

# GOOGLE MAP API



# Google Maps

The screenshot shows a Mozilla Firefox browser window displaying Google Maps. The address bar contains `http://maps.google.com/`. The search bar has "DePaul Chicago" entered. The map shows the DePaul University campus in Chicago, IL, with a red location pin. A popup window displays the address "DePaul Chicago, IL" and includes a street view image and links for "Get directions", "Search nearby", and "Save to My Maps". The sidebar on the left lists "DePaul Chicago, IL" with options to "Explore this area" and "Photos". It also lists "Places" (DePaul University, Lincoln Park, Chicago, Apollo Theater Chicago), "User-Created Maps" (Chicago by Harry, Chicago Eats by Xani), and "Top Contributors" (Reddolf, Udara, bny, Ben Dahl).

**DePaul Chicago - Google Maps - Mozilla Firefox**

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Google Maps [DePaul Chicago] Search Maps Show search options

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**DePaul**  
Chicago, IL

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**Photos**

**Places**  
[DePaul University](#)  
[Lincoln Park, Chicago](#)  
[Apollo Theater Chicago](#)

**User-Created Maps**  
[Chicago](#)  
by Harry - 4,676 views  
[Chicago Eats](#)  
by Xani - 2,889 views

**Top Contributors**  
by reviews, maps and edits

[Reddolf](#) maps  
[Udara](#) maps  
[bny](#) edits  
[Ben Dahl](#) maps

**Address:**  
DePaul  
Chicago, IL

[Street view](#)  
[Get directions](#) - [Search nearby](#)  
[Save to My Maps](#) - [Send](#)

Chicago IL City Guide - www.HelloChicago.com - News, Attractions, Maps, Art, Sponsored Link

# API documentation

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main page: <http://code.google.com/apis/maps/>

□ sign up for a key (for a particular domain name)

documentation:

<http://code.google.com/apis/maps/documentation>

▣ Basics, Events, Controls, Overlays, Services

# Example: create/center map

```
<head>
<meta http-equiv="Content-Type" content="text/html; charset=windows-1252" />
<title>Theme Operations</title>
<script
  src="http://maps.google.com/maps?file=api&v=2&sensor=false&key=_your_key_"
  type="text/javascript"></script>
<script type="text/javascript">
  function initialize() {
    if (GBrowserIsCompatible()) {
      var map = new GMap2(document.getElementById("map_canvas"));
      map.setCenter(new GLatLng(41.878896, -87.625067), 13);
      map.setUIToDefault();
    }
  }
</script>
</head>
<body onload="initialize()" onunload="GUnload()">
  <div id="map_canvas" style="width: 500px; height: 300px"></div>
</body>
</html>
```

# Example: create marker

```
<script type="text/javascript">
  function initialize() {
    if (GBrowserIsCompatible()) {
      var map = new
        GMap2(document.getElementById("map_canvas"));
      var center = new GLatLng(41.878896, -87.625067);
      map.setCenter(center, 13);
      marker = new GMarker(center, {draggable: false});
      map.addOverlay(marker);
      GEvent.addListener(map, "click", function(overlay, point) {
        marker.setLatLng(point);
      });
      map.setUIToDefault();
    }
  }
</script>
```

# Example: geocode

```
<script type="text/javascript">
  function initialize() {
    if (GBrowserIsCompatible()) {
      var map = new GMap2(document.getElementById("map_canvas"));
      var geocoder = new GClientGeocoder();
      geocoder.getLatLng(
        "243 South Wabash, Chicago, IL 60604",
        function(point) {
          if (!point) {
            map.setCenter(new GLatLng(41.878896, -87.625067), 10);
          } else {
            map.setCenter(point, 13);
          }
        }
      );
      map.setUIToDefault();
    }
  }
</script>
```

# Exercises

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1.

- allow user to enter address,
- display map centered at address with marker there

2.

- allow user to add two markers
- calculate rectangular area between them

# Help

distance between two points in  
longitude/latitude:

$$d=R \cdot \text{acos}(\sin(\text{lat}_1) \cdot \sin(\text{lat}_2) + \\ \cos(\text{lat}_1) \cdot \cos(\text{lat}_2) \cdot \cos(\text{long}_2 - \text{long}_1))$$

(spherical law of cosines, also  
see Haversine formula)