

## Google Maps

### Introduction

The ViFrame and slideshow charts now can be used to display images of Google Maps based on data from your data set. There are two Google Map APIs that will be most useful from within iDashboards. These APIs are the Google Static Maps API and the Google Maps Embed API. Each of these APIs will be discussed below and examples of how they can be used within iDashboards will be described. Each API is used from within iDashboards via a HTTP request. A request to the Static Maps API returns an image, while the Maps Embed API returns an interactive web page. At the bottom of this article, you will find an attachment that will allow you to import a sample dashboard with a ViFrame chart example of the Google maps option. Simply download the attachment and follow the standard import instructions to load the sample dashboard and chart into a new category called Google Maps.

### The Required API Key

Both APIs require an API key in the request. It is supplied in the request with the parameter *key*. According to the documentation, the API key allows usage monitoring by the application, but also allows Google to contact the developer about their application usage. There are no usage restrictions for the Embed API, but there are usage restrictions for the Static Maps API. For the Static Maps API, the limit is 25,000 Static Maps image requests per day. As a side note, if an API key is not provided in a Static Maps request, the limit is 1,000 request per 24-hour period and 50 requests per minute per IP address.

### Description

Google Static Maps API

The Google Static Maps API generates an image of a map based on a URL parameters in an HTTP request. The documentation for the API can be found here:

<https://developers.google.com/maps/documentation/staticmaps/>

The form of the request is:

<https://maps.googleapis.com/maps/api/staticmap?parameters>

The parameters that are of most interest in iDashboards are described below. It should also be noted that the URL is restricted to 2048 characters.

Location parameters

- **center** – This parameter is required if markers are not specified. It defines the center of the map. The location can either be a comma-separated latitude/longitude pair or a string address. This link (<https://developers.google.com/maps/documentation/staticmaps/#Locations>) describes the explicit syntax for specifying a location.
- **zoom** – This parameter is required if markers are not specified. It is a numeric value that defines the resolution of the map. Zoom levels range from 0 (entire world) to 21 (streets and individual buildings).

### Map parameters

**size** - This parameter is required and defines the rectangular dimension of the image. It is string of the form “width x height”.

**scale** - This parameter is optional and affects the number of pixels in the resulting image. If the scale is 2, then twice as many pixels are returned than when the scale is 1 while the coverage area and level of detail remain the same. The default is 1 and the only other option is 2.

The maximum allowable value for the size is 640 x 640. When a scale of 2 is specified, the returned image size is 2\*w x 2\*h.

**markers** - This parameter is optional and specifies one or more points that will be identified with a marker on the returned map image. The API provides very minimal styling that can be applied to the markers. The URL can contain multiple markers parameters. Each markers parameter specifies a list of locations that have the same styling. If markers are supplied then the center and zoom parameters can be omitted.

Each markers parameter is of the form:

*markers=markerStyles|markerLocation1|markerLocation2|...*

The *markerStyles* portion is declared at the beginning of the parameter specification and consists of zero or more style descriptors separated by the pipe character. After the styles, the marker locations are specified separated by the pipe

character.

The available marker style descriptors are:

- **size** – This descriptor specifies the size of the marker. The possible values are tiny, mid and small. The default is a ‘normal’ size.
  - **color** – This descriptor specifies the color of the marker. It can be a 24-bit color (e.g. 0xFFFFCC) or a color from the set {black, brown, green, purple, yellow, blue, gray, orange, red, white}.
  - **label** – This descriptor specifies a single uppercase alphanumeric character from the set {A-Z, 0-9}.
- For example, the following descriptors will style the associated markers with small red ‘pins’ with the letter ‘D’ on them.  
`size:small|color:0xFF0000|label:D`

