

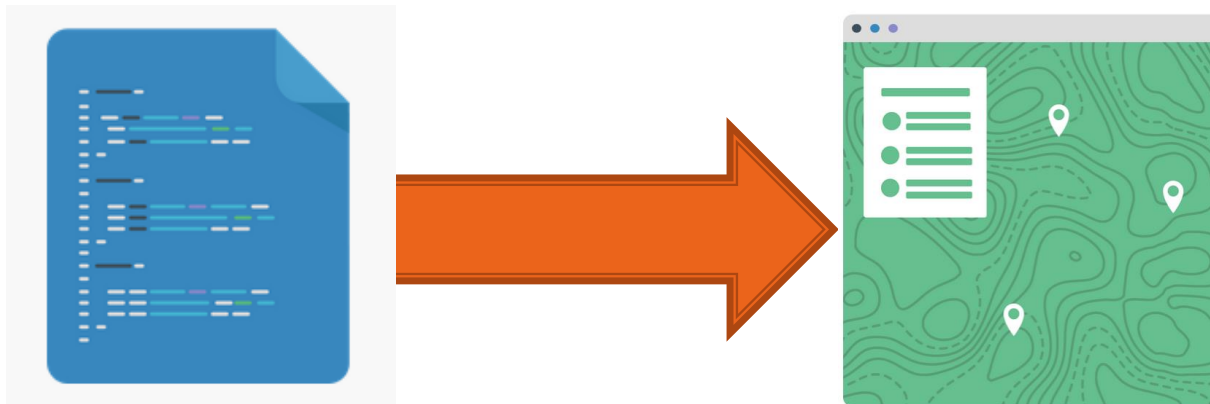
# Cartographie en ligne avec mapbox.js

HTML et Javascript



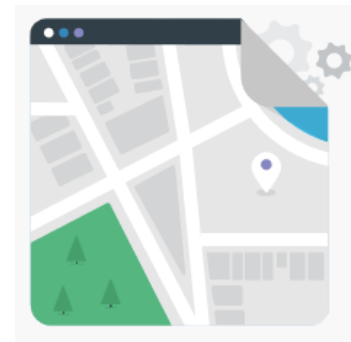
# Objectifs atelier

- ▶ Découvrir les services en ligne de Mapbox
  - De la page HTML à l'application en ligne
  - Développement d'applications destinées à publier de l'information géographique sur Internet



# Objectifs atelier

- Programmation d'applications cartographiques basées sur la bibliothèque javascript MapBox
  - Création et configuration d'une carte
  - Affichage d'un projet Mapbox
  - Ajout de marqueurs en GeoJSON
  - Personnalisation des fonds de carte
  - Importation de données personnelles
  - Importation de WMS
  - Personnalisation de la carte (mini carte et légende)



# Codage

- ▶ Attention au copier coller des lignes de commandes !
  - les espaces
  - Les ' qui peuvent devenir ' = problèmes
  - Les " qui peuvent se transformer en « = problèmes
  - Vérifier que les ( et les { se ferment !!!
  - Exemple : {(xxxxxx); xxxxx}
  - S'il existe des parenthèses orphelines cela bloque !
- ▶ Bref soyez vigilant et surtout prenez le temps de coder, sinon ça ne marchera pas ;)



# » Découvrir MapBox



MapBox

# Mapbox

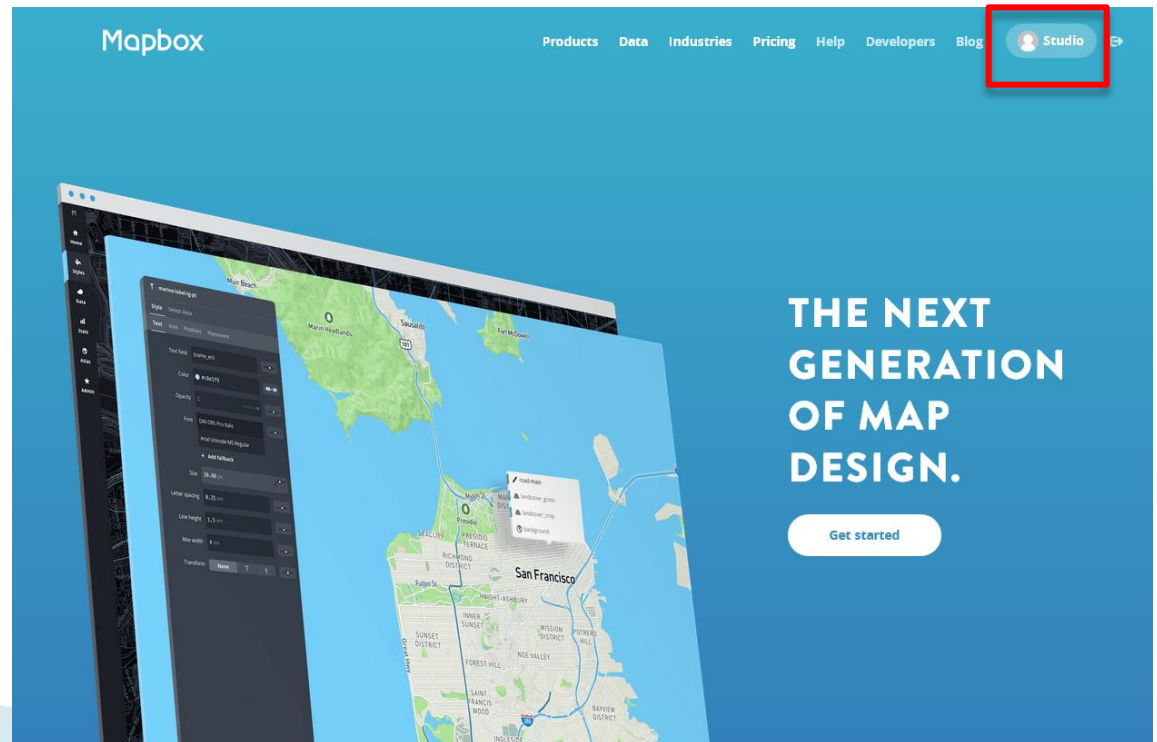
- MapBox est une société américaine qui fournit une panoplie de service autour de la cartographie en ligne
  - Service de stockage et de diffusion de données géographique
  - API et librairie en Javascript pour mettre en place des applications en ligne
  - SDK pour le développement d'applications mobiles (Android/IOS)
  - Mapbox Studio pour créer des fonds de cartes
  - Des services Web spécifiques



MapBox

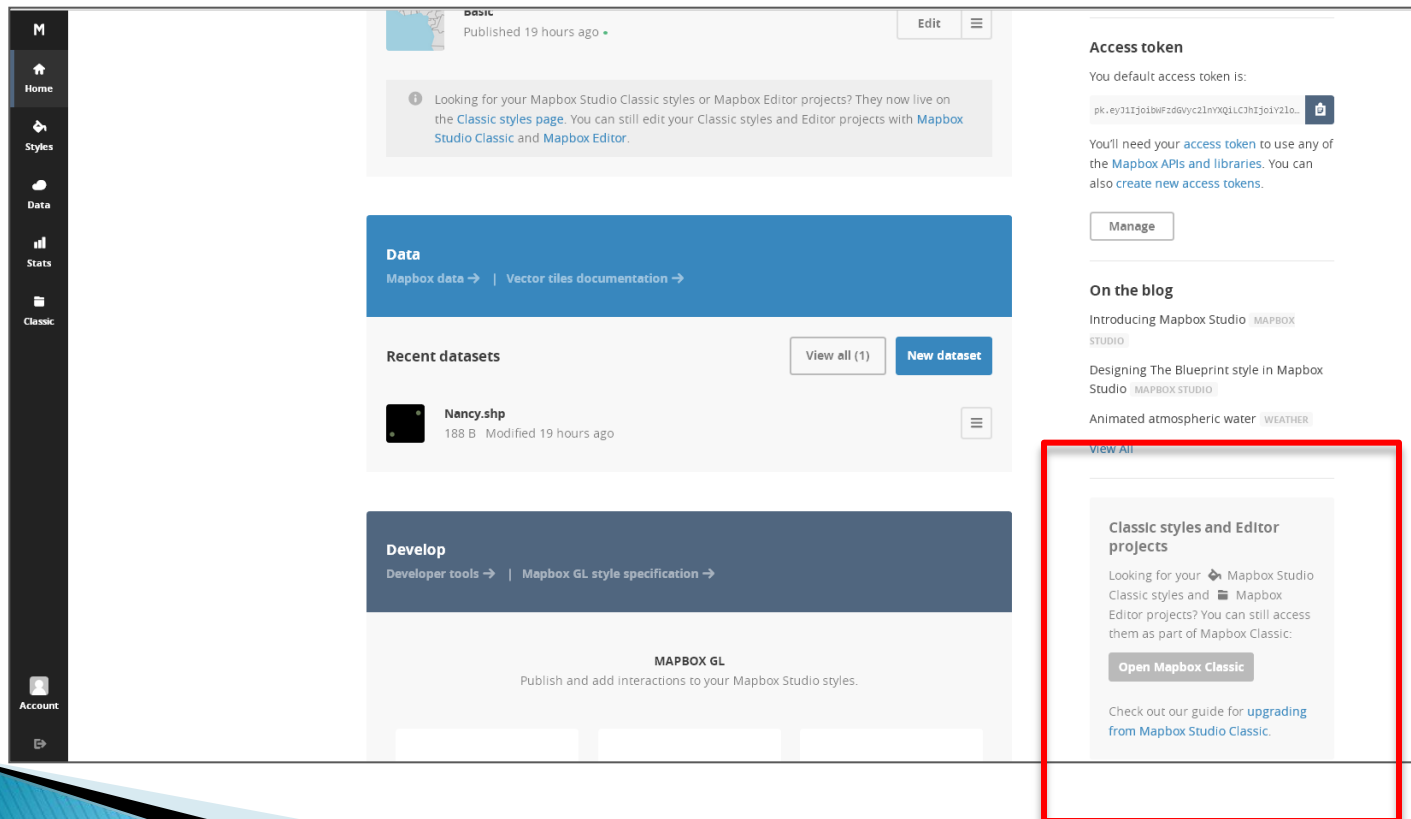
# Débuter

- ▶ Rdv sur <https://www.mapbox.com/>
  - Créer un compte et authentifier vous
    - Rappeler vous du mot de passe !
  - Aller dans le « Studio » de Mapbox



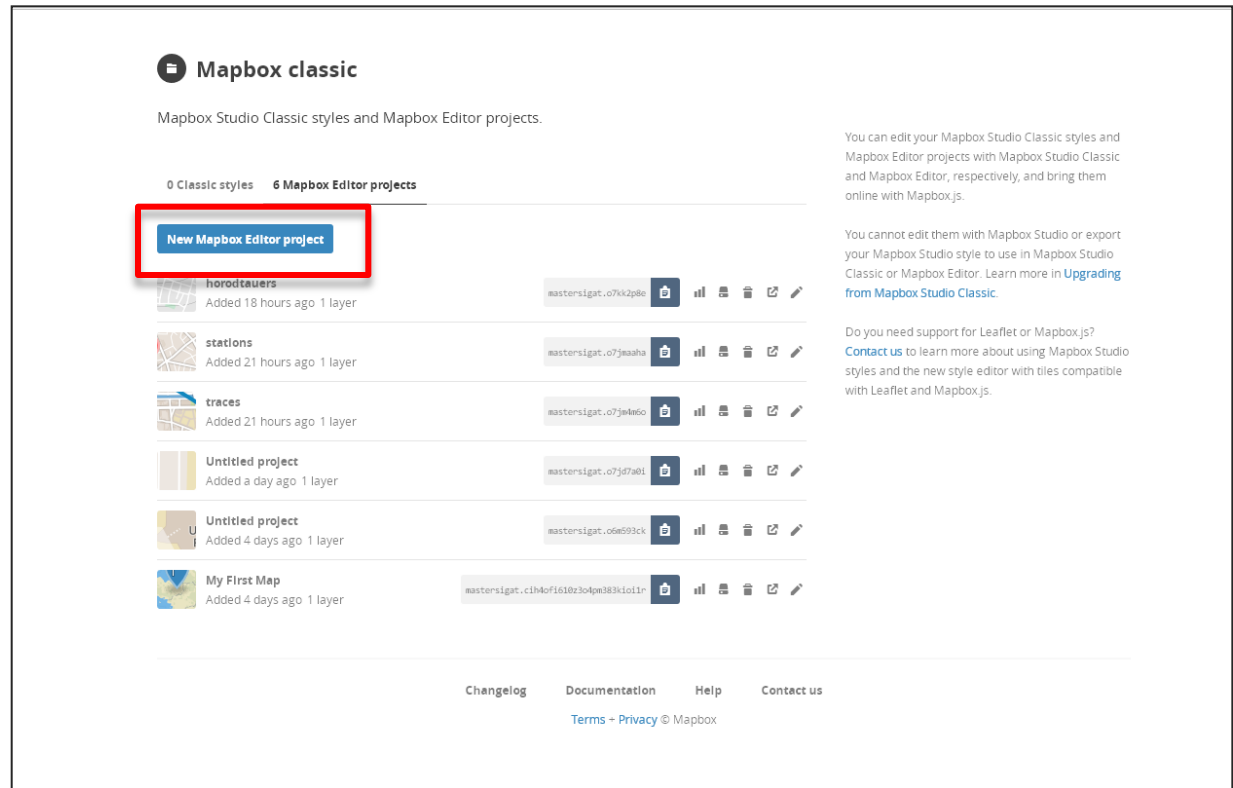
# Débuter

## ► Ouvrir l'environnement classique de Mapbox



# Importer des données

## ► Créer un nouveau projet



**Mapbox classic**

Mapbox Studio Classic styles and Mapbox Editor projects.

0 Classic styles   6 Mapbox Editor projects

**New Mapbox Editor project**

Project Name	Added	Layers	Style ID	Actions
horodateurs	Added 18 hours ago	1 layer	mastersigat.o7vk2p8e	Share, List, Delete, Copy, Edit
stations	Added 21 hours ago	1 layer	mastersigat.o7jeasaha	Share, List, Delete, Copy, Edit
traces	Added 21 hours ago	1 layer	mastersigat.o7jekedio	Share, List, Delete, Copy, Edit
Untitled project	Added a day ago	1 layer	mastersigat.o7jd7a0l	Share, List, Delete, Copy, Edit
Untitled project	Added 4 days ago	1 layer	mastersigat.o6e593ck	Share, List, Delete, Copy, Edit
My First Map	Added 4 days ago	1 layer	mastersigat.ciHof1610z3o4pm383k1o1r	Share, List, Delete, Copy, Edit

You can edit your Mapbox Studio Classic styles and Mapbox Editor projects with Mapbox Studio Classic and Mapbox Editor, respectively, and bring them online with Mapbox.js.

You cannot edit them with Mapbox Studio or export your Mapbox Studio style to use in Mapbox Studio Classic or Mapbox Editor. Learn more in [Upgrading from Mapbox Studio Classic](#).

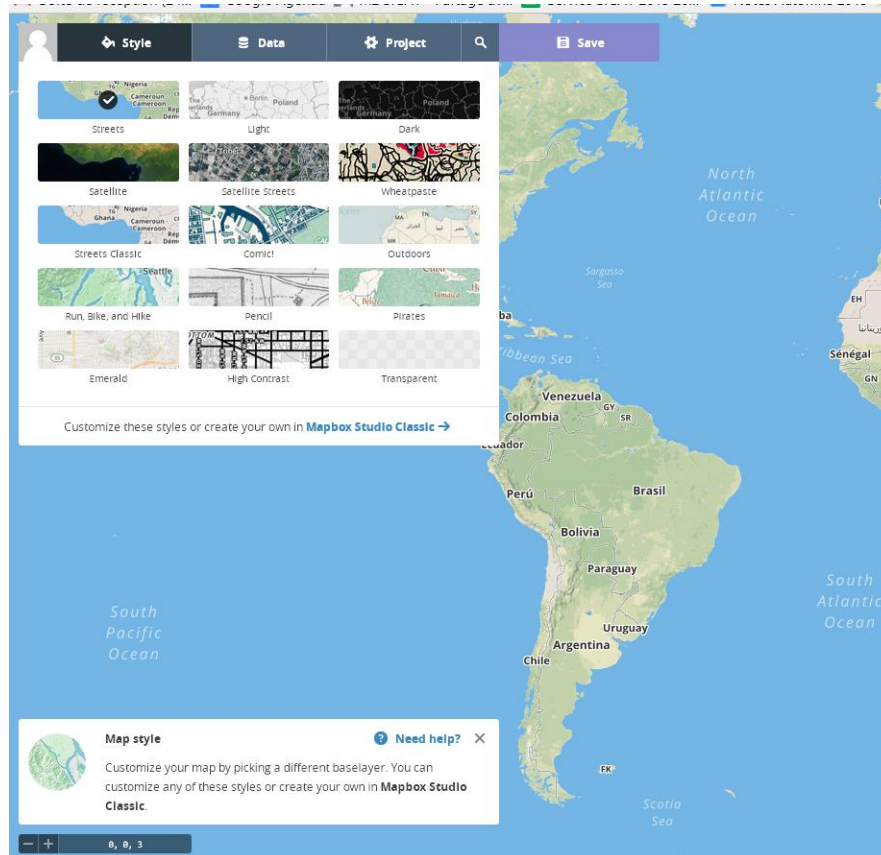
Do you need support for Leaflet or Mapbox.js? [Contact us](#) to learn more about using Mapbox Studio styles and the new style editor with tiles compatible with Leaflet and Mapbox.js.

