



Lập trình ứng dụng trên iOS

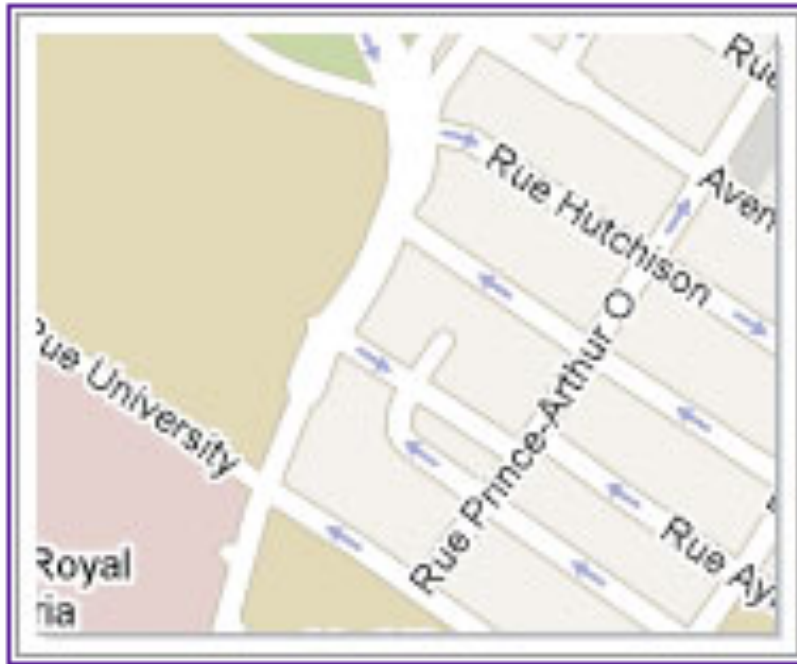
Google Map API



Nội dung

- Giới thiệu
- Google Map Image APIs
- Google Map Web Services
- Demo

Giới thiệu



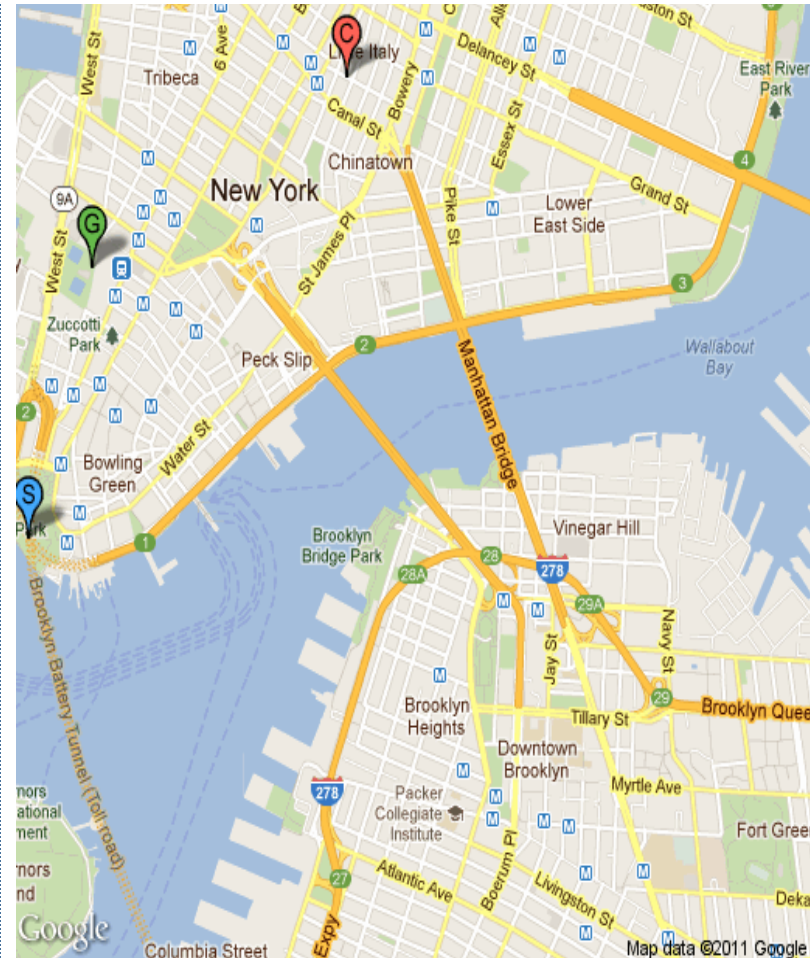
Google Map Image APIs



Google Map Web Services

Google Map Image APIs

- Google Static Map API trả về một image (GIF, PNG hoặc JPEG)
- Gửi yêu cầu (request) thông qua một URL
- Mỗi một yêu cầu cần phải cung cấp một số tham số như size ảnh, zoom level, loại map, ...
- Limits: 1000 image/day



