Introduction to Google Maps

GTUG Stockholm, 2010-04-08

Stefan Pettersson

@stpe, stefpet@gmail.com

20

netlight

Getting Started

Sign-up for API key

http://code.google.com/apis/maps/signup.html

Usage Restrictions

- Must be free and public (login ok)
- May not hide/alter logo/attributions
- Geocode requests max 2500/24h/IP
- Geocode only with map usage
- API key restricted to domain

But...

- No page view limit!
- Also for non-web applications
- Multiple API keys ok (hence multiple domains)

Coordinates

- Longitude / Latitude (WGS84)
- RT90 (common in Sweden), not supported

WGS84 to/from RT90?

You better like math...

```
nction fromLatLngToRT90(pointLatLng) {
  var lat = Math.toRadians(pointLatLng.getLat());
  var lng = Math.toRadians(pointLatLng.getLng());

  var sinLat = Math.sin(lat);
  var cosLat = Math.cos(lat);
  var xyz = this.e.xyz;

  var cLat = lat - sinLat*cosLat*(xyz[0] + xyz[1]*Math.pow(sinLat,2) + xyz[2]*Math.pow(si
  var dLng = lng - this.CENTRAL_MERIDIAN;

  var xip = Math.atan(Math.tan(cLat)/Math.cos(dLng));
  var etap = Math.atanh(Math.cos(cLat)*Math.sin(dLng));
  var b = this.e.b;

var x = this.SCALE_REDUCTION*this.e.ah*(xip +
    b[0]*Math.sin(2*xip)*Math.cosh(2*etap) +
    b[1]*Math.sin(4*xip)*Math.cosh(4*etap) +
    b[2]*Math.sin(6*xip)*Math.cosh(6*etap) +
    b[3]*Math.sin(8*xip)*Math.cosh(8*etap)) + this.FALSE_NORTHING;

var y = this.SCALE_REDUCTION*this.e.ah*(etap +
    b[0]*Math.cos(2*xip)*Math.sinh(2*etap) +
    b[1]*Math.cos(4*xip)*Math.sinh(4*etap) +
    b[2]*Math.cos(6*xip)*Math.sinh(6*etap) +
    b[3]*Math.cos(8*xip)*Math.sinh(8*etap)) + this.FALSE_EASTING;
```

Hello Wo... map!

```
<div id="mymap"></div>

function init() {
    var map = new GMap2(document.getElementById("mymap"));
    map.setCenter(new GLatLng(59.3275, 18.0552), 13);
    map.setUIToDefault();
}
```