[Changelog](#)   [Documentation](#)   [Help](#)   [Contact us](#)

[Terms](#) + [Privacy](#) © Mapbox

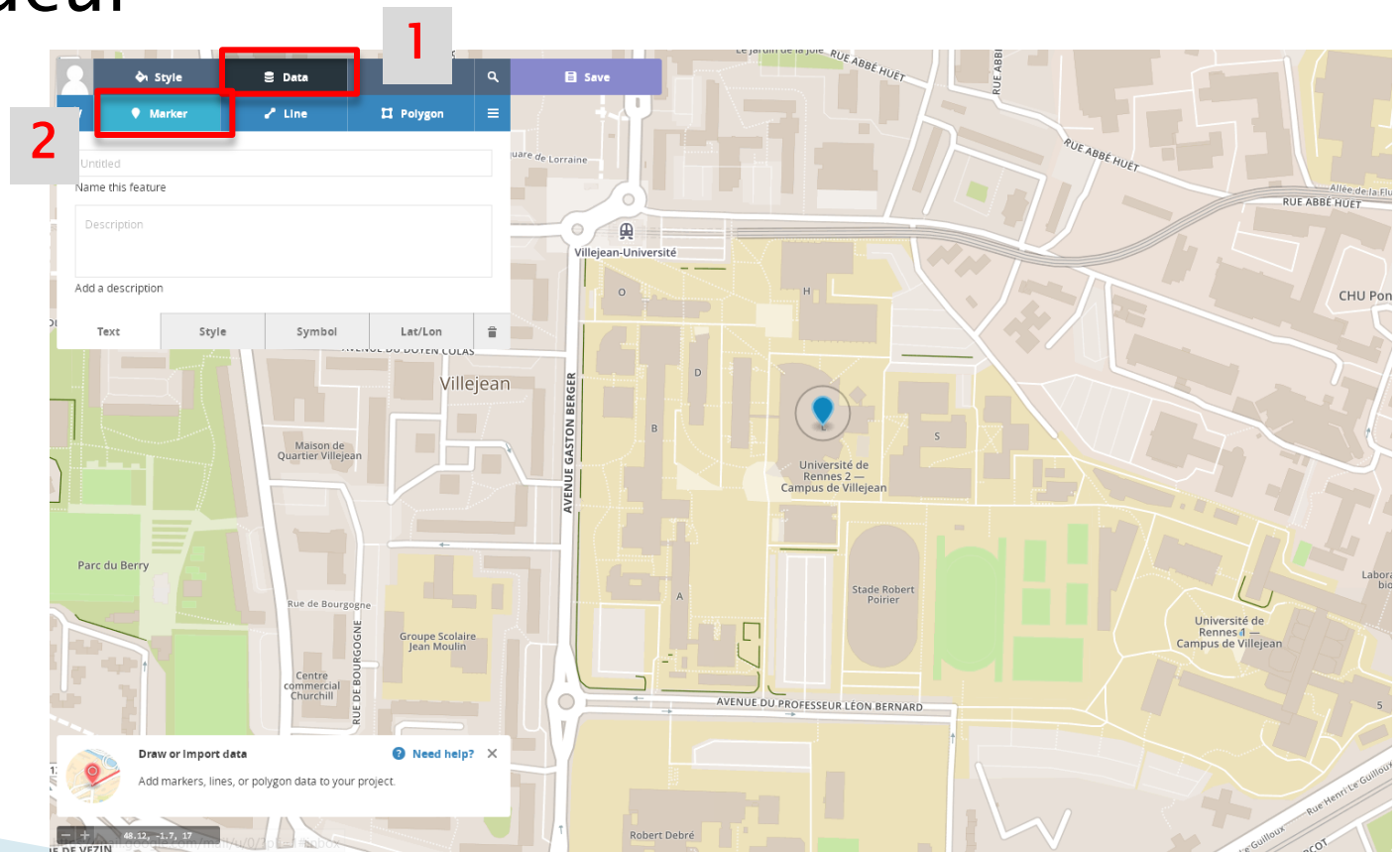
# Personnaliser la carte

- Sélectionner un fond de carte



# Ajouter un marqueur

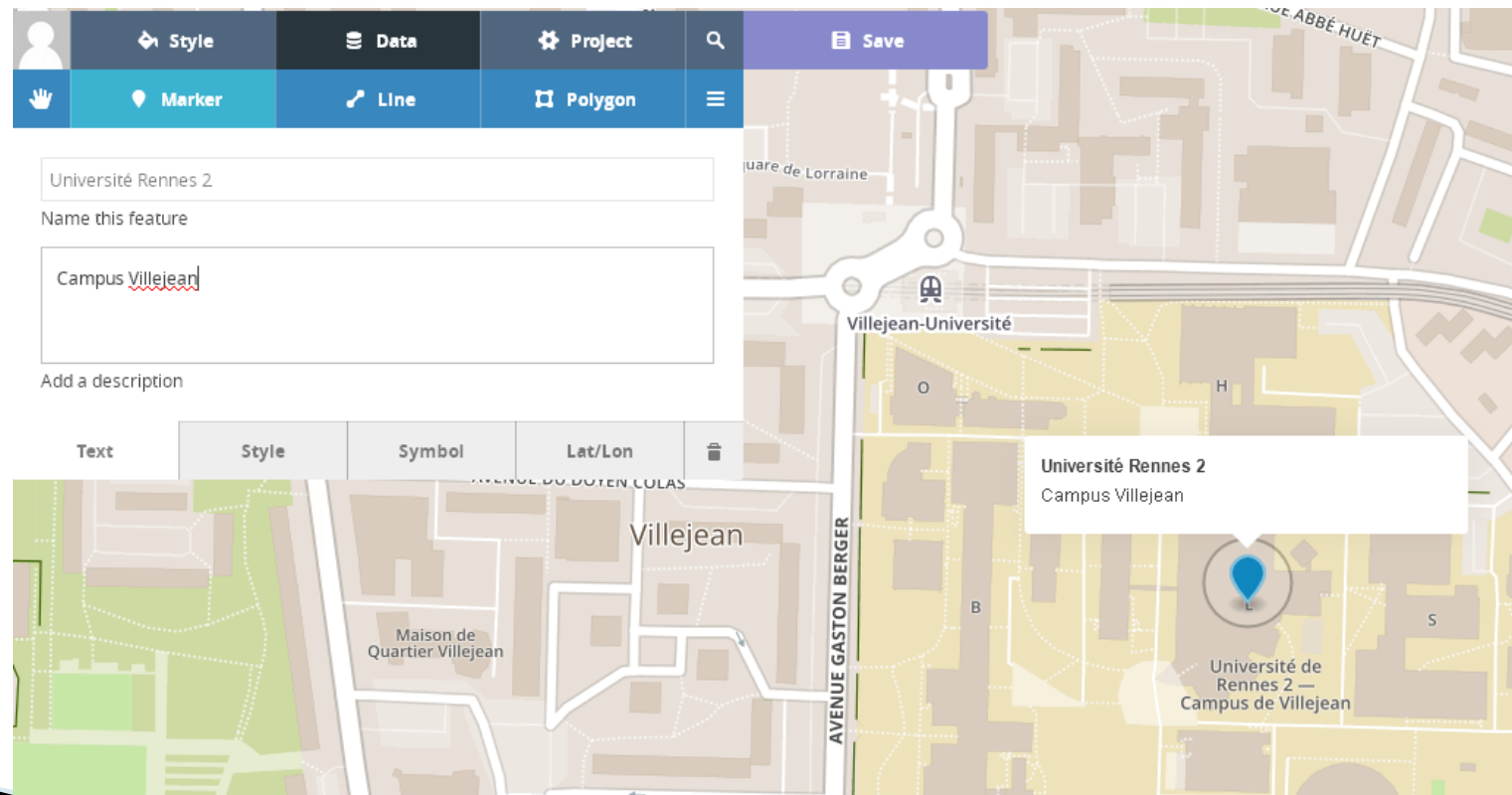
- ▶ Zoomer sur le campus et ajouter un marqueur





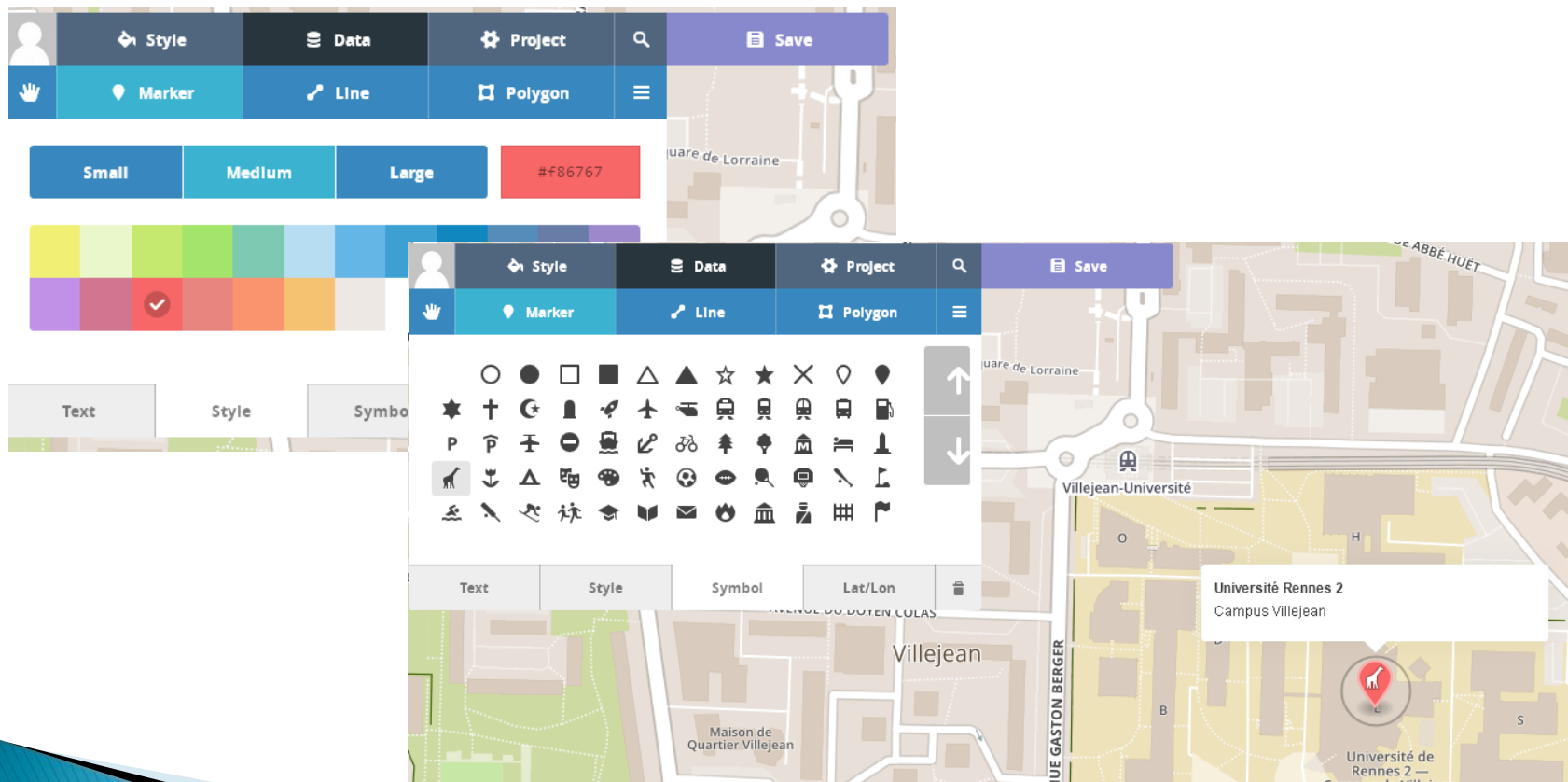
# Renseigner le marqueur

- Décrivez le point (nom, description)