Google Map Image APIs

- Google Static Map:
 - Google Static Map API URL:
<http://maps.googleapis.com/maps/api/staticmap?parameters>
<https://maps.googleapis.com/maps/api/staticmap?parameters>

Google Map Image APIs

- Google Static Map:
 - URL Parameters:

✧ Location Parameters:

- center
- zoom

✧ Map Parameters:

- size
- scale
- format
- maptype
- language

✧ Feature Parameters:

- markers:
- path
- visible
- style

✧ Reporting Parameters:

- sensor

Google Map Image APIs

- Google Static Map:

- Các ví dụ:

- Ví dụ 1: Location (Latitude - Longitude)

**[http://maps.googleapis.com/maps/api/staticmap?](http://maps.googleapis.com/maps/api/staticmap?center=40.714728,-73.998672&zoom=12&size=400x400&sensor=false)
center=40.714728,-73.998672&zoom=12&size=400x400&sensor=false**

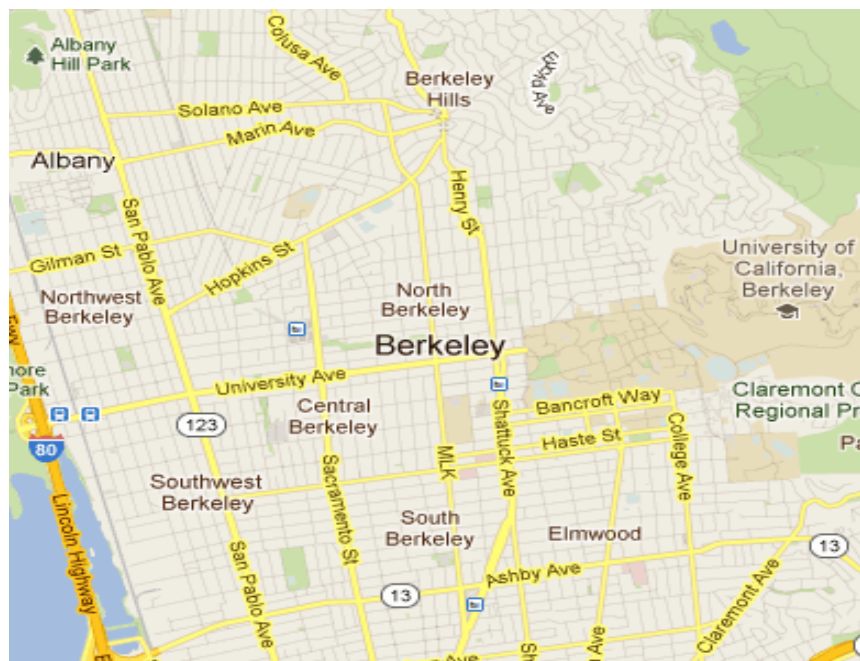


Google Map Image APIs

- Google Static Map:

- Ví dụ 2: Location (Address)

[http://maps.googleapis.com/maps/api/staticmap?](http://maps.googleapis.com/maps/api/staticmap?center=Berkeley,CA&zoom=14&size=400x400&sensor=false)
center=Berkeley,CA&zoom=14&size=400x400&sensor=false

