    fillColor: "#ff7800",
    color: "#000",
    weight: 1,
    opacity: 1,
    fillOpacity: 0.8
};

L.geoJson(someGeojsonFeature, {
    pointToLayer: function (feature, latlng) {
        return L.circleMarker(latlng, geojsonMarkerOptions);
    }
}).addTo(map);
```

We could also set the `style` property in this example — Leaflet is smart enough to apply styles to GeoJSON points if you create a vector layer like circle inside the `pointToLayer` function.

onEachFeature

The `onEachFeature` option is a function that gets called on each feature before adding it to a GeoJSON layer. A common reason to use this option is to attach a popup to features when they are clicked.

```
function onEachFeature(feature, layer) {
    // does this feature have a property named popupContent?
    if (feature.properties && feature.properties.popupContent) {
        layer.bindPopup(feature.properties.popupContent);
    }
}

var geojsonFeature = {
    "type": "Feature",
    "properties": {
        "name": "Coors Field",
        "amenity": "Baseball Stadium",
        "popupContent": "This is where the Rockies play!"
    },
    "geometry": {
        "type": "Point",
        "coordinates": [-104.99404, 39.75621]
    }
};

L.geoJson(geojsonFeature, {
    onEachFeature: onEachFeature
}).addTo(map);
```

filter

The `filter` option can be used to control the visibility of GeoJSON features. To accomplish this we pass a function as the `filter` option. This function gets called for each feature in your GeoJSON layer, and gets passed the `feature` and the `layer`. You can then utilise the values in the feature's properties to control the visibility by returning `true` or `false`.

In the example below "Busch Field" will not be shown on the map.

```
var someFeatures = [{
    "type": "Feature",
    "properties": {
        "name": "Coors Field",
        "show_on_map": true
    },
    "geometry": {
        "type": "Point",
        "coordinates": [-104.99404, 39.75621]
    }
}, {
    "type": "Feature",
    "properties": {
        "name": "Busch Field",
        "show_on_map": false
    },
    "geometry": {
        "type": "Point",
        "coordinates": [-104.98404, 39.74621]
    }
```

```
}];

L.geoJson(someFeatures, {
    filter: function(feature, layer) {
        return feature.properties.show_on_map;
    }
}).addTo(map);
```

View the **example page (geojson-example.html)** to see in detail what is possible with the GeoJSON layer.

(http://github.com/Leaflet/Leaflet)