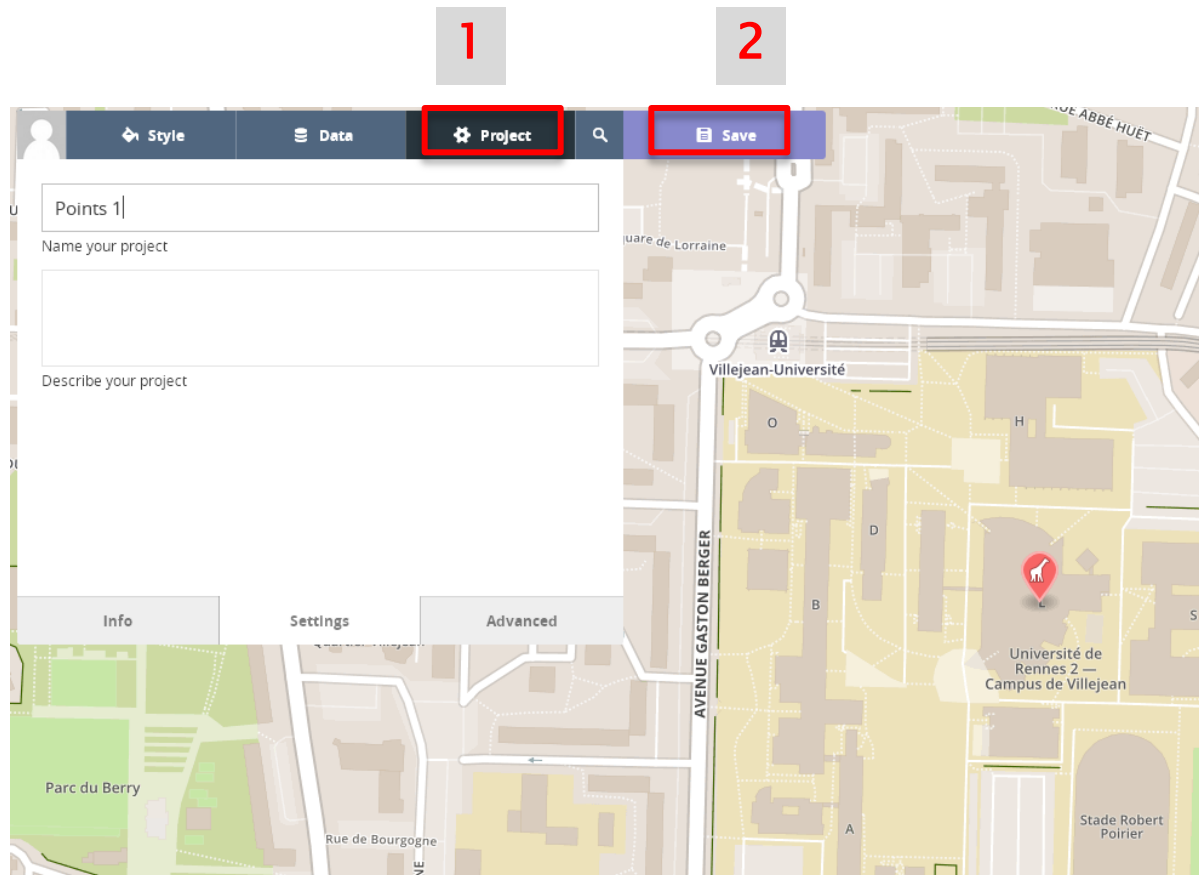
# Personnaliser le marqueur

- Changer la couleur et le symbole



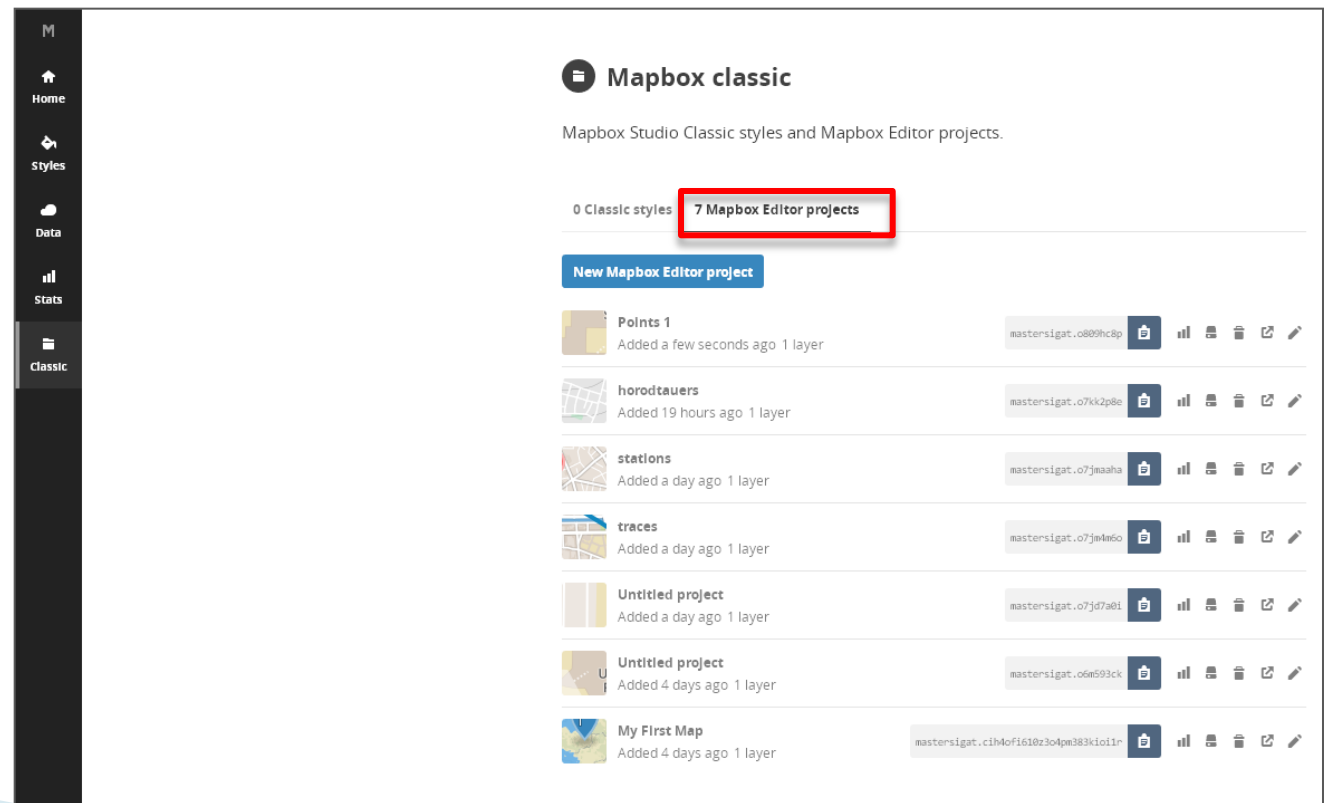
# Projet Mapbox

- ▶ Donnez un nom à votre projet et enregistrer



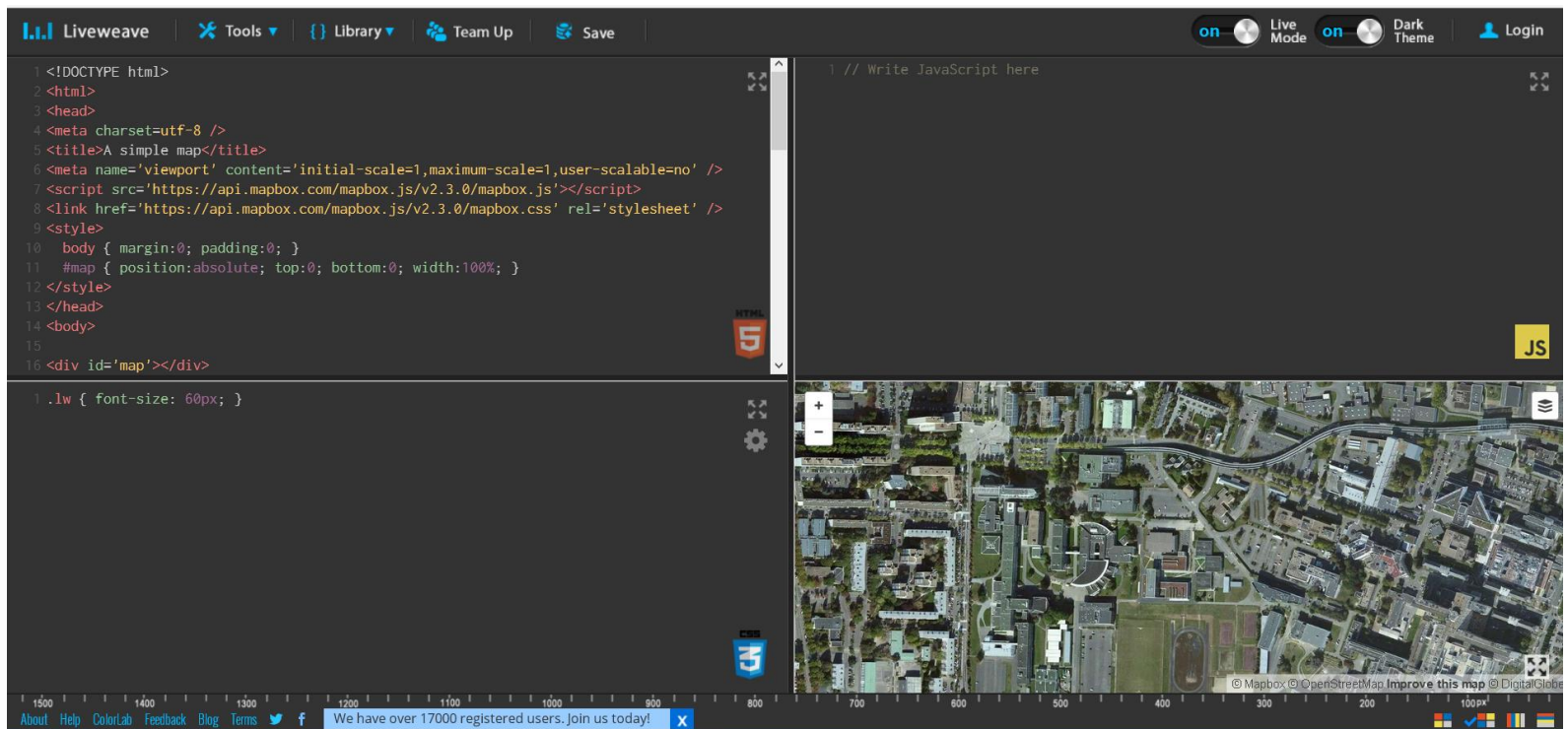
# Projet Mapbox

- ▶ Votre projet est maintenant disponible dans vos données

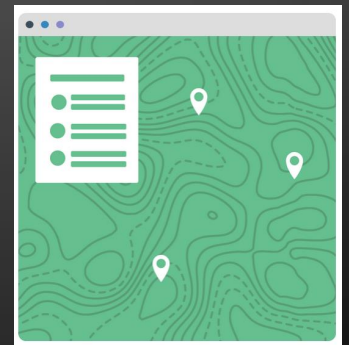


# L'environnement Liveweave

- ▶ <http://liveweave.com/>
- ▶ Editeur HTML5 en ligne



# » Première carte avec MapBox



# Coder en LEGO

- ▶ Vous aller à partir de maintenant « jouer » au LEGO en assemblant des lignes de codes pour construire des cartes sur Internet !



```
L.mapbox.accessToken = 'pk.eyJ1Ijoibm1uYW5vdW4iLCJhIjo1SkN4dndmTSJ9.6p1St07M5AuAbDa601m54A';
var map = L.mapbox.map('map', 'mapbox.light').setView([48.11,-1.66], 13);
// Ajouts des WMS

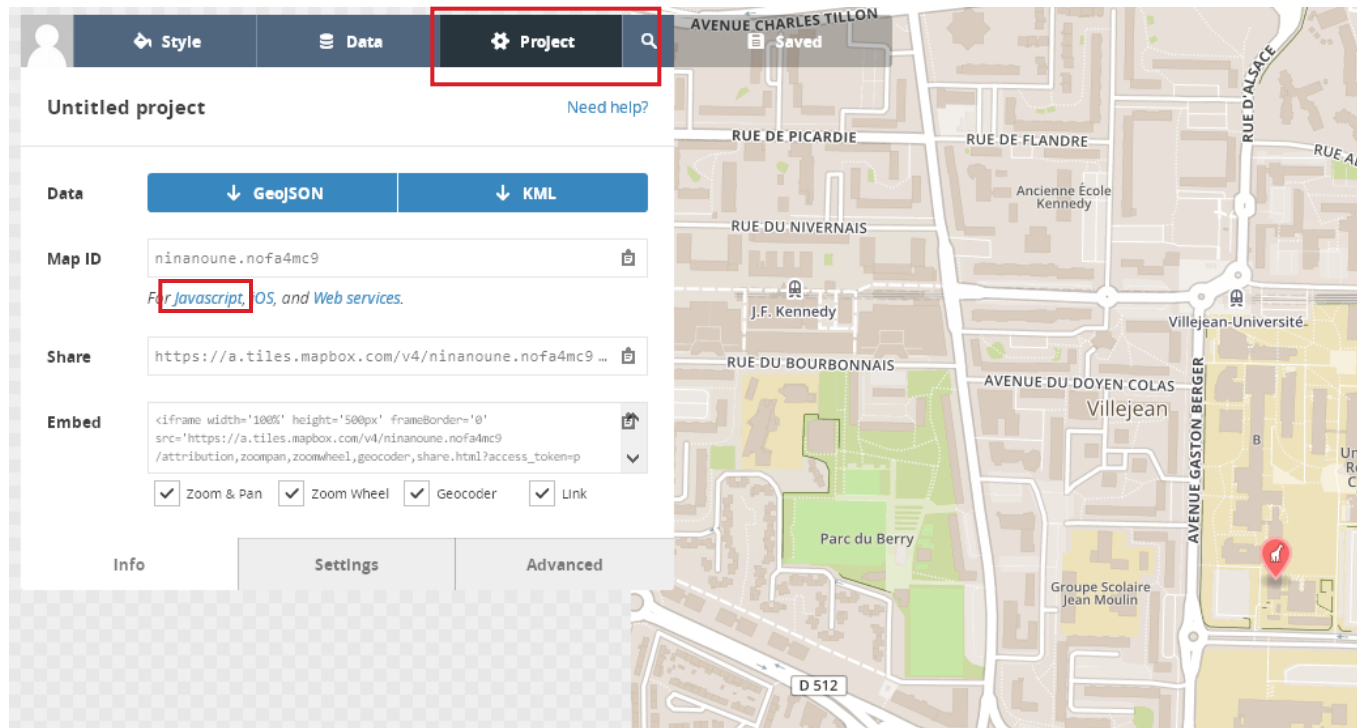
var orthophotographie = L.tileLayer.wms('http://geobretagne.fr/geoserver/photo/wms?', {
  format: 'image/png',
  transparent: true,
  layers: 'ortho-ouverte'
}).addTo(map);

var quartiers = L.tileLayer.wms('http://geobretagne.fr/geoserver/rennesmetropole/wms?', {
  format: 'image/png',
  transparent: true,
  layers: 'quartiers_vdr'
}).addTo(map);
```



# Passer en HTML

- ▶ Récupérer une modèle existant
  - Explorer le mode Javascript de votre carte



# Passer en HTML

- ▶ Explorer la documentation
  - Aller voir un modèle existant

The screenshot shows the Mapbox documentation website. The top navigation bar includes links for Products, Industries, Developers, Help & Guides, Pricing, Blog, and a Studio button. The main content area is divided into a sidebar on the left and a main panel on the right. The sidebar lists various API components under the heading 'API v2.3.0', including Map Object, Layers, Geocoding, Controls, Markers, Simplestyle, Utility, Configuration, and Guides. The main panel features a map of New York City with a code snippet for initializing Mapbox.js. Below the map, a section titled 'Build anything with Mapbox.js, a library for fast & interactive maps.' highlights key features: Built on top of Leaflet, Open source and available on GitHub, and Browser tested with IE8+ and all modern browsers. At the bottom, a 'Get started' section provides a code snippet for including Mapbox.js and CSS, and a link to view a simple example, which is highlighted with a red box.

Mapbox

Products Industries Developers Help & Guides Pricing Blog Studio

API v2.3.0

- Map Object
  - Lmapbox.map
- Layers
  - Lmapbox.tileLayer
  - Lmapbox.gridLayer
  - Lmapbox.featureLayer
- Geocoding
  - Lmapbox.geocoder
- Controls
  - Lmapbox.infoControl
  - Lmapbox.legendControl
  - Lmapbox.gridControl
  - Lmapbox.geocoderControl
  - Lmapbox.shareControl
- Markers
  - Lmapbox.marker.icon
  - Lmapbox.marker.style
- Simplestyle
  - Lmapbox.simplestyle.style
- Utility
  - Lmapbox.sanitize
  - Lmapbox.template
- Configuration
  - Lmapbox.accessToken
  - Lmapbox.config.FORCE\_HTTPS
  - Lmapbox.config.HTTP\_URL
  - Lmapbox.config.HTTPS\_URL
- Guides
  - API access tokens
  - Upgrading from Mapbox.js v1
  - Mobile
  - Theming

Mapbox.js

API Examples Plugins

```
<script>
// Provide your access token
L.mapbox.accessToken = 'pk.eyJ1IjoibmluYm5vdW51IiwiaW51IjYxN2I4ZTU5';
// Create a map in the div #map
L.mapbox.map('map', 'ninanoune.nofa4mc9');
</script>
```

Build anything with Mapbox.js,  
a library for fast & interactive maps.

Built on top of **Leaflet**, an open source library.

Open source and available on **GitHub**.

Browser tested with IE8+ and all modern browsers.

Get started

```
<script src="https://api.mapbox.com/mapbox.js/v2.3.0/mapbox.js"></script>
<link href="https://api.mapbox.com/mapbox.js/v2.3.0/mapbox.css" rel="stylesheet" />
```

Include mapbox.js and CSS in your HTML header and call `L.mapbox.map('map', 'mapbox.streets')` to load your first map.

[View simple example →](#)

# Passer en HTML

- ▶ Récupérer un modèle existant
  - Copier le code HTML

### Examples

- Animation
  - Rotating and controllable marker
  - Marker movement
  - Draw & animate a line on a map
  - Centering markers
  - Animating flight paths
  - Animate a marker along line
- Features
  - Show drawn polygon area
  - Polylines
  - Imported data with custom tooltips
  - Distance between two markers
  - L.mapbox.simplestyle with L.geojson
  - Line crossing the date line
  - Using CoffeeScript to make a map
- Marker clustering
  - Markercluster with Mapbox marker ...
  - Multiple differently styled clusters
  - Clusters with custom polygon appe...
  - Clusters with custom cluster icons
  - Listing markers in clusters
  - Leaflet Markercluster
  - Filtering marker cluster groups
- Turf GIS
  - Turf Concave Hull
  - Turf Convex Hull
- Geocoding
  - Use geocoder to set map position
  - Query the Geocoder control results ...
  - Geocoding with autocomplete



```
<!DOCTYPE html>
<html>
<head>
<meta charset=utf-8 />
<title>A simple map</title>
<meta name='viewport' content='initial-scale=1,maximum-scale=1,user-scalable=no' />
<script src='https://api.mapbox.com/mapbox.js/v2.3.0/mapbox.js'></script>
<link href='https://api.mapbox.com/mapbox.js/v2.3.0/mapbox.css' rel='stylesheet' />
<style>
  body { margin:0; padding:0; }
  #map { position:absolute; top:0; bottom:0; width:100%; }
</style>
</head>
<body>

<div id='map'></div>
<script>
L.mapbox.accessToken = 'pk.eyJ1Ijoibm1uYW5vdM51Iiw1YSI6IjYxN2I4ZTU5MG13M2RjNDk1NDAwN2RjNjNiMzJiY2ZmIn0.XtoXLTJ2eW2pGjg2ZiJSA';
var map = L.mapbox.map('map', 'mapbox.streets')
  .setView([40, -74.50], 9);
</script>

</body>
</html>
```

Use this example by copying its source into your own HTML page and replacing the [Map ID](#) with one of your own from your projects. Having trouble with JavaScript? Try out [Codecademy](#) or contact our support team.

# Le code de base

Entête

```
<!DOCTYPE html>
<html>
<head>
<meta charset=utf-8 />
<title>A simple map</title>
<meta name='viewport' content='initial-scale=1,maximum-scale=1,user-scalable=no' />
<script src='https://api.mapbox.com/mapbox.js/v2.3.0/mapbox.js'></script>
<link href='https://api.mapbox.com/mapbox.js/v2.3.0/mapbox.css' rel='stylesheet' />
<style>
  body { margin:0; padding:0; }
  #map { position:absolute; top:0; bottom:0; width:100%; }
</style>
</head>
```

Appel de l'API

Configuration  
des objets

Corps

```
<body>
<div id='map'></div>
<script>
  L.mapbox.accessToken = 'pk.eyJ1IjoibmluYW5vdW51IiwiaYSi6IjYxN2I4ZTU5MGI3M2RjNDk1NDAwN2RjNjNiMzJiY2ZmIn0.X
  toXTLTJ2eW2pGig2ZiJSA';
  var map = L.mapbox.map('map', 'mapbox.streets')
    .setView([40, -74.50], 9);
</script>
</body>
</html>
```

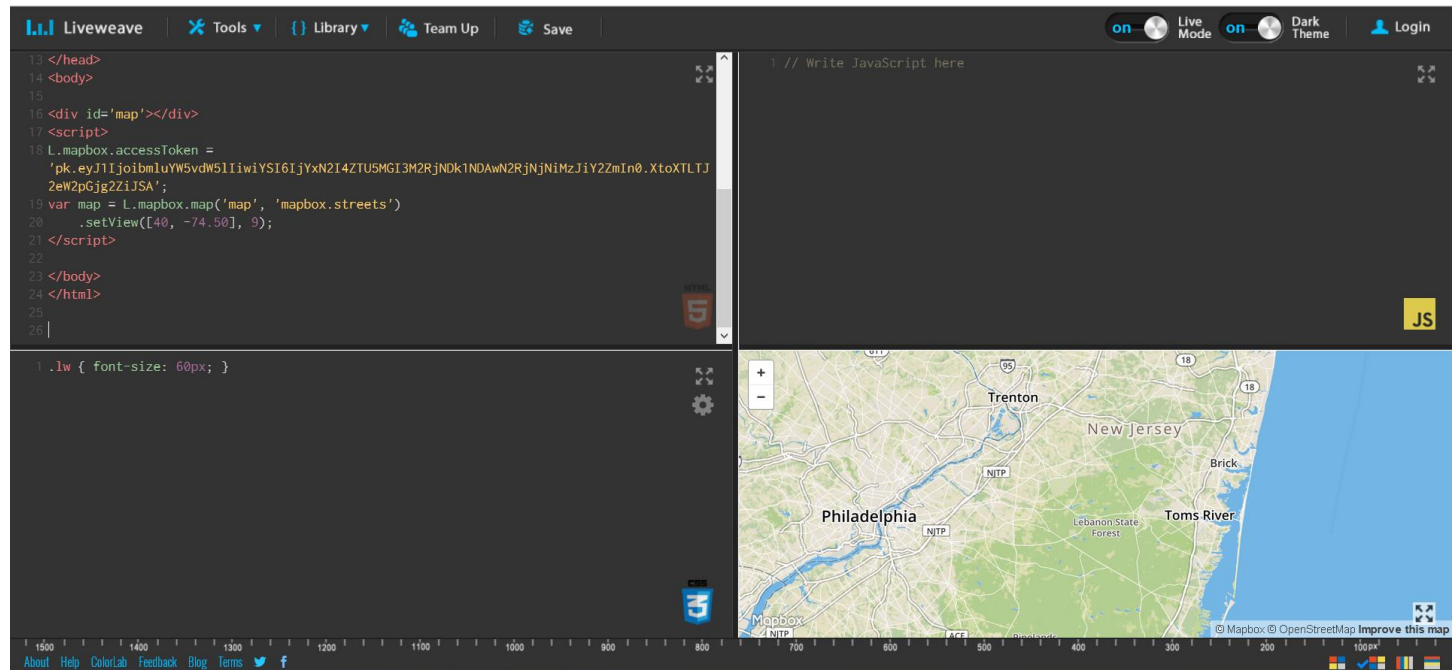
Conteneur carte

Clef d'accès

Configuration  
de la carte

# Passer en HTML

- ▶ Coller le code HTML dans le cadre adéquate de Liveweave
  - Le modèle de base s'affiche



# Passer en HTML

- Configurer l'interface en réduisant les cadres

The screenshot displays the Liveweave web editor interface. On the left, a code editor shows the following HTML code:

```
1 <!DOCTYPE html>
2 <html>
3 <head>
4 <meta charset=utf-8 />
5 <title>A simple map</title>
6 <meta name='viewport' content='initial-scale=1,maximum-scale=1,user-scalable=no' />
7 <script src='https://api.mapbox.com/mapbox.js/v2.3.0/mapbox.js'></script>
8 <link href='https://api.mapbox.com/mapbox.js/v2.3.0/mapbox.css' rel='stylesheet' />
9 <style>
10   body { margin:0; padding:0; }
11   #map { position:absolute; top:0; bottom:0; width:100%; }
12 </style>
13 </head>
14 <body>
15
16 <div id='map'></div>
17 <script>
18   L.mapbox.accessToken =
19     'pk.eyJ1IjoibmluYW5vdW51IiwiaW50IjYxN2I4ZTU5MGI3M2RjNDk1NDAN2RjNjNiMzJiY2ZmIn0.XtoXTLTJ2
20     W2pGjg2ZiJSA';
21   var map = L.mapbox.map('map', 'mapbox.streets')
22     .setView([40, -74.5], 9);
23 </script>
24 </body>
25 </html>
26
```

On the right, a live preview of the map is shown, centered on Philadelphia, New Jersey. The map displays major roads, green spaces, and labels for cities like Philadelphia, Trenton, and Atlantic City. The interface includes a top navigation bar with 'Liveweave', 'Tools', 'Library', 'Team Up', 'Save', 'Live Mode', 'Dark Theme', and 'Login'. A bottom status bar shows 'Mapbox © OpenStreetMap Improve this map' and a scale of 100px.