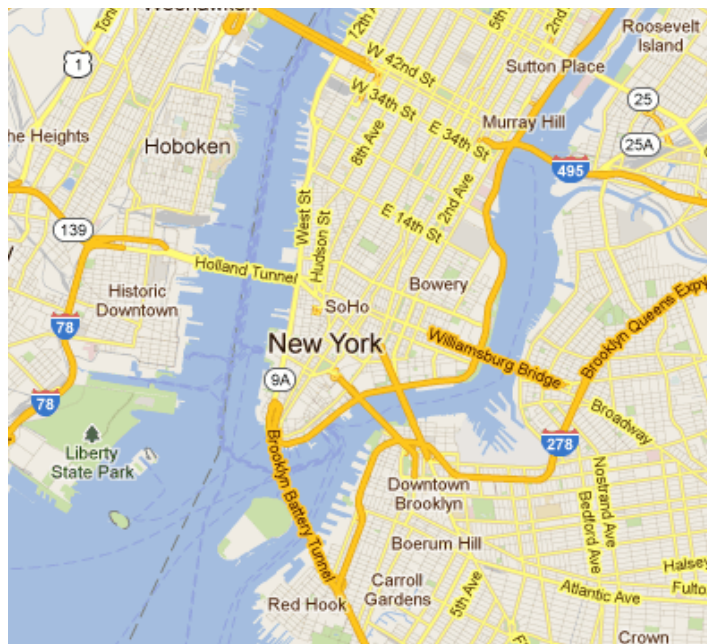


Google Map Image APIs

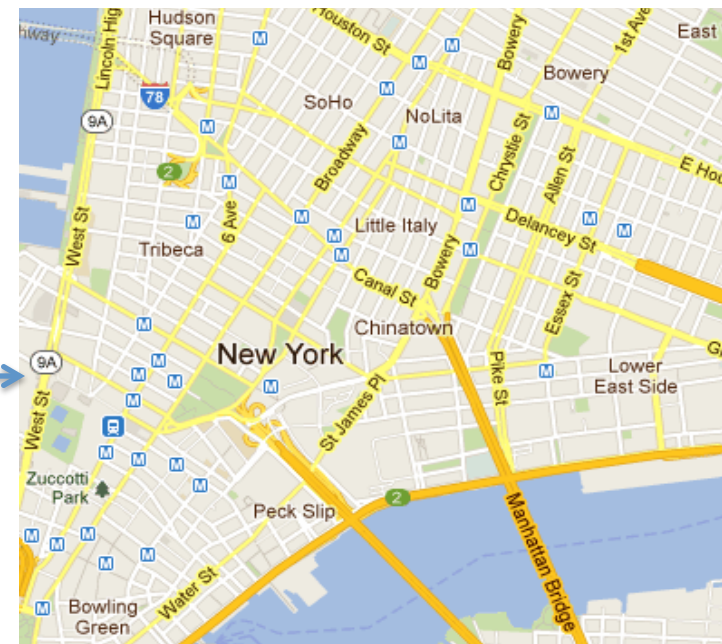
- Google Static Map:

- Ví dụ 3: Zoom levels (0 - 21)

[http://maps.googleapis.com/maps/api/staticmap?
center=40.714728,-73.998672&zoom=12&size=400x400&sensor=false](http://maps.googleapis.com/maps/api/staticmap?center=40.714728,-73.998672&zoom=12&size=400x400&sensor=false)



zoom = 12



zoom = 14

Google Map Image APIs

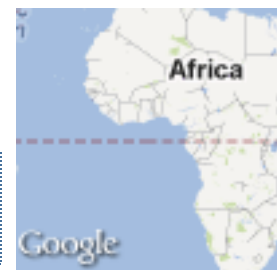
- Google Static Map:
 - Ví dụ 4: Image sizes

API	scale=1	scale=2	scale=4
Free	640x640	640x640 (returns 1280x1280 pixels)	Not available.
Google Maps API for Business	2048x2048	1024x1024 (returns 2048x2048 pixels)	512x512 (returns 2048x2048 pixels)

**[http://maps.googleapis.com/maps/api/staticmap?
center=0,0&zoom=1&size=400x50&sensor=true_or_false](http://maps.googleapis.com/maps/api/staticmap?center=0,0&zoom=1&size=400x50&sensor=true_or_false)**

