

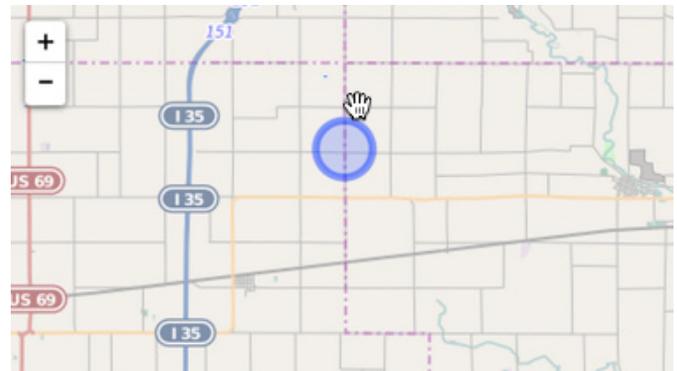
Mapping API's: Leaflet - Circles and Circle Markers

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.

This task sheet builds upon the previous task sheet: *Mapping API's: Leaflet - Getting Started PM2082-14r* and *Mapping API's: Leaflet - Adding Markers PM2082-14s*. Please refer to those documents for the initial Leaflet map setup. The code for this task sheet (circlesLeaflet.html) and the previous task sheets can be found on the ISU Geospatial Technology Program GitHub page at <https://github.com/ISUEOGTP/GISTaskSheets>. This task sheet will take you through the steps of creating two different types of circles (Circles and Circle Markers).

1. Introduction

- An alternative option to the default blue teardrop marker icon is to display circles at a specified geographical point location. Circles can be displayed using one of the following two types.
 - Circles:** Allow the circle radius (in meters) to be specified - thus as you zoom in or out the size of the marker will scale with the zoom level.
 - Circle Markers:** Allow the circle radius (in pixels) to be specified - thus as you zoom in or out the size of the marker will stay fixed at the specified pixel radius.



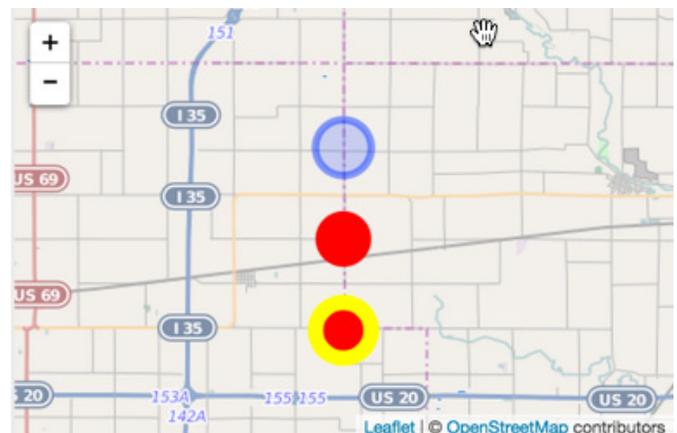
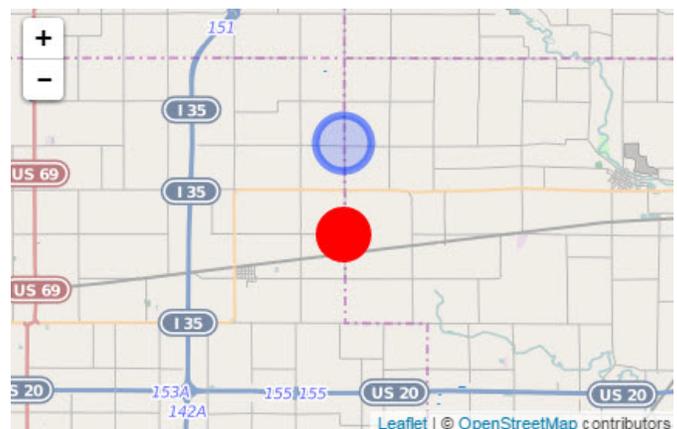
2. Create a Circle

- Add the following line of code to add the first circle to the leaflet map.

```
//regular circle  
var circle1 = L.circle([42.53, -93.50], 1000).  
addTo(map);
```

- This will add a blue circle that has a radius of 1,000 meters to the map. Note that the circle has a darker blue outline than the fill color. This and several other items can be changed by including the path options in the constructor.
- In the code example below, several options have been enabled. You don't have to include all the options in order to display the circle, for demonstration all six options are provided here. *Note: depending on your text editor, the comma on the last option may need to be removed.*

```
var circle2 = L.circle([42.50, -93.50], 1000, {  
  stroke: false, //true/false for stroke  
  color: 'red', //the color if stroke enabled  
  opacity: 1, //a value between 0 and 1  
  weight: 30, //stroke weight  
  fill: true, //true/false for fill  
  fillColor: '#FF0000', //HEX or color name  
  fillOpacity: 1, //opacity 0-1 of fill  
}).addTo(map);
```