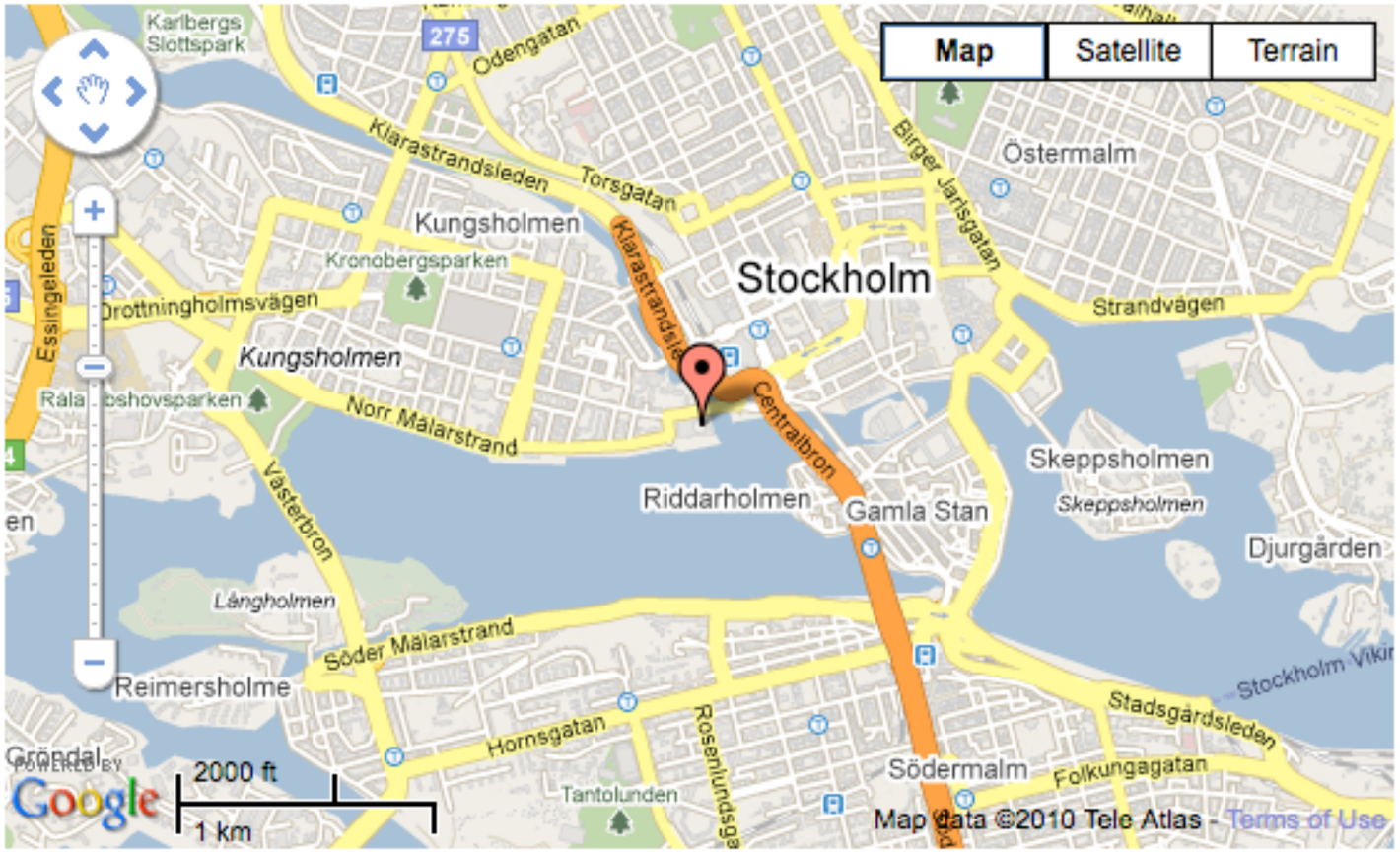

Map
Satellite
Terrain
Karlbergs Slottspark
275
Odengatan
Klarastrandsleden
Torsgatan
Birger Jarlsgatan
Östermalm
Kungsholmen
Kronobergsparken
Stockholm
Essingeleden
Drottningholmsvägen
Strandvägen
Kungsholmen
Klarastrandsleden
Centralbron
Norr Mälarstrand
Skeppsholmen
Riddarholmen
Gamla Stan
Skeppsholmen
Djurgården
Västerbron
Långholmen
Söder Mälarstrand
Reimersholme
Stockholm Vikin
Stadsgårdsleden
Hornsgatan
Rosenlundsgatan
Södermalm
Folkungagatan
Tantolunden
Gröndal
2000 ft
1 km
Google
Map data ©2010 Tele Atlas - Terms of Use

Overlays

- Markers
- Polylines
- Polygons
- Tile overlays
- Info window

Markers

```
var point = new GLatLng(59.3275, 18.0552);
var marker = new GMarker(point);
map.addOverlay(marker);
```


Map
Satellite
Terrain
Karlbergs Slottspark
275
Odengatan
Kungsholmen
Kronobergsparken
Drottningholmsvägen
Kungsholmen
Norr Mälarstrand
Rålambshovsparken
Essingeleden
Kungsholmsleden
Torsgatan
Klarastrandsleden
Stockholm
Birger Jarlsgatan
Östermalm
Strandvägen
Centralbron
Riddarholmen
Gamla Stan
Skeppsholmen
Skeppsholmen
Djurgården
Västerbron
Långholmen
Söder Mälarstrand
Reimersholme
Hornsgatan
Rosenlundsgatan
Tantolunden
Södermalm
Folkungagatan
Stadsgårdsleden
Stockholm Vikin
Grondal
2000 ft
1 km
Google
Map data ©2010 Tele Atlas - Terms of Use

Events

- GEvent
- Custom events per object (map, marker, ...)

Events

```
GEvent.addListener(map, "click", function() {
  alert("Clicked the map!");
});
```

Event Demo

http://stpe.se/javascript/gmaps/events.php

Geocoding

- Geocode
  - Get location by address
- Reverse Geocode
  - Get address by location

Geocoding

```
var geocoder = new GClientGeocoder();

// get location by address
geocoder.getLatLng(address, function(point) {
   // point is latlng of address
});

// get place(s) by location
geocoder.getLocations(point, function(res) {
   // results in res.Placemark array
})
```

Geocoding Demo

http://stpe.se/javascript/gmaps/geocode.php

Directions

- Directions by address or by lat/lon
- Multipart directions using waypoints
- Travel modes (driving, walking)
- Displayed using polyline and text

Directions

- GDirections
- GRoute
- GStep

Directions

```
<div id="mymap"></div>
<div id="directionspane"></div>

<script>
    var map = new GMap2(document.getElementById("mymap"));
    map.setCenter(new GLatLng(59.3275, 18.0552), 13);
    map.setUIToDefault();

    var directions = new GDirections(map,
          document.getElementById("directionspane")
    );

    directions.load(
          "from: Söder Mälarstrand 27, Stockholm to: Åsögatan 108, Stockholm"
    );
</script>
```

Directions Demo

http://stpe.se/javascript/gmaps/directions.php

Streetview

- GStreetviewOverlay
- GStreetviewPanorama
  - setLocationAndPOV(latlng, pov)

Streetview

```
map.addOverlay(new GStreetviewOverlay());

var pano = new GStreetviewPanorama(
   document.getElementById("pano"),
   {
      latlng: new GLatLng(59.3267, 18.0529)
   }
);
```

Streetview Demo

http://stpe.se/javascript/gmaps/streetview.php

Google Maps API v3

- In Google Labs
- Complete rewrite
- Better performance, great for mobile
- Still lacks many v2 features
- Removed support for FF2, IE6, S3 (18/3-10)

Google Qualified Developer Program

- Application Development (1000p)
- Community Participation (1000p)
- References (1000p)
- Qualification Exam (2000p)
- Minimum of 3000p required to pass

Scandinavian Web Developer Conference 2010

http://swdc-central.com