The World is Yours:

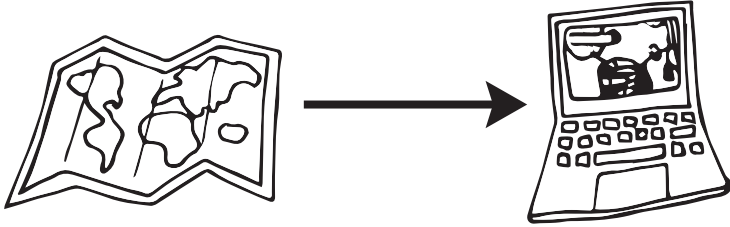## Mapzen Search

A zine that's going to teach you:
- how searching on a web map is magical
- why you should ♡♡ geocoding
- That Adding search on a Web map is easy!
- Where OpenStreetMap meets Mapzen!

Made with love & magic by:

MAPZEN

Think of a map in 2016.

The first thing that comes to your head nowadays isn't something made out of ink and paper, but **CODE**.

We're so used to web maps that many of the websites and apps that we rely on include them. They have features that aren't typically used with paper maps, because web maps cover the whole world at a ton of zoom levels.

What's on a -WEB- map?
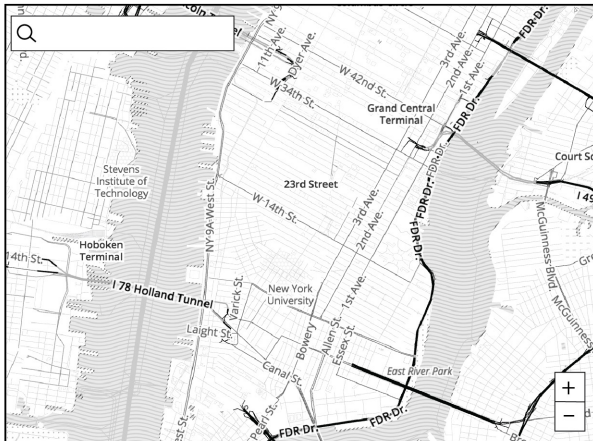
*People expect to be able to use a mouse to <u>PAN</u> (or move) around the map.

A <u>SEARCH</u> bar to be able to find a location, given a certain address.

<u>ZOOM</u> in/out of the map.

This zine is ALLLL About Search.

Chances are you already used this part of a web map today. Maybe it was to get to the place you are right now. Or check that it's not going to rain today. Or order delicious pizza. Or the countless of other services that rely heavily on geographic search.

SEARCH RULES!

This process, by the way, of entering an address and getting a point (in lon, lat format) on a map, is called **geocoding.**

What happens when you search on a map?

LET'S TYPE IN THIS ADDRESS & FIND OUT!

🔍 30 W 26th Street, NYC

MAPACADABRA!

It might *seem* like magic, but this is what's happening behind the curtain

Once you type in the address, a URL like the one below is created that is going to request and return the location you entered, but in a latitude, longitude format that can easily be added to a map!

The address you entered is the MAIN PART OF THIS QUERY

https://search.mapzen.com/v1/search?text=30W26th-StreetNewYorkNY&api_key=search-VTRKwtt

This is your API key, it lets us know how many requests you make

WOW!

The request goes into our geocoder with the query added to the end of the URL and is returned:

The query returns the output in a GeoJSON format, which is handy for adding to a web map!

Let's take a look at what we get in the query:

```
{
 features: [
     {
             type: "Feature",
             geometry: {
                 type: "Point",
                  coordinates: [
                        -73.990425,
                        40.744131
                   ]
             },
             properties: {
                 id: "way:265038872",
                 gid: "openstreetmap:address:way:265038872",
                 layer: "address",
                 source: "openstreetmap",
                 source_id: "way:265038872",
                 name: "30 West 26th Street",
                 housenumber: "30",
                 street: "West 26th Street",
                 postalcode: "10010",
                 confidence: 0.528,
                 country: "United States",
                 country_gid: "whosonfirst:country:85633793",
                 country_a: "USA",
                 region: "New York",
                 region_gid: "whosonfirst:region:85688543",
                 region_a: "NY",
                 county: "New York County",
                 county_gid: "whosonfirst:county:102081863",
                 locality: "New York",
                 locality_gid: "whosonfirst:locality:85977539",
                 borough: "Manhattan",
                 borough_gid: "whosonfirst:borough:421205771",
                 neighbourhood: "Flatiron District",
                 neighbourhood_gid: "whosonfirst:neighbourhood:85869245",
                 label: "30 West 26th Street, Manhattan, New York, NY, USA"
             }
     }
],
    bbox: [
        -73.990425,
        40.744131,
        -73.990425,
        40.744131
    ]
}
```

The COORDINATES for the address are returned here

A GID is a unique identifier used for a place in Mapzen Search

The LABEL is the human-friendly representation of the place that was located (much easier to read than a series of [lon, Lat] coordinates!)

The BOUNDING BOX is a box that's the full geographic extent required to show the Location returned from the geocoder
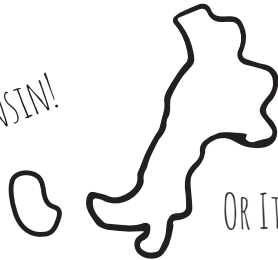
That all happens when you type an address into a search bar. Crazy, huh!?

What if you have a set of coordinates but want to know the address? This is called **reverse geocoding** and we can do this to find information like:
- addresses
- points of interest (like businesses, museums & parks)
- neighborhoods
- cities
- states
- postal areas
- countries
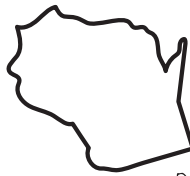
Like Wisconsin!

Or Italy!

Here's another sample query:

```
https://search.mapzen.com/v1/reverse?api_key=-
search-1234567&point.lat=48.858268&point.lon=2.294471
```

Oh la la!

This search for [2.294471, 48.858268] returns the result for the Eiffel Tower

Other neat features of Mapzen Search:

There are some other cool things Mapzen Search can do, like **autocomplete** a query so you don't have to finish typing in an address once it's found. Or **prioritize** search findings for a certain area, so you're not accidentally getting 'Paris, Illinois' instead of 'Paris, France'.

WAIT- WHERE DOES ALL THIS DATA COME FROM!?
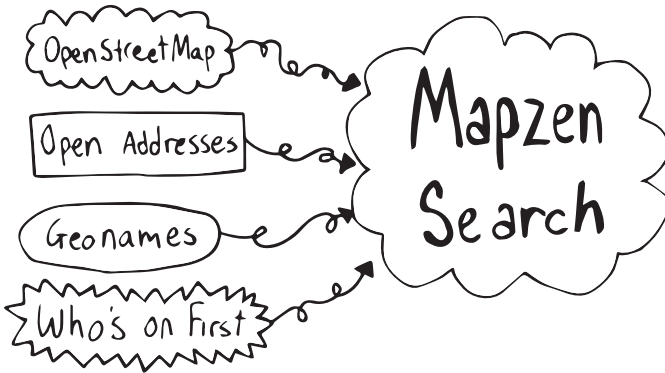
Mapzen Search is completely made possible by open data. We use several major open source datasets including **OpenStreetMap**, **Open Addresses**, **Geonames**, and Mapzen's own **Who's On First** to power our geocoder. thanks to the wonderful communities that make this possible!

SERIOUSLY, WE <3 Y'ALL.