- d. Modifying the previous code by turning **stroke** to **true**. This enables the color and opacity options for the stroke. Setting **fill** to **false** would leave just a circle outline. Interestingly, if you drop out the opacity line in the code below, the circle drawn will step from yellow to orange and then a red fill try it out!

```
var circle3 = L.circle([42.47, -93.50], 1000, {
  stroke: true, //true/false for stroke
  color: 'yellow', //stroke color
  opacity: 1, //a value between 0 and 1
  weight: 10, //stroke weight
  fill: true, //boolean for fill - true/false
  fillColor: 'red', //HEX or color name
  fillOpacity: 1, //opacity 0-1 of fill
}).addTo(map);
```

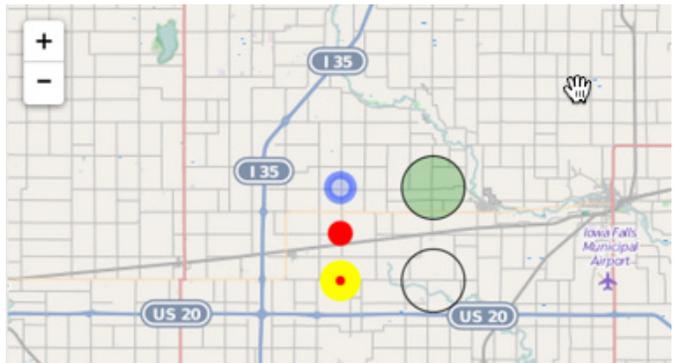
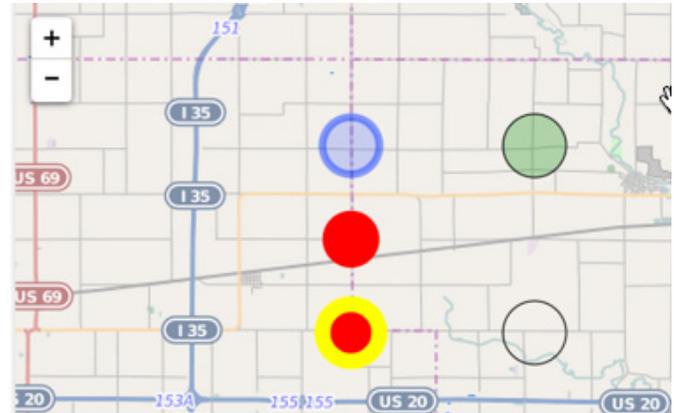
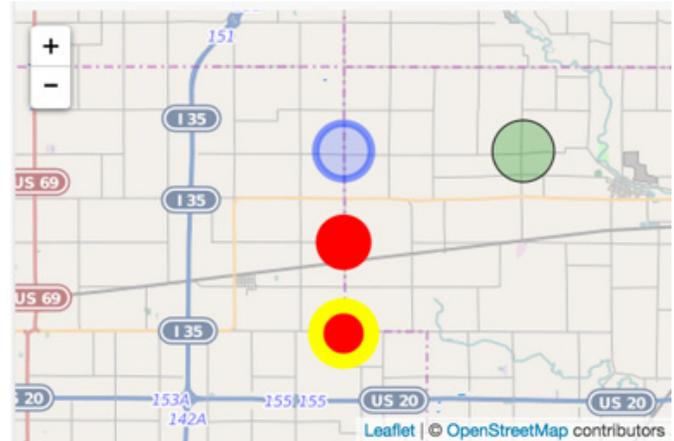
3. Create a Circle Marker

- a. Circle markers are constructed much like a circle, however the radius in meters is omitted and an option with the radius is included. Note that this radius distance is provided in screen pixels.

```
//CircleMarker
var cm1 = new L.circleMarker([42.53, -93.42],{
  radius: 20,
  stroke: true,
  color: 'black',
  opacity: 1,
  weight: 1,
  fill: true,
  fillColor: "green",
  fillOpacity: 0.3
}).addTo(map);
```

- b. The following marker has no fill.

```
//CircleMarker
var cm2 = new L.circleMarker([42.47, -93.42],{
  radius: 20,
  stroke: true,
  color: 'black',
  opacity: 1,
  weight: 1,
  fill: false,
  fillColor: "green",
  fillOpacity: 0.3
}).addTo(map);
```



4. Why Create a Circle Marker?

- a. As shown in the two maps above, when a Circle Marker (green/hollow) is used and the map is zoomed out it stays the same size. However, the Circles (blue/red/yellow) change in size.

Contact:

Bailey Hanson bahanson@iastate.edu, 515-520-1436 or Professor Christopher J. Seeger, ASLA, GISP cjseeger@iastate.edu, 515-509-0651 for more information about the Geospatial Technology Program. This task sheet and more are available at www.extension.iastate.edu/communities/gis

Iowa State University Extension and Outreach does not discriminate on the basis of age, disability, ethnicity, gender identity, genetic information, marital status, national origin, pregnancy, race, religion, sex, sexual orientation, socioeconomic status, or status as a U.S. veteran. (Not all prohibited bases apply to all programs.) Inquiries regarding non-discrimination policies may be directed to Ross Wilburn, Diversity Officer, 2150 Beardshear Hall, 515 Morrill Road, Ames, Iowa 50011, 515-294-1482, wilburn@iastate.edu.