# Première carte

- ▶ Changer l'emprise de la carte (X Y et zoom)
  - Modifier les valeurs dans la commande de configuration de la carte (.setView)
  - Vous pouvez récupérer les informations d'emprise dans mapbox (en bas à gauche de la carte)

```
17 <script>
18 L.mapbox.accessToken =
  'pk.eyJ1IjoibWFzdGVyc2lnYXQiLCJhIjo1Y2loNG9mamxwMHp2dHgxbTBjY2h1b2RteiJ9.dDYK0X9907pbT6sTAJ4fvA';
19 var map = L.mapbox.map('map', 'mapbox.streets')
20 .setView([48.12, -1.70], 16);
```





# Première carte

- ▶ Ajouter votre projet sur la carte
  - Il suffit de rentrer l'ID de votre projet à la place de la carte de base





# Découvrir le GeoJSON



# Marqueur Geojson

- Format ouvert d'encodage d'ensemble de données géospatiales simples utilisant la norme JSON (JavaScript Object Notation)
  - Documentation sur la spécification
  - <http://geojson.org/geojson-spec.html>
- Il s'agit dans ce cas de coder manuellement les entités géographiques en spécifiant les attributs géographiques, graphiques et attributaires

```
},  
"geometry": {  
  "type": "MultiPolygon",  
  "coordinates": [  
    [[  
      [ -122.731518140691534, 45.51071927727854 ],  
      [ -122.732587699465853, 45.505222522153119 ],  
      [ -122.738886212247678, 45.505555674107406 ],  
      [ -122.737578973745755, 45.511052396701146 ],  
      [ -122.731518140691534, 45.51071927727854 ]  
    ],  
    [[  
      [ -122.772707328743067, 45.509094699879341 ],  
      [ -122.778103367304325, 45.503640023445001 ],  
      [ -122.784705282186849, 45.50638540524541 ],  
      [ -122.779106301261166, 45.512050880018514 ],  
      [ -122.772707328743067, 45.509094699879341 ]  
    ]  
  ]  
}
```

# Marqueur Geojson

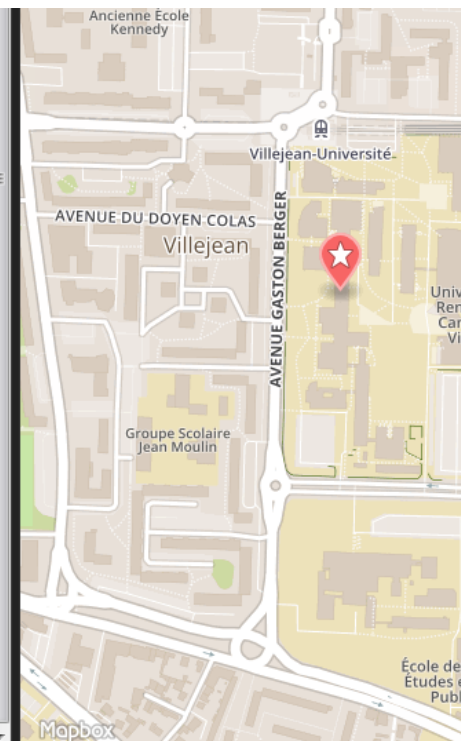
- ▶ Ligne de commande pour afficher un marqueur (\*coordonnées inversées)

```
L.mapbox.featureLayer({type: 'FeatureCollection',features: [
  {type: 'Feature',
    properties: {
      title: 'texte du marqueur',
      'marker-color': '#f86767',
      'marker-size': 'large',
      'marker-symbol': 'star'},
    geometry: {type: 'Point',coordinates: [Y, X]}},
]
}).addTo(map);
```

# Afficher un marqueur

- ▶ Ajouter un marqueur sur le bâtiment B

```
17
18 <script>
19
20 L.mapbox.accessToken =
21   'pk.eyJ1IjoibWFzZGVyc2lnYXQzLCJhIjo1Y2loNG9mamxwMHp2dHgxbTBjY2h1b2Rte1J9.dDYKXX9907pbT6sTAJ4fvA';
22
23 var map = L.mapbox.map('map', 'mapbox.streets')
24   .setView([48.12, -1.70], 16);
25
26
27 L.mapbox.featureLayer({type: 'FeatureCollection', features: [
28   {type: 'Feature',
29     properties: {
30       title: 'Batiment B',
31       'marker-color': '#f86767',
32       'marker-size': 'large',
33       'marker-symbol': 'star'},
34     geometry: {type: 'Point', coordinates: [-1.7036, 48.11957]}},
35   ]}).addTo(map);
36
37
38 </script>
39
40 </body>
41 </html>
42
43
```



# Afficher plusieurs marqueurs

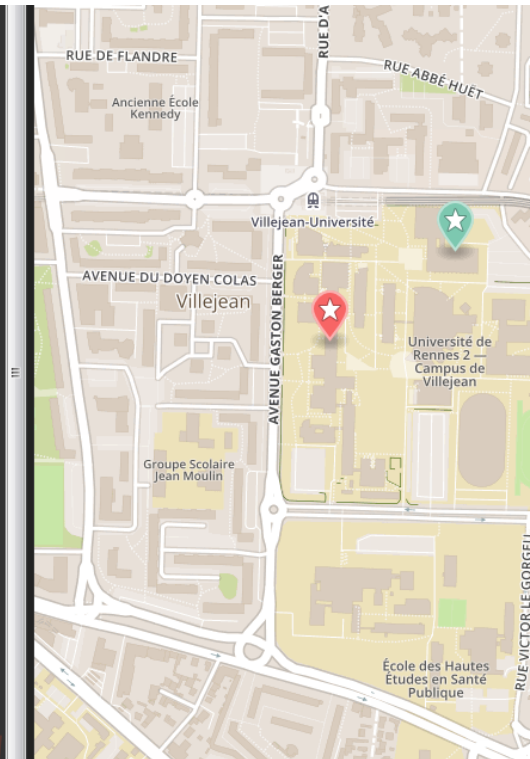
- ▶ Ligne de commande pour afficher plusieurs marqueurs

```
L.mapbox.featureLayer({type: 'FeatureCollection', features: [
  {type: 'Feature',
    properties: {
      title: 'texte du marqueur',
      'marker-color': '#f86767',
      'marker-size': 'large',
      'marker-symbol': 'star'},
    geometry: {type: 'Point', coordinates: [Y, X]}},
  {type: 'Feature',
    properties: {
      title: 'texte du marqueur',
      'marker-color': '#7ec9b1',
      'marker-size': 'large',
      'marker-symbol': 'star'},
    geometry: {type: 'Point', coordinates: [Y, X]}}}
]).addTo(map);
```

# Afficher plusieurs marqueurs

- ▶ Ajouter un marqueur sur le bâtiment B et la BU

```
18 <script>
19
20 L.mapbox.accessToken =
21   'pk.eyJ1IjoibWFzdGVyc2lnYXQilLCJhIjo1Y2loNG9mamxwMHp2dHgxbTBjY2h1b2RteiJ9.dDYkXX9907pbT6sTAJ4fvA';
22
23 var map = L.mapbox.map('map', 'mapbox.streets')
24   .setView([48.12, -1.70], 16);
25
26
27 L.mapbox.featureLayer({type: 'FeatureCollection', features: [
28   {type: 'Feature',
29     properties: {
30       title: 'Batiment B',
31       'marker-color': '#f86767',
32       'marker-size': 'large',
33       'marker-symbol': 'star'},
34     geometry: {type: 'Point', coordinates: [-1.7036, 48.11957]}},
35   {type: 'Feature',
36     properties: {
37       title: 'BU',
38       'marker-color': '#7ec9b1',
39       'marker-size': 'large',
40       'marker-symbol': 'star'},
41     geometry: {type: 'Point', coordinates: [-1.701353, 48.120634]}}
42   ]).addTo(map);
43
44
45 </script>
46
47 </body>
48 </html>
49
```

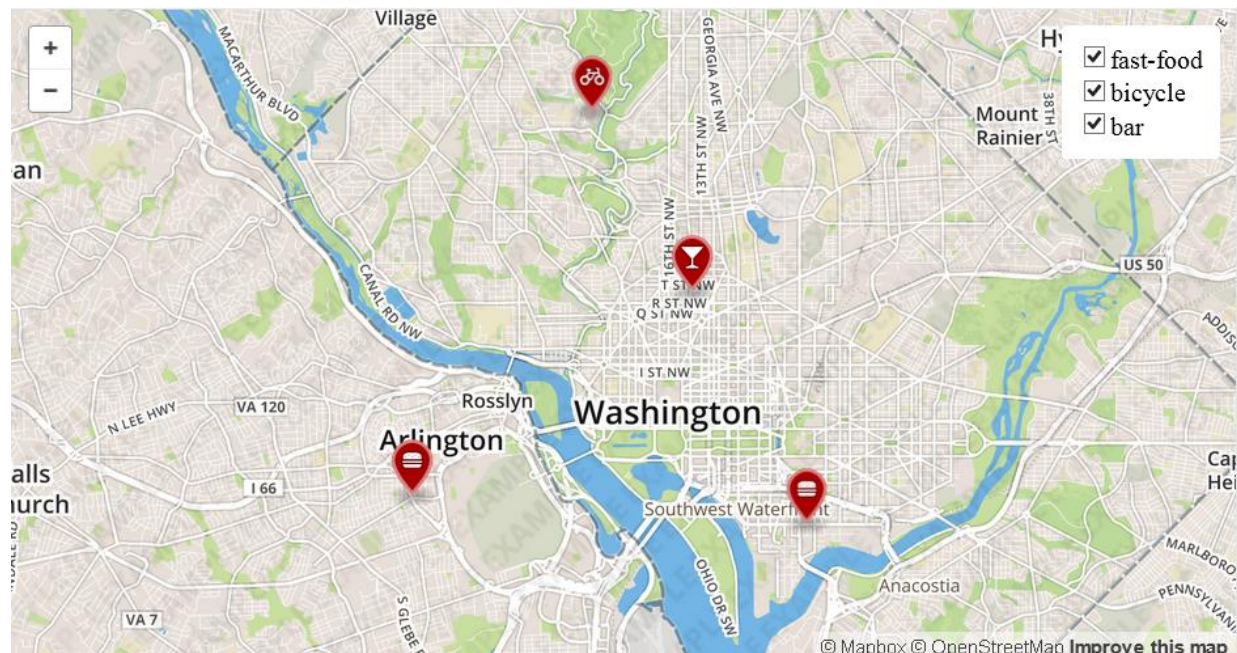




# Aller plus loin

## ► Boutons de sélection des marqueurs par type

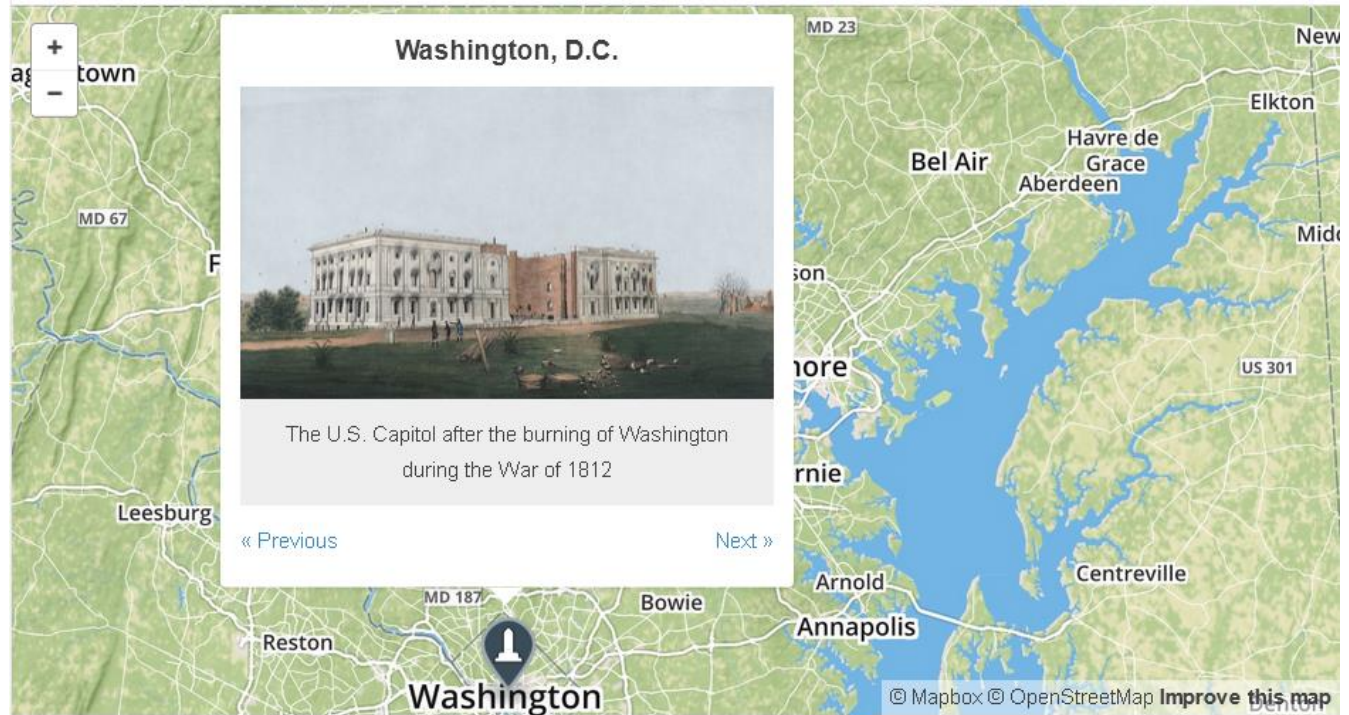
<https://www.mapbox.com/mapbox.js/example/v1.0.0/non-exclusive-markers/>



# Aller plus loin

## ► Marqueur interactifs

<https://www.mapbox.com/mapbox.js/example/v1.0.0/markers-with-image-slideshow/>





Ajouter des  
fonds de carte

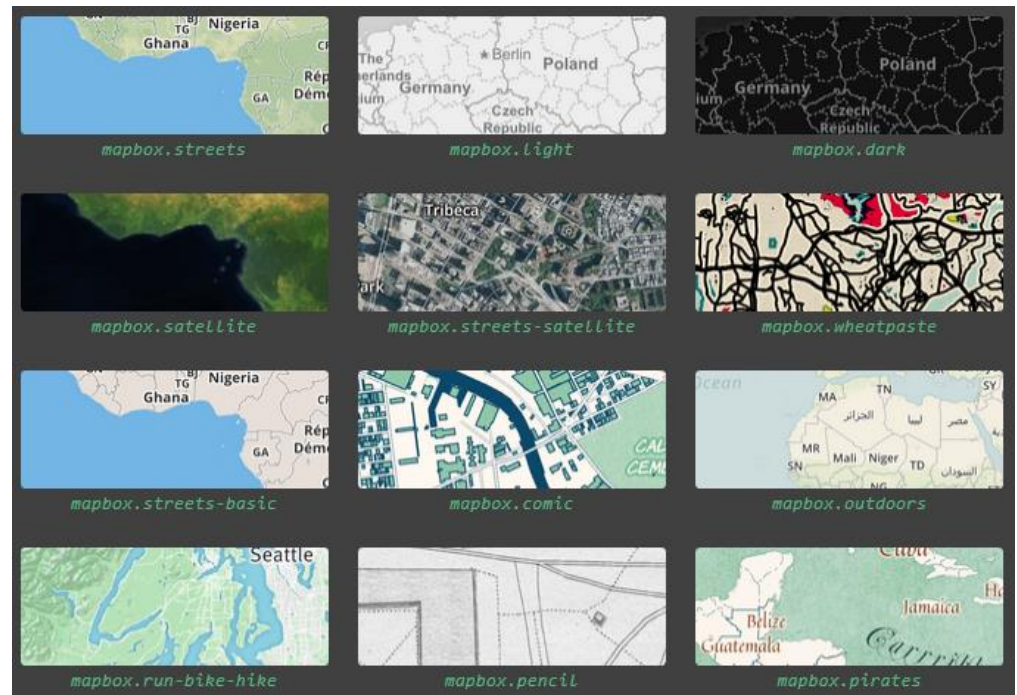




# Fonds de carte

- Personnaliser les fonds de carte
  - La bibliothèque de Mapbox propose une série de fond de carte (il suffit de copier les ID)

<https://www.mapbox.com/developers/api/maps/>

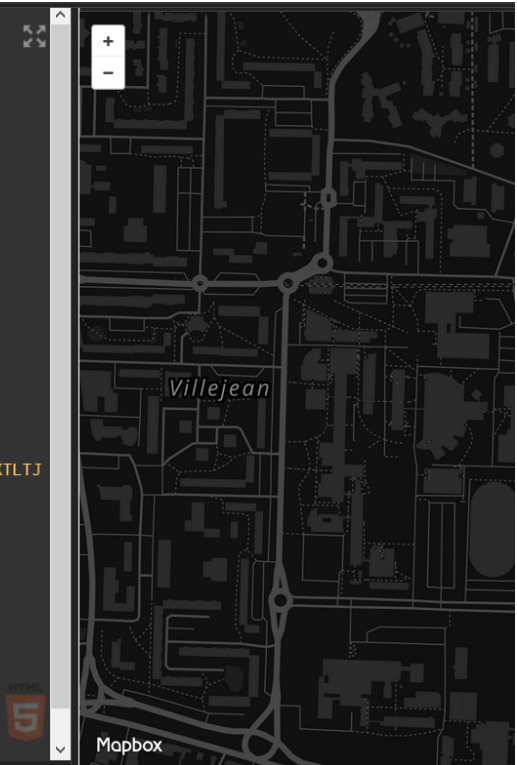


# Fonds de carte

- Appel d'un fond de carte par la commande :

```
var baselayers = L.mapbox.tileLayer('ID du fond de carte').addTo(map);
```

```
1 <!DOCTYPE html>
2 <html>
3 <head>
4 <meta charset=utf-8 />
5 <title>A simple map</title>
6 <meta name='viewport' content='initial-scale=1,maximum-scale=1,user-scalable=no' />
7 <script src='https://api.mapbox.com/mapbox.js/v2.3.0/mapbox.js'></script>
8 <link href='https://api.mapbox.com/mapbox.js/v2.3.0/mapbox.css' rel='stylesheet' />
9 <style>
10   body { margin:0; padding:0; }
11   #map { position:absolute; top:0; bottom:0; width:100%; }
12 </style>
13 </head>
14 <body>
15
16 <div id='map'></div>
17 <script>
18
19 L.mapbox.accessToken =
20   'pk.eyJ1IjoibmluYW5vdW51IiwiaSI6IjYxN2I4ZTU5MGI3M2RjNDk1NDAwN2RjNjNiMzJiY2ZmIn0.XtoXTLTJ
21   2eW2pGjg2ZiJSA';
22
23
24 var map = L.mapbox.map('map', 'mapbox.streets')
25   .setView([48.12, -1.70], 16);
26
27 var baselayers = L.mapbox.tileLayer('mapbox.dark').addTo(map);
28
29 </script>
30 </body>
31 </html>
```



# Fonds de carte

- Appel de plusieurs fonds de carte

```
var baselayers = {  
  Nomdufonddecarte: L.mapbox.tileLayer('ID du fond de carte'),  
  Nomdufonddecarte: L.mapbox.tileLayer('ID du fond de carte'),  
  Nomdufonddecarte: L.mapbox.tileLayer('ID du fond de carte')  
}; baselayers.Nomdufonddecartepardéfaut.addTo(map);
```

- Ajouter le sélecteur de couches à fin du script du corps de la page

```
L.control.layers(baselayers).addTo(map);
```