## Usage within iDashboards

A common usage of the Static Maps API would be within a presentation chart. The location within a markers parameter could be specified using the ``${value:<axisName>}`` macro. For example, consider a ViFrame. The Static Maps API URL is specified as the `src` attribute in an `img` tag:

```

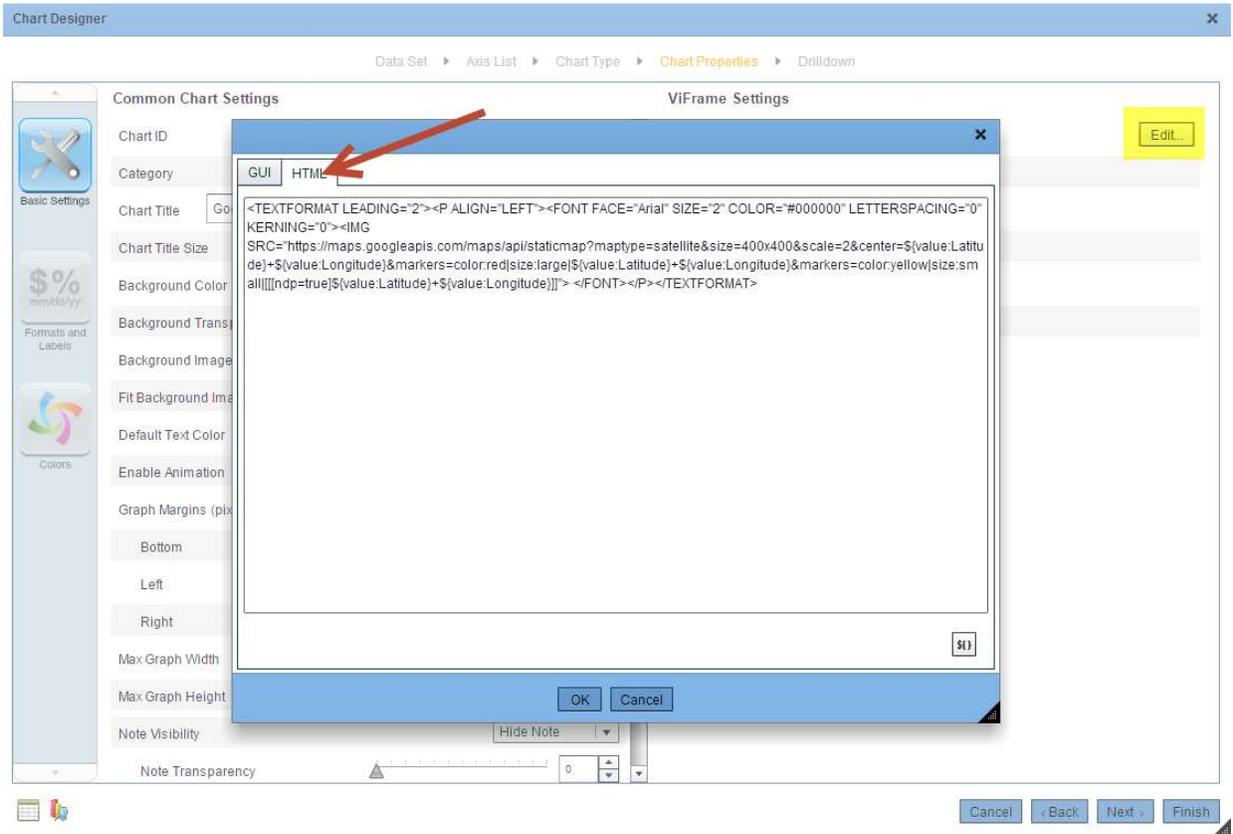
```

This URL will generate a map for the associated `Street City, State` string address identified with a red marker labeled with a ‘D’.

Note: The iDashboards application handles the URL-encoding so it doesn’t need to be explicitly handled in the URL.

## Installation

The actual steps to create this chart are simple. Create a new ViFrame chart and click on the HTML button inside the Chart Properties for that chart.



The screenshot shows the 'Chart Designer' window with the 'Chart Properties' panel open. The 'HTML' tab is selected, and a red arrow points to it. The HTML content area contains the following code:

```
<TEXTFORMAT LEADING="2"><P ALIGN="LEFT"><FONT FACE="Arial" SIZE="2" COLOR="#000000" LETTERSPACING="0"
KERNING="0"><IMG
SRC="https://maps.googleapis.com/maps/api/staticmap?maptype=satellite&size=400x400&scale=2&center=${value:Latitude}+${value:Longitude}&markers=color:red|size:large|${value:Latitude}+${value:Longitude}&markers=color:yellow|size:small|[[[ndp=true|${value:Latitude}+${value:Longitude}]]]]> </FONT><P></TEXTFORMAT>
```

From here, just create your URL and paste it into the HTML tab of the HTML panel. Then save the chart as usual.

## Example URLs

The following examples are good references for the available options inside the URL as a ViFrame:

```
https://maps.googleapis.com/maps/api/staticmap?size=400x400&scale=2&center=${value:Street}
${value:City},${value:State}&markers=color:red|${value:Street},${value:City},${value:State}&
markers=color:yellow|size:small|[[[inc=others,max=3]]${value:Street} ${value:City},${value:State}]]
```

Here is a sample with HTML formatting included and some modification to allow display of the satellite images instead of standard map images:

```
<TEXTFORMAT LEADING="2"><P ALIGN="LEFT"><FONT FACE="Arial" SIZE="2" COLOR="#000000" LETTERSPACING="0"
KERNING="0"><IMG
SRC="https://maps.googleapis.com/maps/api/staticmap?maptype=satellite&size=400x400&scale=2&center=${value:Latit
ude}+${value:Longitude}&markers=color:red|size:large|${value:Latitude}+${value:Longitude}&markers=color:yellow|size:
small|[[[ndp=true]]${value:Latitude}+${value:Longitude}]]"> </FONT></P></TEXTFORMAT>
```

And as a SlideShow:

**\*\*Be sure to enable 'proxy server'\*\***

```
http://maps.googleapis.com/maps/api/staticmap?size=300x300&scale=2&center=${value:City},${value:ZIP}&markers=col
or:red|size:large|${value:City},${value:ZIP}&markers=color:yellow|size:small|[[[ndp=true]]${value:City},${value:ZIP}]]
```

Note: The maximum character length for http protocol is approximately 2000 characters depending on your browser. If your URL goes over this limit then no image will be created and no map will appear in the chart.