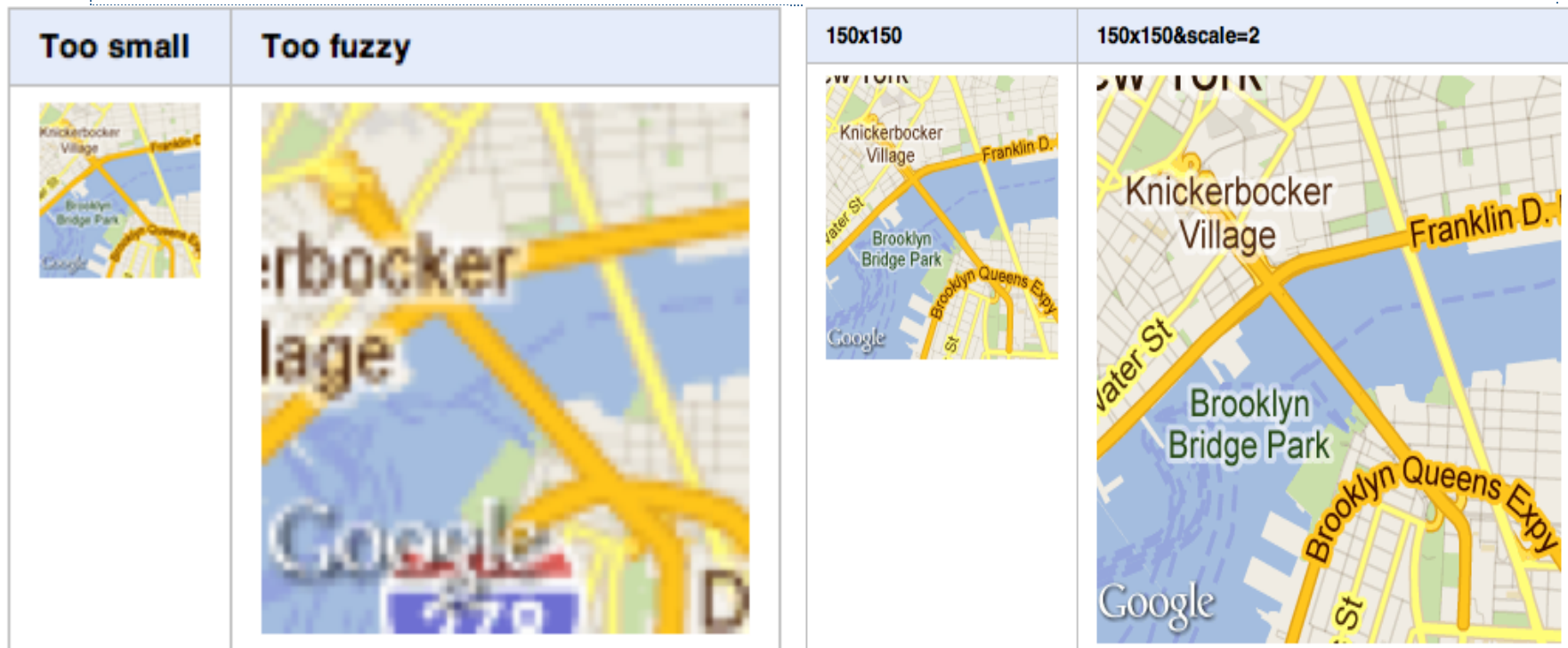


**[http://maps.googleapis.com/maps/api/staticmap?
center=0,0&zoom=1&size=100x100&sensor=true_or_false](http://maps.googleapis.com/maps/api/staticmap?center=0,0&zoom=1&size=100x100&sensor=true_or_false)**



Google Map Image APIs

- Google Static Map:
 - Ví dụ 3: Scale values (iOS, Android: scale=1 or scale = 2)



Google Map Image APIs

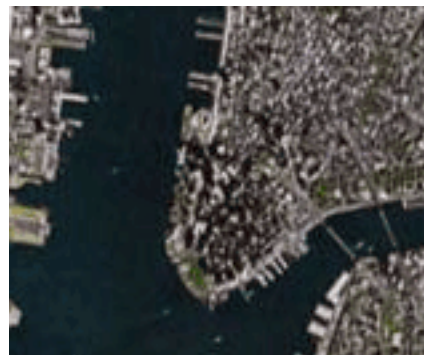
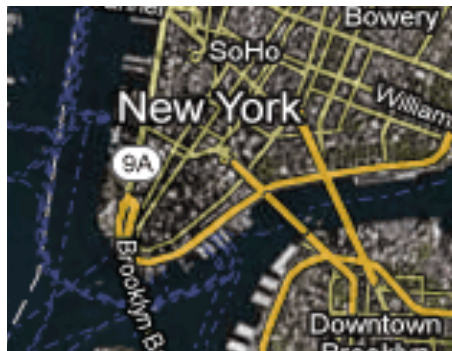
- Google Static Map:
 - Ví dụ 4: Image Formats
 - Png8 or png
 - Png32
 - Gif
 - Jpg
 - Jpg-baseline