# Fonds de carte

Liveweave

Tools

Library

Team Up

Save

on

Live Mode

on

Dark Theme

Login

```
6 <meta name='viewport' content='initial-scale=1,maximum-scale=1,user-scalable=no' />
7 <script src='https://api.mapbox.com/mapbox.js/v2.3.0/mapbox.js'></script>
8 <link href='https://api.mapbox.com/mapbox.js/v2.3.0/mapbox.css' rel='stylesheet' />
9 <style>
10   body { margin:0; padding:0; }
11   #map { position:absolute; top:0; bottom:0; width:100%; }
12 </style>
13 </head>
14 <body>
15
16 <div id='map'></div>
17 <script>
18
19 L.mapbox.accessToken =
20   'pk.eyJ1IjoibmluYW5vdW50IiwiaWUiOiJYxN2I4ZTU5MGI3M2RjNDk1NDAwN2RjNjN1MzJiY2ZmIn0.XtoXTLTJ
21   2eW2pGjg2ZiJSA';
22
23
24 var map = L.mapbox.map('map', 'mapbox.streets')
25   .setView([48.12, -1.70], 16);
26
27
28 var baselayers = {
29   Streets: L.mapbox.tileLayer('mapbox.streets'),
30   Dark: L.mapbox.tileLayer('Mapbox.dark'),
31   Satellite: L.mapbox.tileLayer('mapbox.satellite')
32 }; baselayers.Satellite.addTo(map);
33
34 L.control.layers(baselayers).addTo(map);
35
36 </script>
37
38 </body>
39 </html>
```

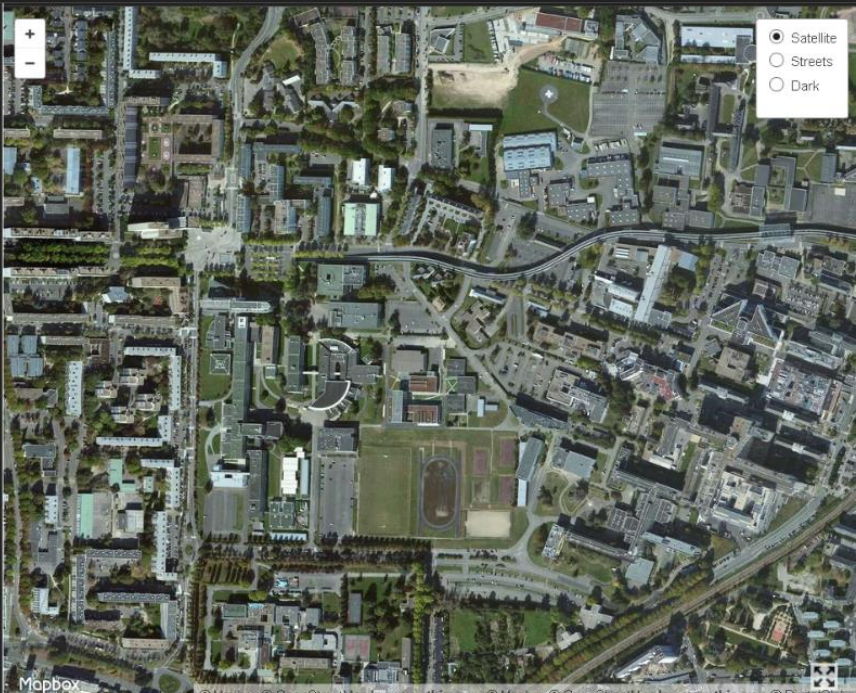
+

-

☒ Satellite

☐ Streets

☐ Dark



Mapbox

© Mapbox © OpenStreetMap Improve this map © Mapbox © OpenStreetMap Improve this map © DigitalGlobe



# Fonds de carte

## ► Des choix de fonds de carte infinis

<http://leaflet-extras.github.io/leaflet-providers/preview/>

[Leaflet-providers preview](#)

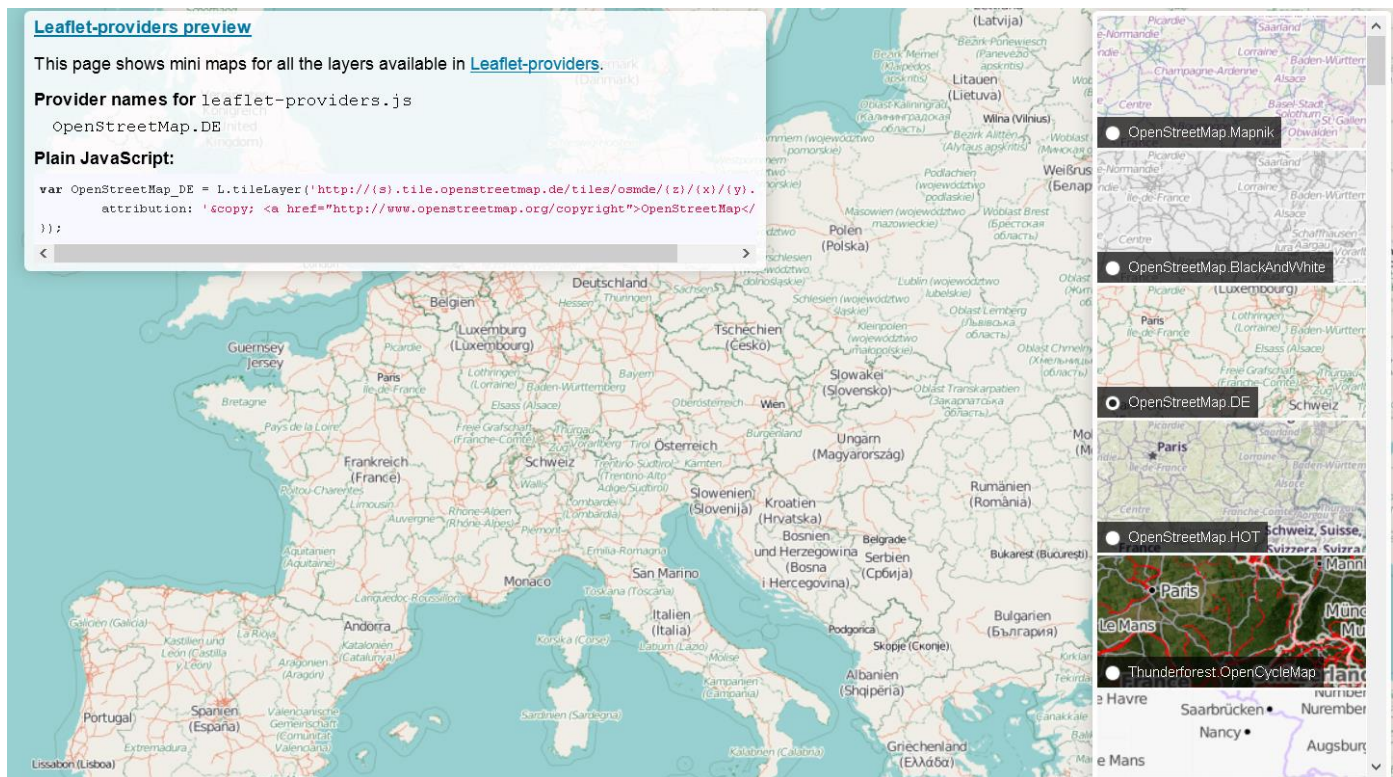
This page shows mini maps for all the layers available in [Leaflet-providers](#).

**Provider names for leaflet-providers.js**

OpenStreetMap.DE

**Plain JavaScript:**

```
var OpenStreetMap_DE = L.tileLayer('http://{s}.tile.openstreetmap.de/tiles/osmde/{z}/{x}/{y}.png', {
  attribution: '©copy; <a href="http://www.openstreetmap.org/copyright">OpenStreetMap</a>'
});
```

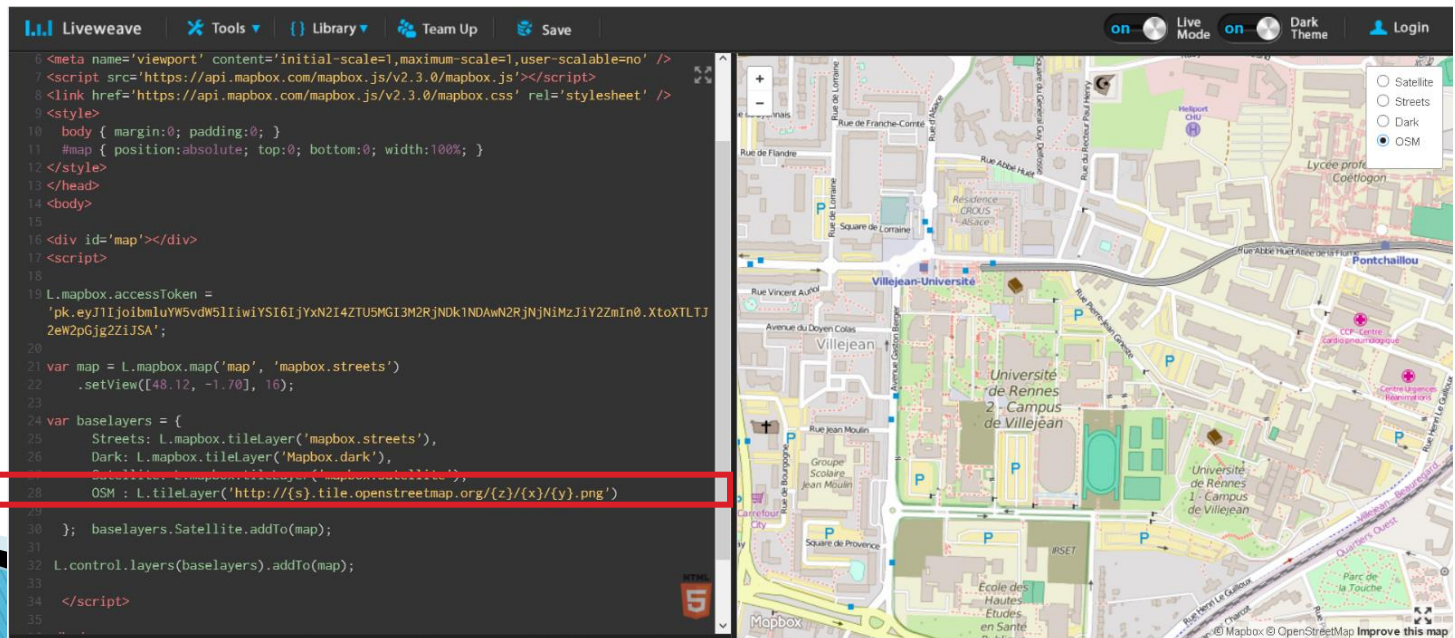


The screenshot displays the Leaflet-providers preview page. It features a large map of Europe in the background. On the right side, there is a sidebar with a list of map providers, each accompanied by a small thumbnail map. The providers listed include OpenStreetMap.Mapnik, OpenStreetMap.BlackAndWhite, OpenStreetMap.DE, OpenStreetMap.HOT, OpenStreetMap.Satellite, and Thunderforest.OpenCycleMap. The OpenStreetMap.DE provider is currently selected, as indicated by a radio button and a small thumbnail showing a map of France.

# Fonds de carte

- ▶ Fond de carte externes (URL)
  - Ajouter à la suite des fonds de carte la commande L.TileLayer pour importer des fonds de cartes externes à Mapbox

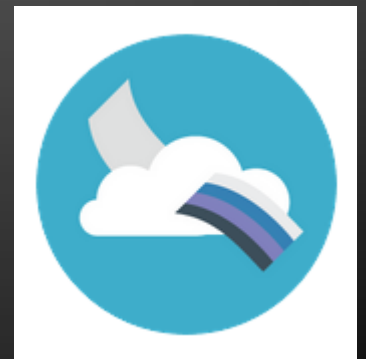
`nomdufonddecarte = L.tileLayer('URL du fond de carte')`



# Fonds de cartes

- ▶ Récapitulatif des commandes :
  - Fonds de carte de Mapbox : `L.mapbox.tileLayer`
  - Fonds de cartes externes : `L.tileLayer`
  - Sélecteur de fonds de cartes : `L.control.layers`

## » Visualisation de services WMS



# Ajouter un WMS

- ▶ Rentrer cette ligne de code dans la section `var baselayers` (à la suite des autres fonds de carte appelés)
  - On mobilise ici la fonction `L.tileLayer.wms` pour afficher un flux WMS comme fond de carte

```
NomduWMS : L.tileLayer.wms("URL du WMS", {  
    layers: 'Nom de la couche',  
    format: 'image/png',  
    transparent: true }),
```

# Ajouter un WMS

- ▶ Mobiliser le service wms pour afficher le cadastre (Géobretagne)

<http://geobretagne.fr/geoserver/photo/wms?>

- ▶ Sélectionner la couche à afficher, ici le cadastre

satellite-ancien

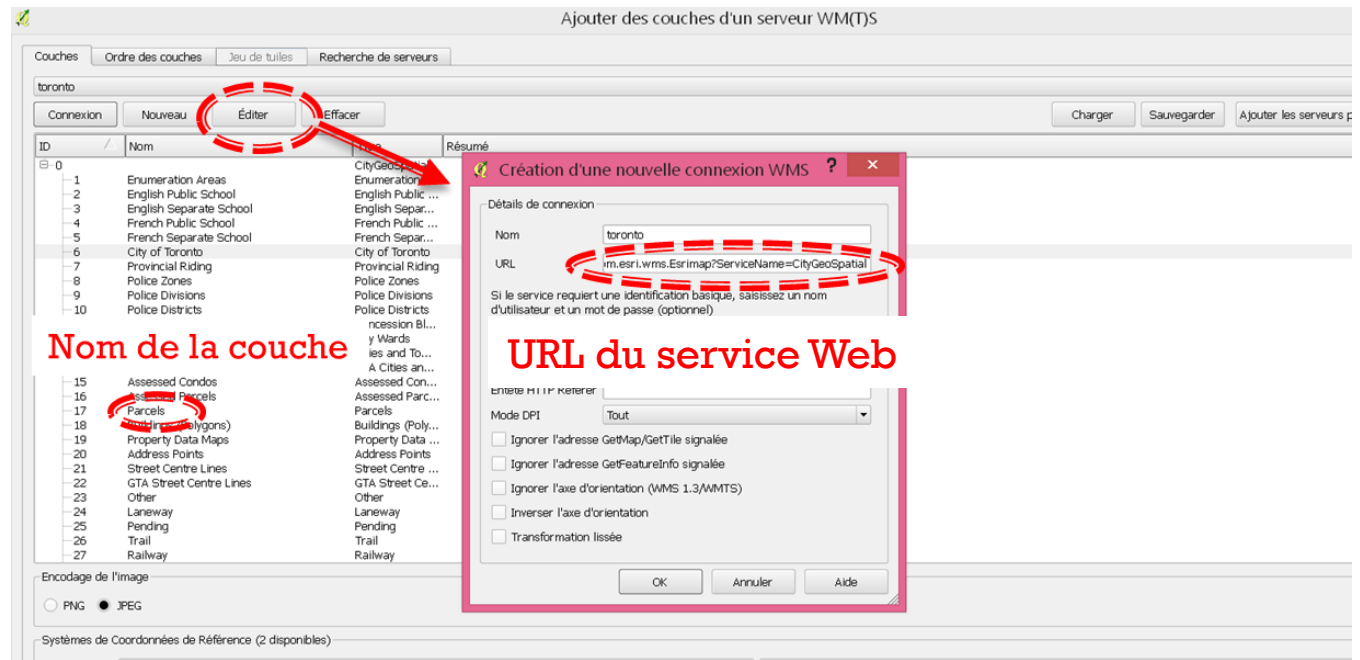


# Ajouter un WMS

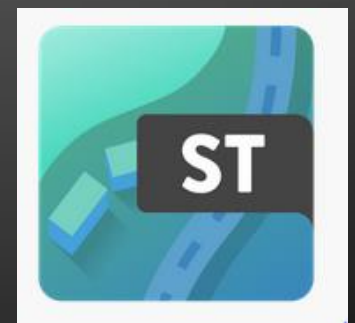


# Ajouter un WMS

- ▶ Dans QGIS vous pouvez récupérer
  - L'URL du service Web
  - Le nom de la couche du service

