IOWA STATE UNIVERSITY
Extension and Outreach

GIS
Training and Services

**Geospatial Technology
Training Program**

Mapping API's: Leaflet - Synchronize Two Maps

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

Providing users with a layer control element is one way to provide access to various map layers. However, it is sometimes desirable to display two maps on the page at the same time to allow the user the ability to compare the imagery without toggling layers on and off. This task sheet will demonstrate how to add two Leaflet maps that are synchronized and provide the option to display varying data layers.

1. Introduction

a. Start with the Leaflet - Ames Starter Map file **LeafletAmesStarter.html** available on GitHub at: https://github.com/ISUEOGTP/GISTaskSheets.

b. The starter file contains a single map and a layer control that provides base layers for OpenStreet Map, OpenCycle Map, 1930 and 2013 aerials and an overlay of NEXRD weather data.

c. Download **L.Map.Sync.js** from the **turban/Leaflet. Sync** GitHub repository at: https://github.com/turban/Leaflet.Sync. Place the file in the same directory as the **LeafletAmesStarter.html** file containing the map code.
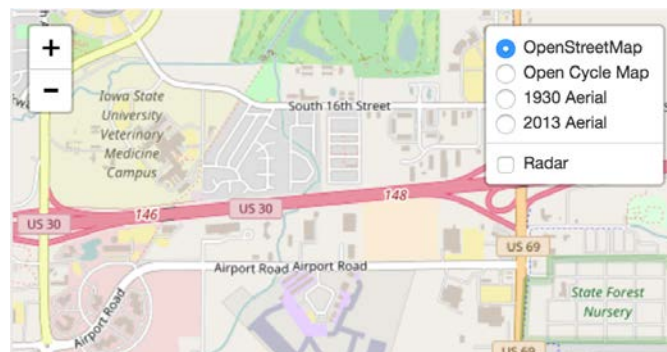
d. Add a link to the **L.Map.Sync.js** file in the **<HEAD>** of the **LeafletAmesStarter.html** file.

```
<script src="https://yourserver/classes/Leaflet.Sync/L.Map.Sync.js"></script>
```

2. Making two Maps

a. Rename the **id** of the **DIV** containing the map to **map1** and then add a second **DIV** to contain **map2**.

```
<div id="map1"></div>
<div id="map2"></div>
```

b. Modify the name of the **CSS** reference for map to **map1** and include a reference to **map2**.

```
#map1, #map2 {height: 400px; margin: 0; padding: 0; }
```

c. Next, modify the Leaflet code to create the second map and display it in the map2 div. Add a **1** to the var map name and change the DIV reference to be **map1**. Copy the map constructor and rename the var to **map2** and change the DIV reference to **map2**. In map 2 change the layers from **OSM** to **OCM** to change the initial base layer. Optionally turn off the **zoomControl** to reduce clutter on **map2**. *Note: You must display a different map layer reference as the basemap. This is covered in more detail in step i.*

```
var map1 = L.map('map16', {
    center: new L.LatLng(42.0, -93.6208),
    zoom: 14,
    layers: [OSM]
});

var map2 = L.map('map2', {
    center: new L.LatLng(42.0, -93.6208),
    zoom: 14,
    layers: [OCM],
    zoomControl: false
});
```

d. At this point you should have two different maps. However, if you pan one map the second will not pan with it. To link the two together add two lines of code after the map constructors that refer the sync library.

```
map1.sync(map2);
map2.sync(map1);
```

3. Adding Layer Control

a. The maps are now synchronized but the layer control will not display. When displaying two maps, each must have their own layer control and they cannot reference the same base layers. Duplicate any base layers references and change the variable name as show below for any layers you want to appear in both maps. In this tutorial, **OSM** and **OCM** were both duplicated and renamed **OSM2** and **OCM2**.

```
//Base layers and overlays
var OSM = L.tileLayer('http://{s}.tile.osm.org/{z}/{x}/{y}.png', {
        attribution: '&copy; <a href="http://osm.org/copyright">OpenStreetMap</a> contributors',
        maxZoom: 18
});

var OSM2 = L.tileLayer('http://{s}.tile.osm.org/{z}/{x}/{y}.png', {
        attribution: '&copy; <a href="http://osm.org/copyright">OpenStreetMap</a> contributors',
        maxZoom: 18
});
```

b. Modify the existing layer control code to reference **map1** and then duplicate it for **map2** as shown below.

```
//layer control
var baseMaps1 = {
        "OpenStreetMap": OSM,
        "Open Cycle Map": OCM,
        "1930 Ortho": ortho_1930
};

var overlayMaps1 = {
        "Radar": nexrad
};

var baseMaps2 = {
        "OpenStreetMap": OSM2,
        "Open Cycle Map": OCM2,
        "2013 Ortho": naip_2013_nc
};

L.control.layers(baseMaps1, overlayMaps1).
addTo(map1);
L.control.layers(baseMaps2).addTo(map2);
```

c. The maps are now synchronized and contain non-conflicting layer controls as shown in the figure to the right.
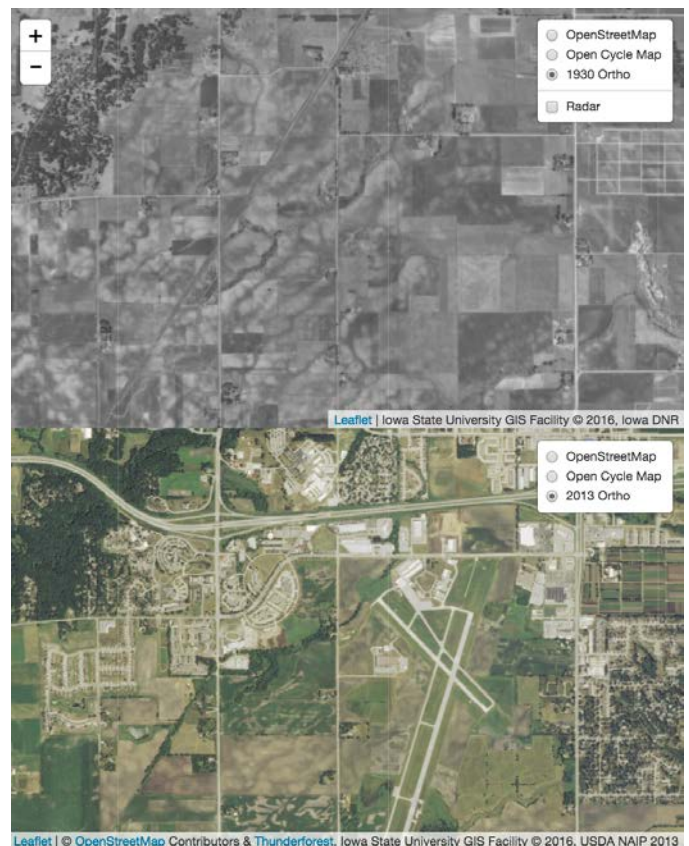
Contact:

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