**`http://maps.googleapis.com/maps/api/staticmap?
center=0,0&zoom=1&size=400x50&format=png&sensor=true_or_false`**

Google Map Image APIs

- Google Static Map:

- Ví dụ 5: Map Types
 - Roadmap (default)
 - Satellite
 - Terrain
 - Hybrid



Google Map Image APIs

- Google Static Map:

- Ví dụ 6: Markers

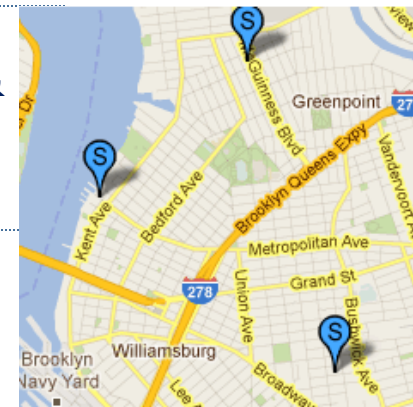
- markers=markerStyles|markerLocation1| markerLocation2|

- ...

- Marker style:

- Size
 - Color
 - Label

**`http://maps.googleapis.com/maps/api/staticmap?
center=Williamsburg,Brooklyn,NY&zoom=13&size=400x400&
markers=color:blue%7Clabel:S
%7C11211%7C11206%7C11222&sensor=true_or_false`**



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Google Map Web Services

- Place API
 - Place search request:
<https://maps.googleapis.com/maps/api/place/search/output?parameters>
 - Parameters:
 - Output: json, xml
 - Key
 - Location
 - Radius
 - Types
 - Sensor
 - ...

Google Map Web Services

- Place API

– Ví dụ:

<https://maps.googleapis.com/maps/api/place/search/json?location=-33.8670522,151.1957362&radius=500&types=food&name=harbour&sensor=false&key=AizaSyAiFpFd85eMtfbvmVNEYuNds5TEF9FjIPI>

JSON	XML
<pre>{ "html_attributions" : ["Listings by \u003ca href=\"http:/",], "results" : [{ "geometry" : { "location" : { "lat" : -33.8719830, "lng" : 151.1990860 } } }] }</pre>	<pre><?xml version="1.0" encoding="UTF-8"?> <PlaceSearchResponse> <status>OK</status> <result> <name>Zaaffran Restaurant - BBQ and GI <vicinity>Harbourside Centre 10 Darli <type>restaurant</type> <type>food</type></pre>

Google Map Web Services

- Distance Matrix API

- Place search request:

- <http://maps.googleapis.com/maps/api/distancematrix/output?parameters>

Hoặc

- <https://maps.googleapis.com/maps/api/distancematrix/output?parameters>

Parameters:

- Output: json, xml
 - Origins
 - Destinations
 - Mode
 - Sensor
 - ...

Google Map Web Services

- Distance Matrix API

– Ví dụ:

<http://maps.googleapis.com/maps/api/distancematrix/json?origins=Vancouver+BC|Seattle&destinations=San+Francisco|Victoria+BC&mode=bicycling&language=fr-FR&sensor=false>

```
{
  "status": "OK",
  "origin_addresses": [ "Vancouver, BC",
  "destination_addresses": [ "San Francisco, CA",
  "rows": [ {
    "elements": [ {
      "status": "OK",
      "duration": {
        "value": 340110,
        "text": "3 jours 22 heures"
      },
      "distance": {
        "value": 1734542,
        "text": "1 735 km"
      }
    }
  ]
}
```

```
<?xml version="1.0" encoding="UTF-8"?>
<DistanceMatrixResponse>
  <status>OK</status>
  <origin_address>Vancouver, BC, Canada</origin_address>
  <origin_address>Seattle, État de Washington</origin_address>
  <destination_address>San Francisco, Californie</destination_address>
  <destination_address>Victoria, BC, Canada</destination_address>
  <row>
    <element>
      <status>OK</status>
      <duration>
        <value>340110</value>
        <text>3 jours 22 heures</text>
      </duration>
    </element>
  </row>

```



Demo