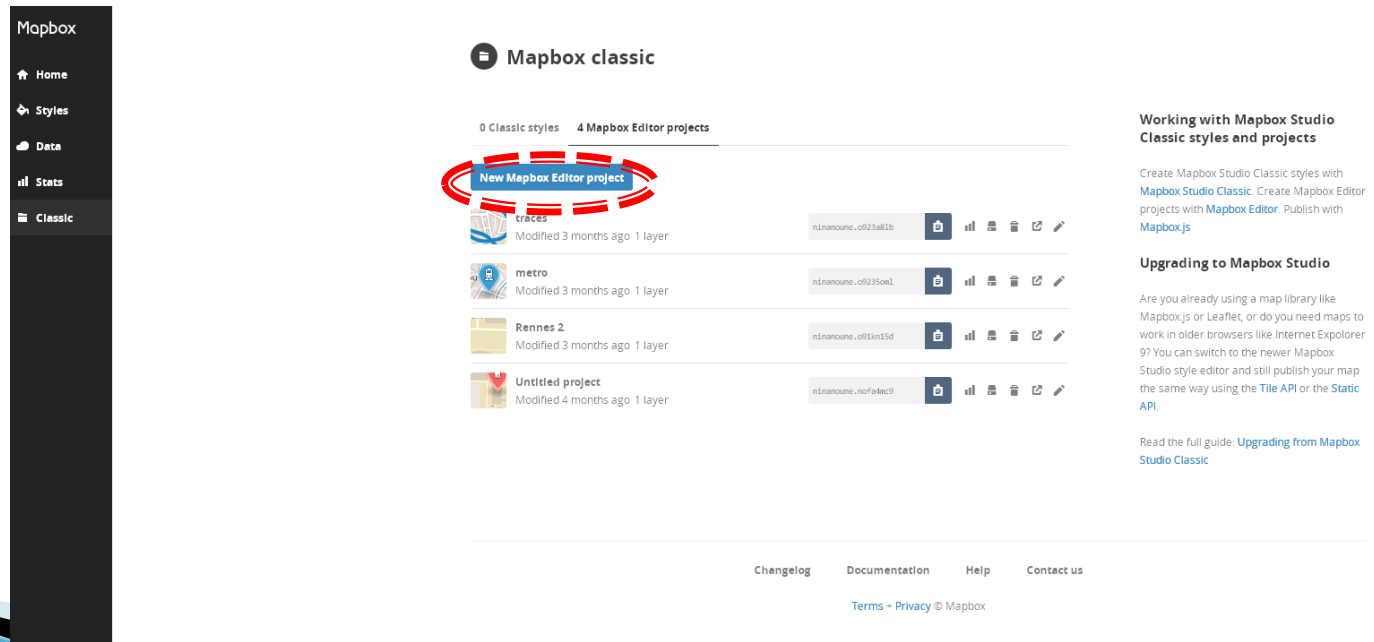


» Ajouter des données  
personnelles



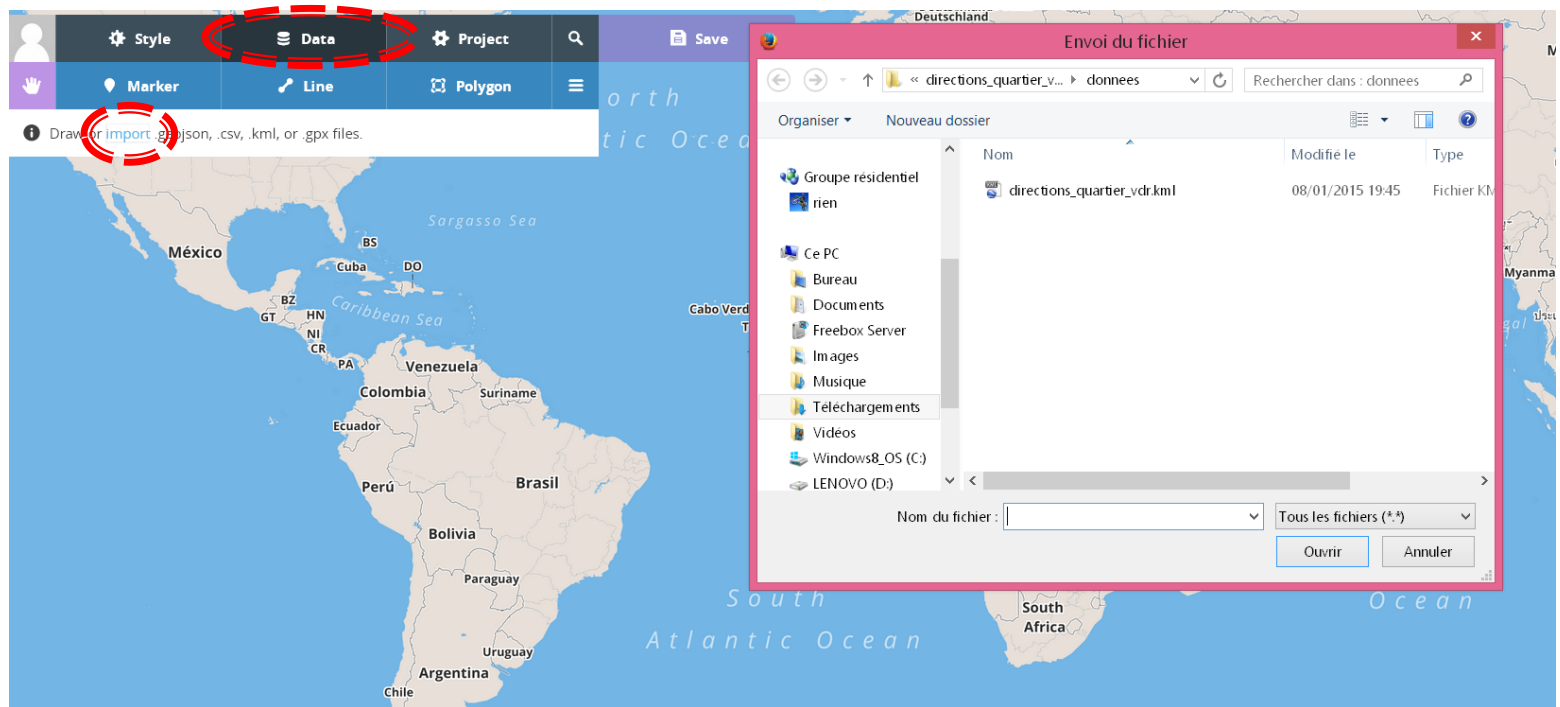
# Ajouter des données personnelles

- ▶ Vous devez créer un projet par couche de données
  - Une couche de ponctuels (stations de métros)
  - Une couche de linéaires (lignes de métros)



# Ajouter des données personnelles

- ▶ Importer les données dans Mapbox Editor
  - Geojson, KML, CSV



# Ajouter des données personnelles

## ► Personnalisation de la fenêtre contextuelle

**TITRE DE L'ELEMENT**

**Import features**

Title	Description	Style	Symbol
ETAT ( <i>Ouverte</i> )			
D_MES ( <i>20160216</i> )			
NOM ( <i>Armorique</i> )			
ADRESSE ( <i>rue de la Taurellerie</i> )			

Choose an Imported property to give each feature a popup title.

↑ Finish importing

**DESCRIPTION DE L'ELEMENT**

**Import features**

Title	Description	Style	Symbol
D_MES ( <i>20160216</i> )			
NOM ( <i>Armorique</i> )			
ADRESSE ( <i>rue de la Taurellerie</i> )			
NB_SOCLES ( <i>24</i> )			

Choose an Imported property to give each feature a popup description.

↑ Finish importing

# Ajouter des données personnelles

- ## ► Personnalisation de l'affichage des données

## COULEUR DE L'ELEMENT

Import features

X

Title	Description	Style	Symbol
		<div><div>Small</div><div>Medium</div><div>Large</div><div>#7d7d7d</div></div>	
		<div><div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div></div></div>	

Style each imported marker with a size & color.

↑ Finish importing

## FORME DE L'ELEMENT

## Import features

Title	Description	Style	Symbol
			<div style="display: flex; flex-wrap: wrap; justify-content: space-between;"> <div style="width: 45%;"> </div> <div style="width: 5%; text-align: center;"> <div style="border: 1px solid #ccc; padding: 5px; margin-bottom: 5px;">↑</div> <div style="border: 1px solid #ccc; padding: 5px;">↓</div> </div> </div>

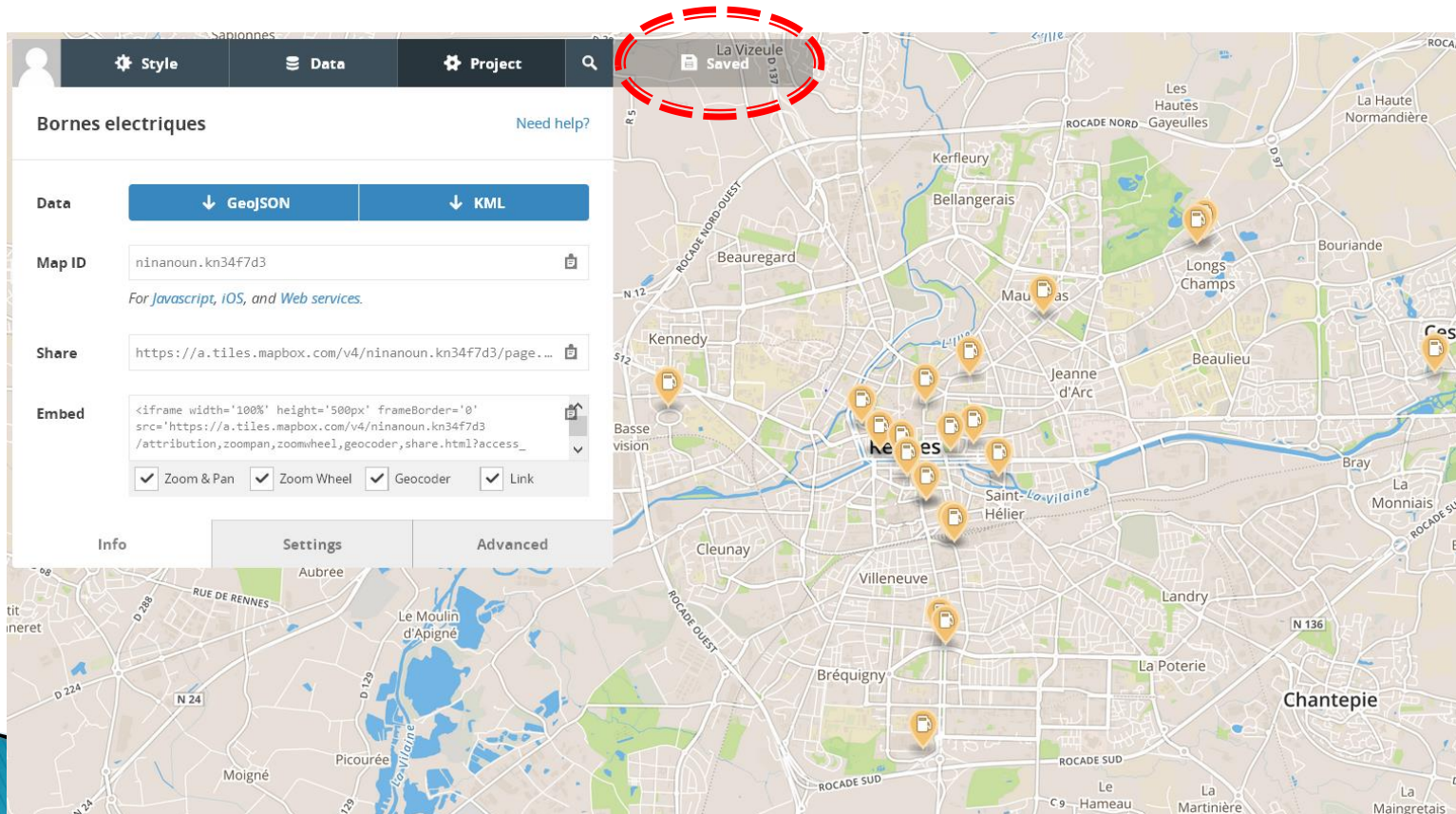
Provide each imported marker with a symbol icon.

↑ Finish importing



# Ajouter des données personnelles

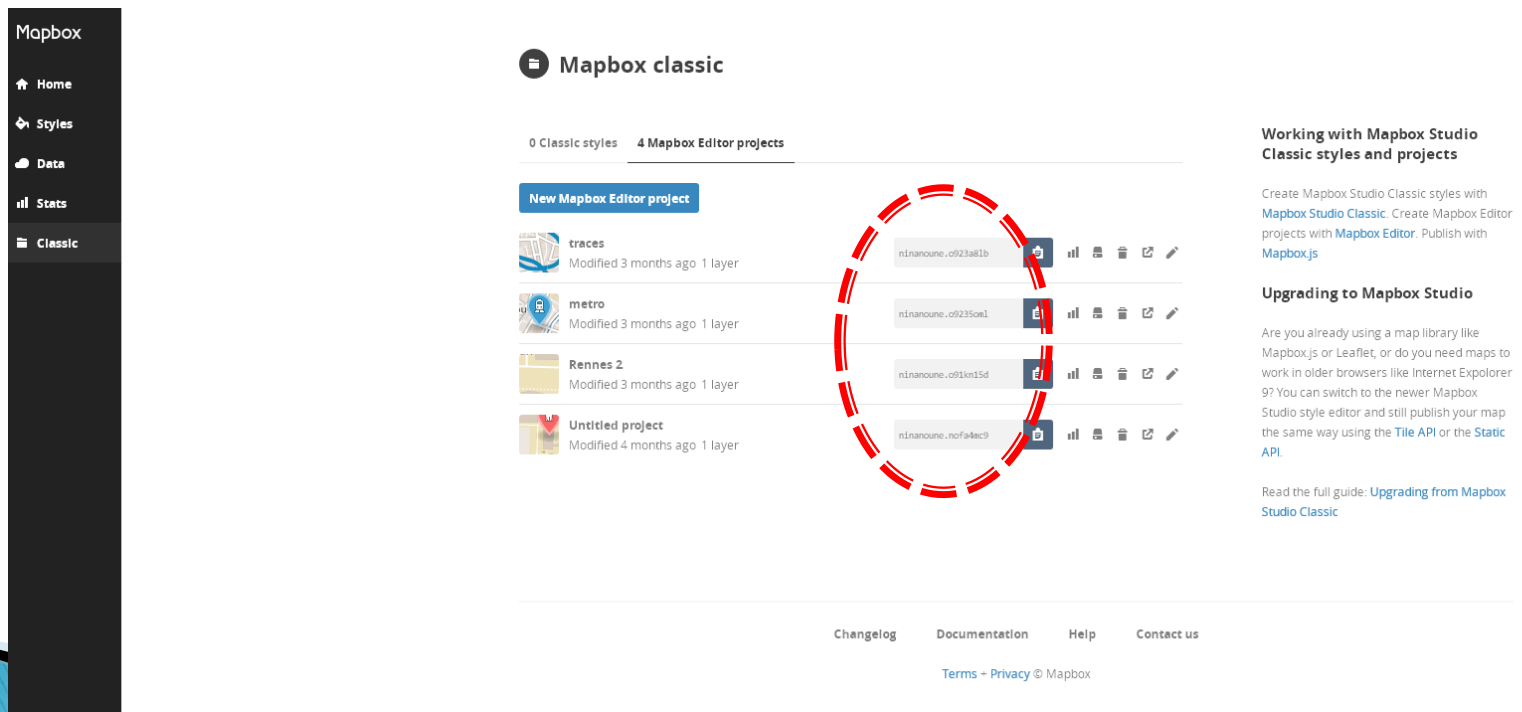
- ▶ Vos données sont affichées sur la carte
  - SAUVERGADER vos projets ▪





# Ajouter des données personnelles

- ▶ Vous devez disposer des projets (jeux de données) dans Mapbox Classic
  - C'est ici que se trouvent les ID des projets



The screenshot displays the Mapbox Classic web interface. On the left is a dark sidebar with navigation links: Home, Styles, Data, Stats, and Classic. The main content area is titled 'Mapbox classic' and shows a list of '4 Mapbox Editor projects'. The projects listed are 'traces', 'metro', 'Rennes 2', and 'Untitled project'. Each project entry includes a thumbnail, a title, a modification date, and a layer count. To the right of each project is a column of project IDs (e.g., 'n1nanoune..0923a81b'). This column of IDs is circled with a red dashed line. To the right of the project list, there are two sections: 'Working with Mapbox Studio Classic styles and projects' and 'Upgrading to Mapbox Studio', both providing links to documentation and guides.

























Mapbox

- Home
- Styles
- Data
- Stats
- Classic

## Mapbox classic

0 Classic styles 4 Mapbox Editor projects

[New Mapbox Editor project](#)

	<b>traces</b> Modified 3 months ago 1 layer	n1nanoune..0923a81b	    
	<b>metro</b> Modified 3 months ago 1 layer	n1nanoune..092350e1	    
	<b>Rennes 2</b> Modified 3 months ago 1 layer	n1nanoune..091e15d	    
	<b>Untitled project</b> Modified 4 months ago 1 layer	n1nanoune..nofa8ec9	    

### Working with Mapbox Studio Classic styles and projects

Create Mapbox Studio Classic styles with [Mapbox Studio Classic](#). Create Mapbox Editor projects with [Mapbox Editor](#). Publish with [Mapbox.js](#)

### Upgrading to Mapbox Studio

Are you already using a map library like Mapbox.js or Leaflet, or do you need maps to work in older browsers like Internet Explorer 9? You can switch to the newer Mapbox Studio style editor and still publish your map the same way using the [Tile API](#) or the [Static API](#).

Read the full guide: [Upgrading from Mapbox Studio Classic](#)

[Changelog](#) [Documentation](#) [Help](#) [Contact us](#)

[Terms](#) - [Privacy](#) © Mapbox

# Ajouter des données personnelles

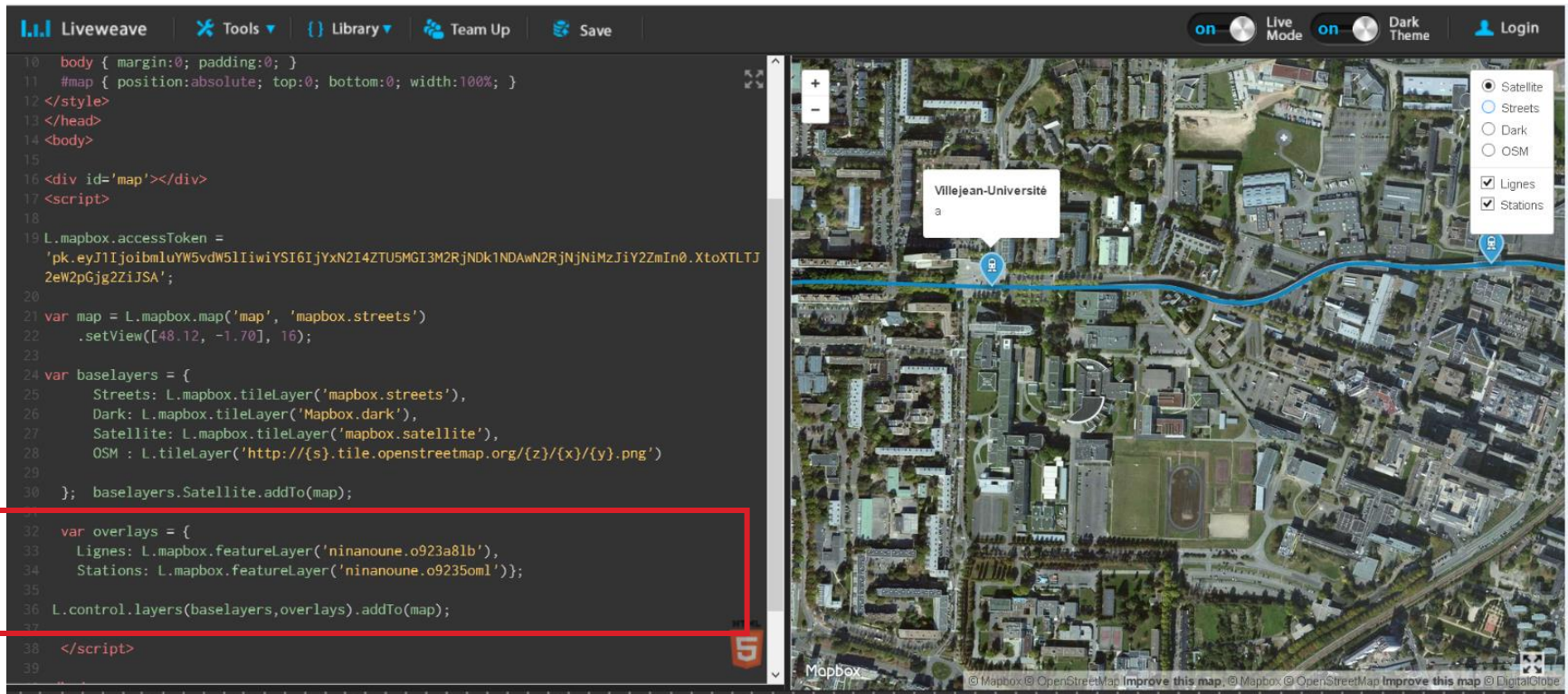
- ▶ Pour ajouter des données dans votre carte, insérer cette ligne de commande
  - On mobilise ici la fonction `L.mapbox.featureLayer` qui permet de mobiliser des données stocker sur Mapbox

```
var overlays = {  
  Nomdelacouche: L.mapbox.featureLayer('ID de la couche'),  
  Nomdelacouche: L.mapbox.featureLayer('ID de la couche')};  
overlays.nomdelacoucheaffichéepardéfaut.addTo(map);
```

- ▶ Puis ajouter cet élément dans le sélecteur de couche pour pouvoir sélectionner les nouvelles couches

```
L.control.layers(baselayers, overlays).addTo(map);
```

# Ajouter des données personnelles



The screenshot displays a web application interface for a map. The top navigation bar includes 'Liveweave', 'Tools', 'Library', 'Team Up', 'Save', 'Live Mode', 'Dark Theme', and 'Login'. The map area shows a satellite view of a city with a label 'Villejean-Université'. A blue line and a blue pin are visible on the map. The code on the left is as follows:

```
10 body { margin:0; padding:0; }
11 #map { position:absolute; top:0; bottom:0; width:100%; }
12 </style>
13 </head>
14 <body>
15
16 <div id='map'></div>
17 <script>
18
19 L.mapbox.accessToken =
  'pk.eyJ1IjoibmluYW5vdW51IiwiaSI6IjYxN2I4ZTU5MGI3M2RjNDk1NDAwN2RjNjNiMzJiY2ZmIn0.XtoXTLTJ
  2eW2pGjg2ZiJSA';
20
21 var map = L.mapbox.map('map', 'mapbox.streets')
22   .setView([48.12, -1.70], 16);
23
24 var baselayers = {
25   Streets: L.mapbox.tileLayer('mapbox.streets'),
26   Dark: L.mapbox.tileLayer('Mapbox.dark'),
27   Satellite: L.mapbox.tileLayer('mapbox.satellite'),
28   OSM : L.tileLayer('http://{s}.tile.openstreetmap.org/{z}/{x}/{y}.png')
29 }; baselayers.Satellite.addTo(map);
30
31
32 var overlays = {
33   Lignes: L.mapbox.featureLayer('ninanoune.o923a81b'),
34   Stations: L.mapbox.featureLayer('ninanoune.o9235om1');
35
36 L.control.layers(baselayers,overlays).addTo(map);
37
38 </script>
39
```

The red box highlights the overlay configuration and its addition to the map control.

