IOWA STATE UNIVERSITY
Extension and Outreach

GIS
Training and Services
Geospatial Technology
Training Program

Mapping API's: Google Maps API v3 - Adding Markers

Welcome to the Essential ArcGIS Task Sheet Series. This series supplements the Iowa State University GIS Geospatial Technology Training Program short course series. The task sheets are designed to provide quick, easy instructions for performing mapping tasks.

Identifying point locations on a web map is often facilitated through the use of markers. Working from the helloWorld.htm map created in the *MappingAPI's: Google Maps API v3 - Getting Started*, publication number: **PM2082-14o**. This task sheet will demonstrate how to add individual markers to a map. The use of markers is extended on in other task sheets to include custom icons, info windows and dynamic data.

1. What you need to complete this tutorial

a. A Google Maps API key and the helloWorld.htm map file created in *MappingAPI's: Google Maps API v3 - Getting Started*, publication number: **PM2082-14o**.

b. You can download or clone a copy of the HTML file from GitHub at: https://github.com/ISUEOGTP/GISTaskSheets.
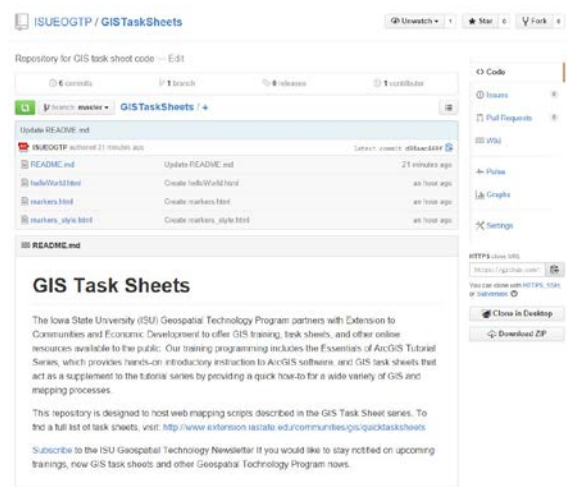
2. Global Map Variables

a. To reduce the chance of error in future projects as the maps become more complex it is recommended that the variable map be established as a global variable.

b. To do this add **var map**; before the initialize function. Then in the code where the map gets defined remove the word **var** from before the word **map**.

3. Adding Markers to the Map

a. Markers are generated by first creating a variable (in this example called **marker**) that is constructed as a **new google.maps.Marker** that contains at least two options (position and map).

b. The first option is the position of the marker provided as either a variable or as a new **google.maps.LatLng()**. If using a variable, then the variable must be established before the marker is constructed.

c. In the example to the right the variable **myLatlng** is set to a location in Iowa. **myLatlng** is then used in the marker constructor as the **position**. The marker constructor value for **map** is the name of the variable that constructs the Google Map – in this case it is also called **map**. The example includes a third option, **title**. Title is a tooltip that will appear when the mouse hovers over the marker - in this case **"Hello World"**.


```
var myLatlng = new google.maps.LatLng(42.02,-93.62);

// To add the marker to the map, use the 'map' property
var marker = new google.maps.Marker({
    position: myLatlng,
    map: map,
    title:"Hello World!"
});
```

c. An alternative way to construct the marker is shown to the right. In this example, the **position** is not provided as a variable, instead the full constructor is written. The marker code should be placed after the following:

```
map = new google.maps.Map(document.getElementById('map-canvas'),
    mapOptions);
```

but before the brace or curly bracket that closes the initialize function.

4. Marker Icons and Locations

a. Google's default marker icon is a red teardrop shaped icon and is designed so that the tip of the marker icon is located at the specified latitude and longitude. It is possible to change this and use other custom icons. This is covered in other task sheets.

5. Multiple Markers

a. Multiple markers can be easily added by simply copying the marker constructor code and placing it below the first constructor.

b. The example code illustrated, **var marker** is reused for each of the new marker points. While this works for this example, a better approach would be to have a unique name for each marker eg. **var ames** or **var fortDodge**.

c. By identifying the markers by a unique name, marker functionality can be added. One example of this is:

```
ames.setMap(null);
```

which would remove the Ames marker from the map. Another example that would change the text of the tooltip is:

```
ames.title = 'Iowa State University';
```

d. When working with multiple icon locations the method above works fine for a few markers, but if you have many markers it is better to create an array of the locations and loop through the markers. More details on this are covered in other task sheets.

```javascript
// To add the marker to the map, use the 'map' property
var marker = new google.maps.Marker({
    position: new google.maps.LatLng(42.02,-93.62),
    map: map,
    title:"Hello World!"
});
```

```javascript
var marker = new google.maps.Marker({
    position: new google.maps.LatLng(42.02,-93.62),
    map: map,
    title:"Ames, Iowa
});
```

```javascript
var marker = new google.maps.Marker({
    position: new google.maps.LatLng(42.50,-94.17),
    map: map,
    title:"Fort Dodge, Iowa
});
```

```html
<!DOCTYPE html>
<html>

<head>
    <style type="text/css">
        html,
        body,
        #map-canvas {
            height: 100%;
            margin: 0;
            padding: 0;
        }
    </style>
    <script type="text/javascript" src="https://maps.googleapis.com/maps/api/js?key=AIzaSyBTD-oN-MCf2NhMjkfkhLaAIZHmJdsJ-Uk"></script>
    <script type="text/javascript">
        var map;

        function initialize() {
            var mapOptions = {
                center: {
                    lat: 42,
                    lng: -93
                },
                zoom: 8
            };

            map = new google.maps.Map(document.getElementById('map-canvas'),
                mapOptions);

            // To add the marker to the map, use the 'map' property
            ames = new google.maps.Marker({
                position: new google.maps.LatLng(42.02, -93.62),
                map: map,
                title: "Ames, Iowa"
            });

            fortDodge = new google.maps.Marker({
                position: new google.maps.LatLng(42.50, -94.17),
                map: map,
                title: "Fort Dodge, Iowa"
            });

            //uncomment to remove ames or change its tooltip title.
            //ames.setMap(null);
            //ames.title = 'Iowa State University';

        } //close initialize function

        google.maps.event.addDomListener(window, 'load', initialize);
    </script>
</head>

<body>
    <div id="map-canvas"></div>
</body>

</html>
```

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