# Ajouter un WMS

- ▶ Mobiliser le service wms pour afficher le cadastre (Géobretagne)

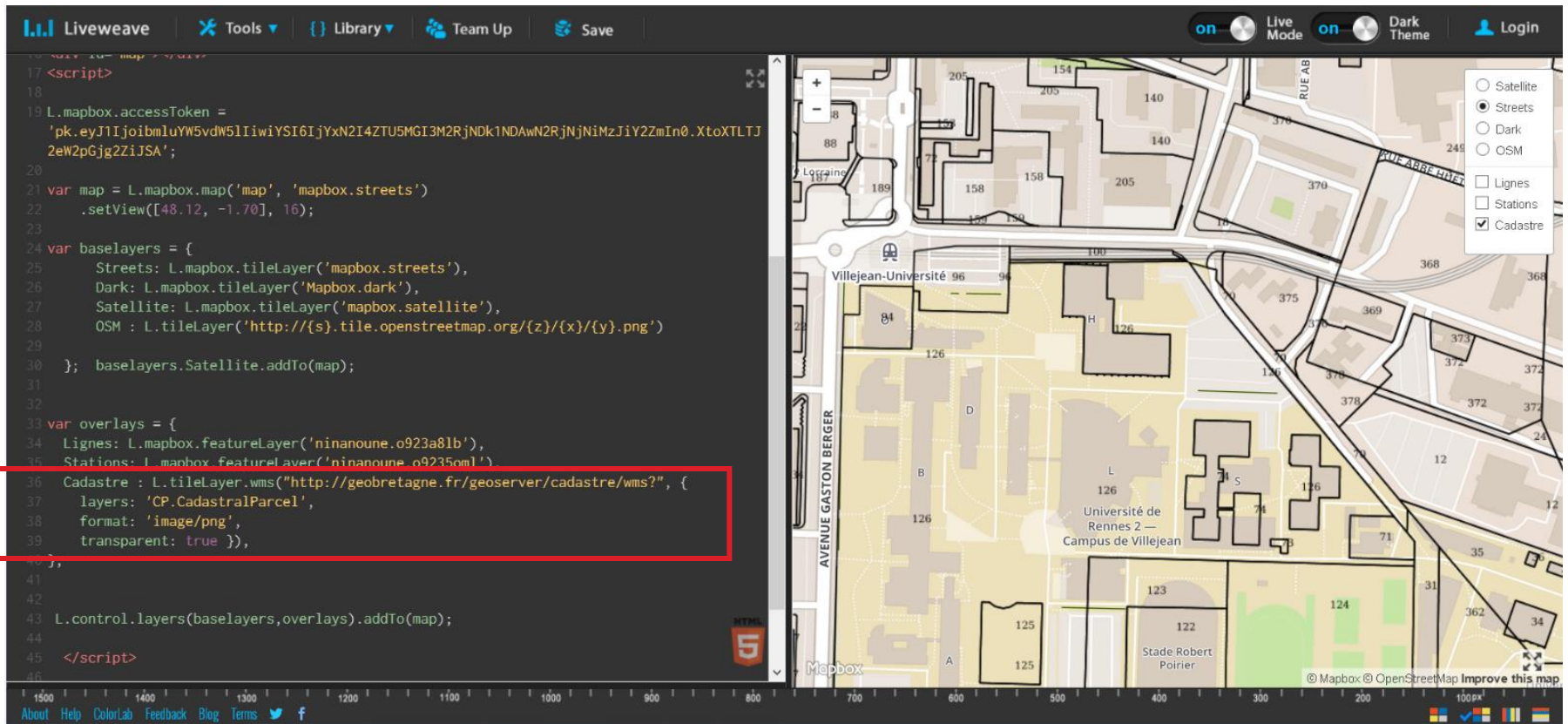
<http://geobretagne.fr/geoserver/cadastre/wms>

- ▶ Sélectionner la couche à afficher, ici le cadastre

CP.CadastralParcel



# Ajouter un WMS



The screenshot displays a web application interface for adding a WMS layer to a map. The interface is divided into two main sections: a code editor on the left and a map view on the right.

**Code Editor (Left):**

```
17 <script>
18
19 L.mapbox.accessToken =
20   'pk.eyJ1IjoibmluYW5vdW51IiwiaW50IjYxN2I4ZTU5MGI3M2RjNDk1NDAN2RjNjNmZjY2ZmIn0.XtoXTLTJ
21   2eW2pGjg2ZiJSA';
22
23 var map = L.mapbox.map('map', 'mapbox.streets')
24   .setView([48.12, -1.70], 16);
25
26 var baselayers = {
27   Streets: L.mapbox.tileLayer('mapbox.streets'),
28   Dark: L.mapbox.tileLayer('mapbox.dark'),
29   Satellite: L.mapbox.tileLayer('mapbox.satellite'),
30   OSM : L.tileLayer('http://{s}.tile.openstreetmap.org/{z}/{x}/{y}.png')
31 }; baselayers.Satellite.addTo(map);
32
33 var overlays = {
34   Lignes: L.mapbox.featureLayer('ninanoune.o923a81b'),
35   Stations: L.mapbox.featureLayer('ninanoune.o9235oml'),
36   Cadastre : L.tileLayer.wms("http://geobretagne.fr/geoserver/cadastre/wms?", {
37     layers: 'CP.CadastralParcel',
38     format: 'image/png',
39     transparent: true })),
40 },
41
42 L.control.layers(baselayers,overlays).addTo(map);
43
44 </script>
```

The code defines a map using Mapbox and adds several baselayers (Streets, Dark, Satellite, OSM) and overlays (Lignes, Stations, Cadastre). The Cadastre overlay is highlighted with a red box, indicating it is the focus of the tutorial.

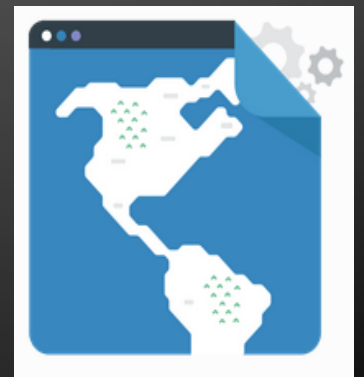
**Map View (Right):**

The map view shows a street map of a city area. The map is styled with a light beige background. A legend on the right side of the map indicates the following layers are visible:

- ☐ Satellite
- ☒ Streets
- ☐ Dark
- ☐ OSM
- ☐ Lignes
- ☐ Stations
- ☒ Cadastre

The map shows a street grid with labels for 'AVENUE GASTON BERGER' and 'RUE AB'. A large area is labeled 'Université de Rennes 2 — Campus de Villejean'. The map is powered by Mapbox and OpenStreetMap.

## »» Personnalisation de la carte



# Mini carte

- ▶ Vous avez la possibilité d'ajouter une mini carte qui localise l'emprise de la carte principale
  - Il faut d'abord insérer au début du "body" l'appel de l'API de Mapbox suivant :

```
<script src='https://api.mapbox.com/mapbox.js/plugins/leaflet-minimap/v1.0.0/Control.Minimap.js'></script>  
<link href='https://api.mapbox.com/mapbox.js/plugins/leaflet-minimap/v1.0.0/Control.Minimap.css' rel='stylesheet' />
```

- Puis il faut ajouter après l'appel de la carte (var map) la commande pour insérer la mini-carte :

```
var miniMap = new L.Control.Minimap(L.mapbox.tileLayer('ID de la carte'))  
.addTo(map);
```



# Mini carte

Liveweave

Tools

Library

Team Up

Save

on

Live Mode

on

Dark Theme

Login

```
13 </body>
14 </head>
15
16 <body>
17
18 <script src='https://api.mapbox.com/mapbox.js/plugins/leaflet-minimap/v1.0.0
19 /Control.MiniMap.js'></script>
20 <link href='https://api.mapbox.com/mapbox.js/plugins/leaflet-minimap/v1.0.0
21 /Control.MiniMap.css' rel='stylesheet' />
22
23 <div id='map'></div>
24
25 <script>
26 L.mapbox.accessToken =
27 'pk.eyJ1IjoibmluYW5vdW51IiwiaW50IjYxN2I4ZTU5MGI3M2RjNDk1NDAnRjNjNiMzJiY2ZmIn0.Xt
28 oXLTJ2eW2pGjg2ZiJSA';
29
30 var map = L.mapbox.map('map').setView([48.12, -1.70], 16);
31
32 var miniMap = new
33 L.Control.MiniMap(L.mapbox.tileLayer('mapbox.streets')).addTo(map);
34
35 var baselayers = {
36   Streets: L.mapbox.tileLayer('mapbox.streets'),
37   ESRI: L.tileLayer('http://server.arcgisonline.com/ArcGIS/rest/services
38   ...
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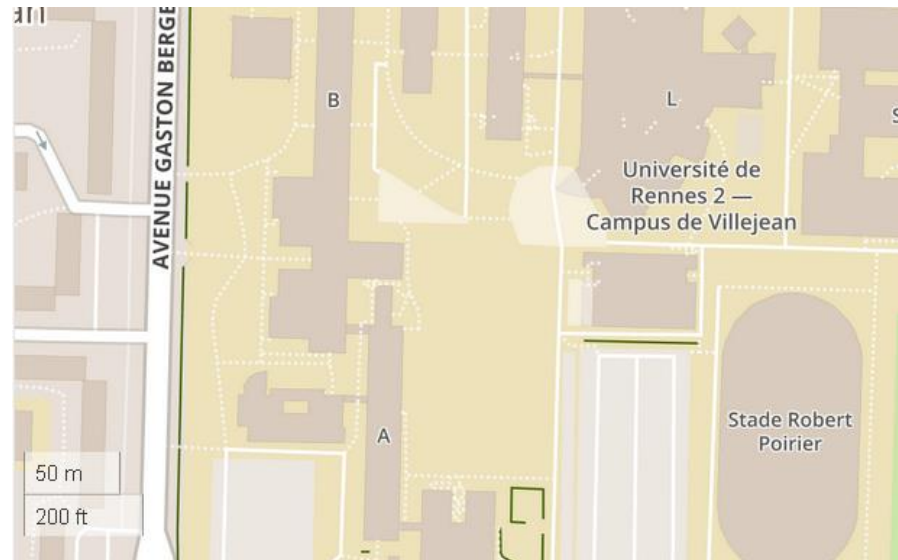
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Rennes

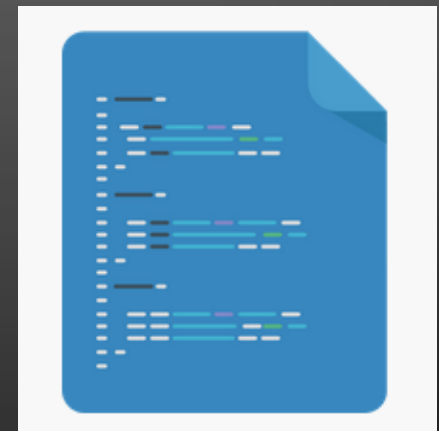
# Ajouter une échelle

- Pour ajouter une échelle sur votre carte, il suffit d'ajouter cette ligne de commande à la fin du script

```
L.control.scale().addTo(map);
```



## »» Page HTML



# Intégrer la carte dans une page HTML

- ▶ En se basant sur le page HTML fournie « *Template\_mapbox.html* » :
  - Insérer le script de liveweave dans `<script>`
  - Insérer aussi au début du `<body>` l'appel de l'API pour la mini carte

# Intégrer la carte dans une page HTML

Appel API mini carte  
(au début du < body > )

```
36
37 </head>
38
39 <body>
40
41
42 <!-- Insérer l'appel API pour la mini carte -->
43
44 <script src='https://api.mapbox.com/mapbox.js/plugins/leaflet-minimap/v1.0.0/Control.MiniMap.js'></script>
45 <link href='https://api.mapbox.com/mapbox.js/plugins/leaflet-minimap/v1.0.0/Control.MiniMap.css' rel='stylesheet' />
46
47 <!-- Texte et mise en page -->
48
49 <div class="site-wrapper">
50 <div class="site-content">
```

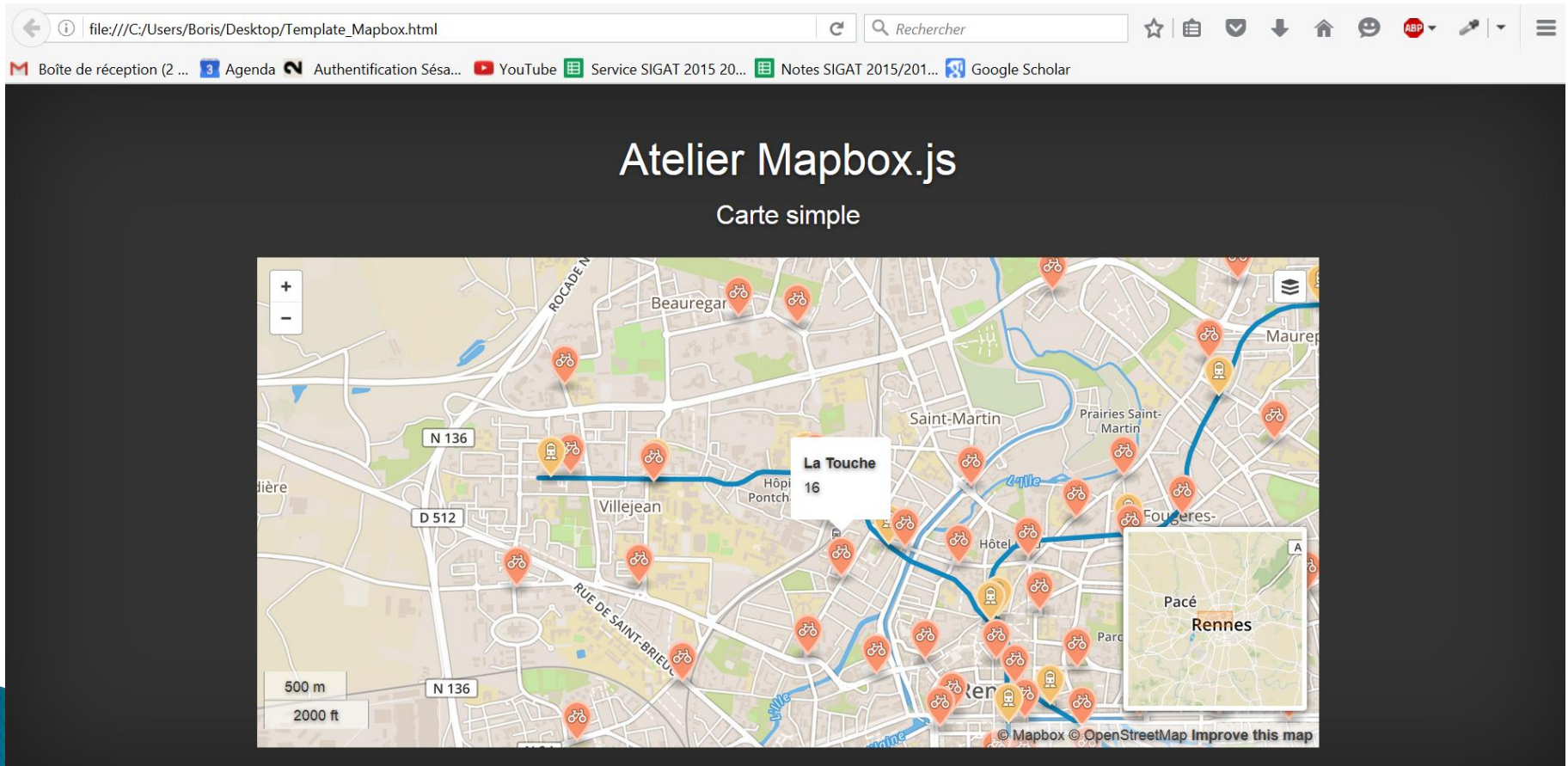
Copier le script de liveweave et le  
coller dans le <script>

```
67 <script>
68 L.mapbox.accessToken = 'pk.eyJ1IjoibmluYV5vZjUyIiwia2kiOiJ1IiwiaWF0IjE5MjUyMjUyMjUy';
69
70 var map = L.mapbox.map('map').setView([48.1, -2.1]);
71
72
73 var miniMap = new L.Control.MiniMap(L.mapbox.tileLayer('mapbox.streets')).addTo(map);
74
75
76 var baselayers = {
77   Streets: L.mapbox.tileLayer('mapbox.streets'),
78   ESRI: L.tileLayer('http://server.arcgisonline.com/ArcGIS/rest/services/World_Topo_Map/MapServer/tile/{z}/{y}/{x}'),
79   Satelliteancien : L.tileLayer.wms("http://geobretagne.fr/geoserver/photo/wms?",
80     {layers: 'satellite-ancien', format: 'image/png', transparent: true })
81 };
82 baselayers.Streets.addTo(map);
83
84 var overlays = {
85   Stations: L.mapbox.featureLayer('ninanoun.142p5jo7'),
86   Lignes: L.mapbox.featureLayer('ninanoun.kn35p89a'),
87   Velos: L.mapbox.featureLayer('ninanoun.01fglmmb'),
88   Cadastre : L.tileLayer.wms("http://geobretagne.fr/geoserver/cadastre/wms", {
89     layers: 'CP.CadastralParcel',
90     format: 'image/png',
91     transparent: true },
92   );
93   overlays.Stations.addTo(map);
94
95   L.control.layers(baselayers, overlays).addTo(map);
96   L.control.scale().addTo(map);
97
98 </script>
99 </body>
100 </html>
```



# Page HTML

[http://mastersigat.net/onewebmedia/Carte\\_finale.html](http://mastersigat.net/onewebmedia/Carte_finale.html)





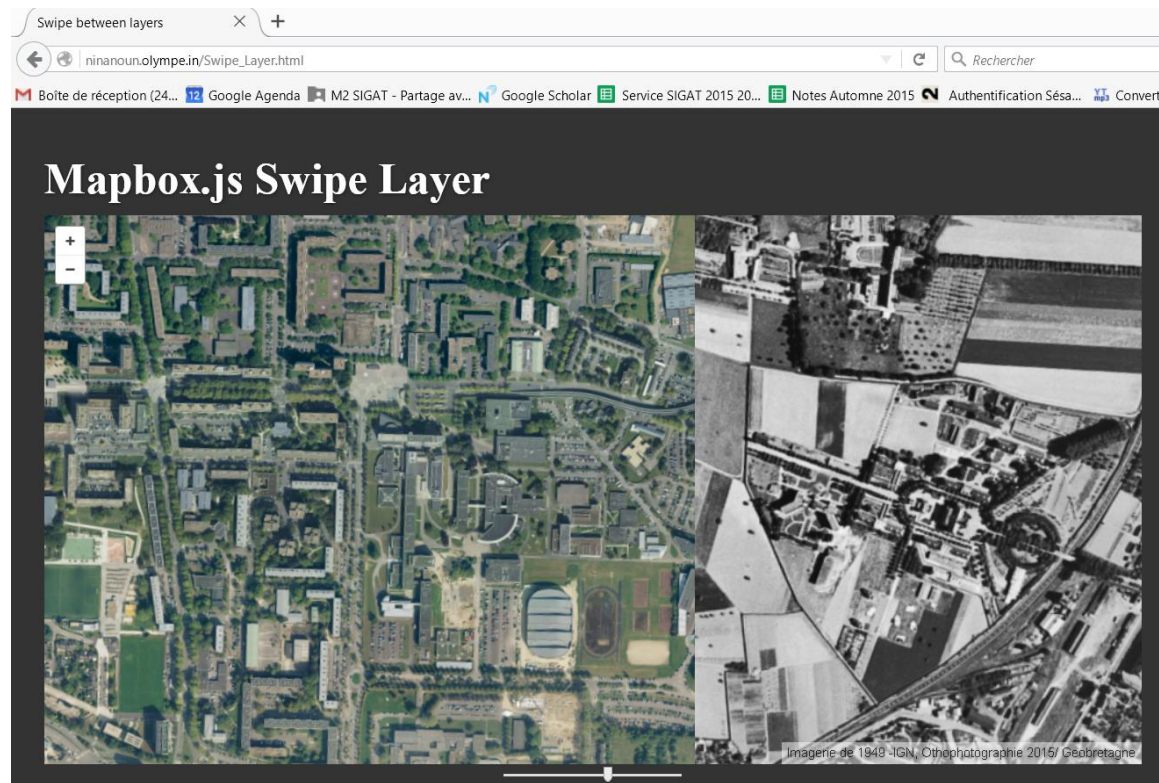
# Récapitulatifs commandes

- ▶ Carte ou projet Mapbox : `L.mapbox.map`
- ▶ Fonds de carte de Mapbox : `L.mapbox.tileLayer`
- ▶ Fonds de cartes externes : `L.tileLayer`
- ▶ Sélecteur de fonds de cartes : `L.control.layers`
- ▶ Affichage de données personnelles : `L.mapbox.featureLayer`
- ▶ Affichage WMS : `L.tileLayer.wms`
- ▶ Echelle : `L.control.scale()`

# Aller plus loin

## Swipe Layer

<http://mastersigat.net/onewebmedia/SwipeMap.html>



DOC : <https://www.mapbox.com/mapbox.js/example/v1.0.0/swipe-layers/>

# Swipe map

- ▶ Basez vous sur le template en ligne  
mapbox\_swipemap.html
- ▶ Mobiliser le service wms pour afficher le  
cadastre (Géobretagne)

<http://geobretagne.fr/geoserver/photo/wms?>

- ▶ Sélectionner la couche WMS1

ortho-35

- ▶ Sélectionner pour la couche WMS2

satellite-ancien



# Swipe map

```
73 <script>
74   L.mapbox.accessToken = 'pk.eyJ1Ijo1YWdhZGgiLCJhIjo1Y2lsMmFwNXJlMDBiY3dubTB1YTg0MXZ2NiJ9.tfhqOXEioU3wFy-O8YSdeQ';
75
76   var map = L.mapbox.map('map');
77
78   var WMS1 = L.tileLayer.wms("http://geobretagne.fr/geoserver/photo/wms?", {
79     layers: 'ortho-35',
80     format: 'image/png',
81     transparent: true,
82     attribution: "a definir"
83   }).addTo(map);
84
85   var WMS2 = L.tileLayer.wms("http://geobretagne.fr/geoserver/photo/wms?", {
86     layers: 'satellite-ancien',
87     format: 'image/png',
88     transparent: true,
89     attribution: "a definir"
90   }).addTo(map);
91
92   var range = document.getElementById('range');
93   function clip() {
94     var containerPointToLayerPoint([0, 0]),
95     containerPointToLayerPoint(map.getSize()),
96     clipX = (se.x - nw.x) * range.value;
97     WMS2.getContainer().style.clip = 'rect(' + [nw.y, clipX, se.y, nw.x].join('px,') + 'px)';
98
99     range['oninput' in range ? 'oninput' : 'onchange'] = clip;
100    map.on('move', clip);
101    map.setView([48.12, -1.70], 16); clip();
102  }
103 </script>
```

Configuration du WMS 1

Configuration du WMS 2

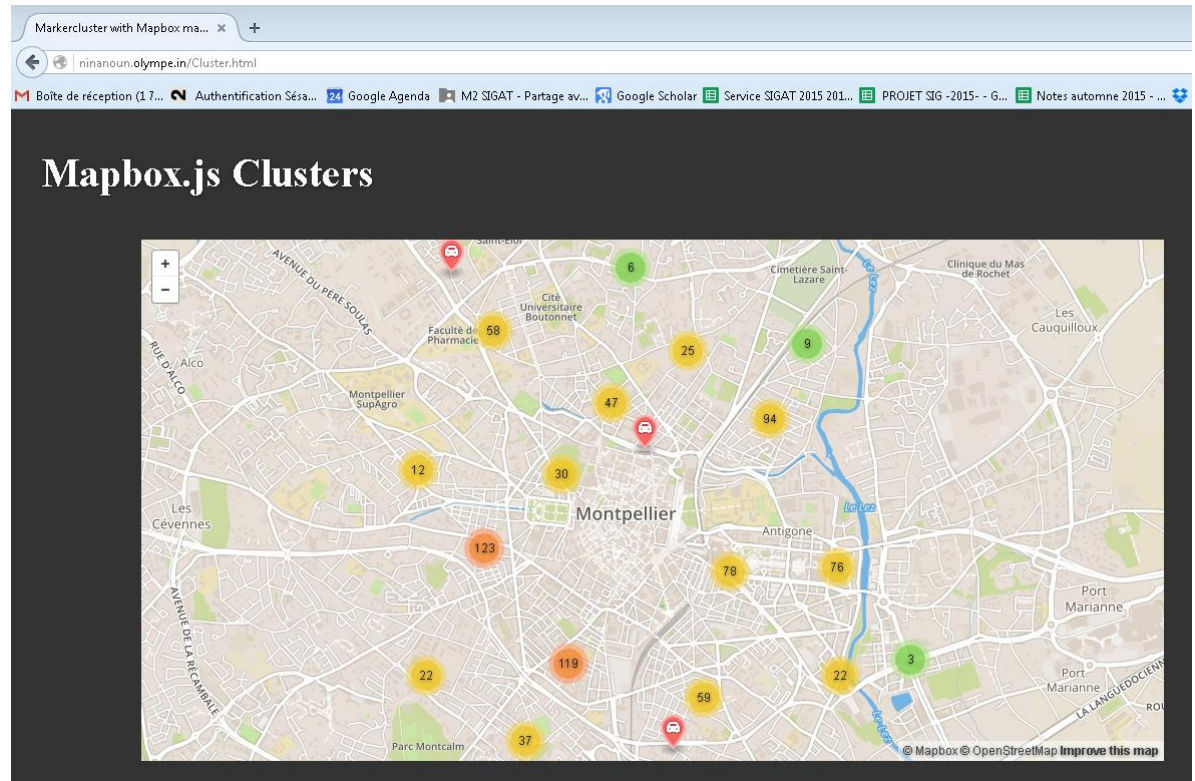
Appel du WMS 2

Configuration de la carte

# Aller plus loin

## Cluster

<https://www.mapbox.com/mapbox.js/example/v1.0.0/markercluster-with-mapbox-data/>



<http://ninanoun.olympie.in/Cluster.html>

# Aller plus loin

- ▶ **Cluster (horodateurs de Montpellier)**
  - Données fournies

```

1 <!DOCTYPE html>
2 <html>
3 <head>
4 <meta charset=utf-8 />
5 <title>Markercluster with Mapbox marker data</title>
6 <meta name='viewport' content='initial-scale=1,maximum-scale=1,user-scalable=no' />
7 <link href='cover.css' rel='stylesheet">
8 <script src='https://api.mapbox.com/mapbox.js/v2.3.0/mapbox.js'></script>
9 <link href='https://api.mapbox.com/mapbox.js/v2.3.0/mapbox.css' rel='stylesheet' />
10 <style>
11   body { margin:0; padding:0; }
12   #map { width: 1000px; height:500px; margin:100px; padding:10px; background: black;}
13 </style>
14 </head>
15 <body onload="init()">
16   <div class="site-wrapper-inner">
17     <div class="inner">
18       <h3 class="masthead-brand">Mapbox.js Clusters</h3>
19
20     <div id='map'></div>
21
22 <script src='https://api.mapbox.com/mapbox.js/plugins/leaflet-markercluster/v0.4.0/leaflet.markercluster.js'></script>
23 <link href='https://api.mapbox.com/mapbox.js/plugins/leaflet-markercluster/v0.4.0/MarkerCluster.css' rel='stylesheet' />
24 <link href='https://api.mapbox.com/mapbox.js/plugins/leaflet-markercluster/v0.4.0/MarkerCluster.Default.css' rel='stylesheet' />
25
26
27 <script>
28 L.mapbox.accessToken = 'pk.eyJJIjoibWVudHxkbTBjY2hlb2RteiJ9.dDYKXX9907pbT6sTAJ4fvA';
29
30 var map = L.mapbox.map('map')
31   .setView([43.612, 3.879], 14)
32   .addLayer(L.mapbox.tileLayer('mapbox.streets'));
33
34 L.mapbox.featureLayer('mastersigat.p8762b7d').on('ready', function(e) {
35
36   var clusterGroup = new L.MarkerClusterGroup({
37     e.target.eachLayer(function(layer) {
38       clusterGroup.addLayer(layer);
39     });
40     map.addLayer(clusterGroup);
41   });
42 </script>
43
44 </body>
45 </html>

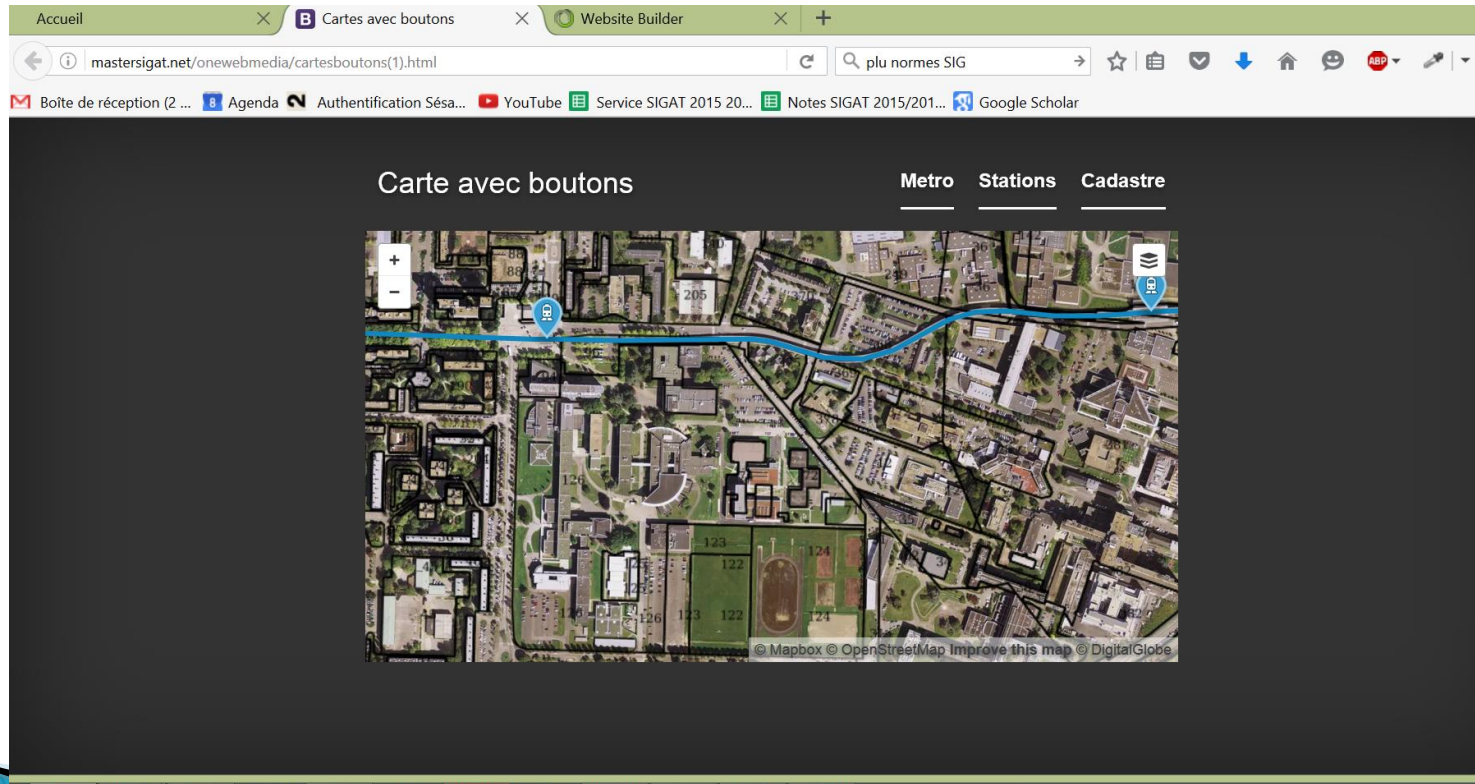
```



# Aller plus loin

## Cartes avec boutons

<http://mastersigat.net/onewebmedia/cartesboutons%281%29.html>



Doc : <https://www.mapbox.com/mapbox.js/example/v1.0.0/layers/>

# Aller plus loin

```
55
56 <script>
57 L.mapbox.accessToken = 'pk.eyJ1IjoibmlyYXN5dW51IiwiaXN6IjYyY2ZmIn0.XtoXTLTJ2eW2pGjg2ZiJSA';
58 var map = L.mapbox.map('map').setView([48.12, -1.70], 16);
59
60 var baselayers = {
61   Streets: L.mapbox.tileLayer('mapbox.streets'),
62   Dark: L.mapbox.tileLayer('Mapbox.dark'),
63   Satellite: L.mapbox.tileLayer('mapbox.satellite'),
64   OSM : L.tileLayer('http://{s}.tile.openstreetmap.org/{z}/{x}/{y}.png')
65 }; baselayers.Satellite.addTo(map);
66
67 var layers = document.getElementById('menu-ui');
68
69 addLayer(L.mapbox.featureLayer('ninanoune.o923a81b'), 'Métro', 1);
70 addLayer(L.mapbox.featureLayer('ninanoune.o9235oml'), 'Stations', 2);
71 addLayer(L.tileLayer.wms("http://geobretagne.fr/geoserver/cadastre/wms", {
72   layers: 'CP.CadastralParcel',
73   format: 'image/png',
74   transparent: true })), 'Cadastre', 3);
75
76 L.control.layers(baselayers).addTo(map);
77
```

**Configuration carte**

**Configuration fonds de carte**

**Configuration données personnelles**

# Utiliser des templates html

## ► Télécharger les templates de Bootstrap

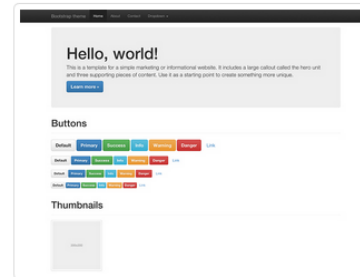
<https://github.com/twbs/bootstrap/archive/v3.3.6.zip>

### Using the framework



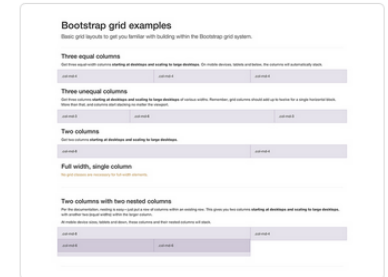
#### Starter template

Nothing but the basics: compiled CSS and JavaScript along with a container.



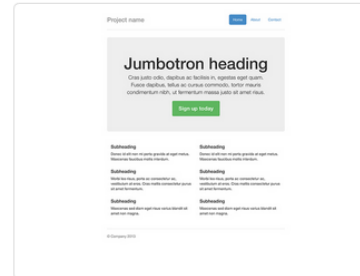
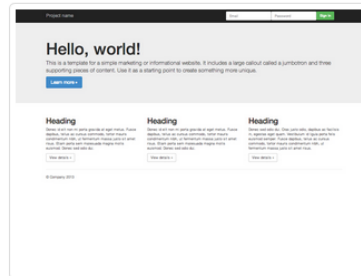
#### Bootstrap theme

Load the optional Bootstrap theme for a visually enhanced experience.



#### Grids

Multiple examples of grid layouts with all four tiers, nesting, and more.





[Boris.mericks kay@uhb.fr](mailto:Boris.mericks kay@uhb.fr)



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<http://univ-rennes2.academia.edu/BorisMericks kay>