

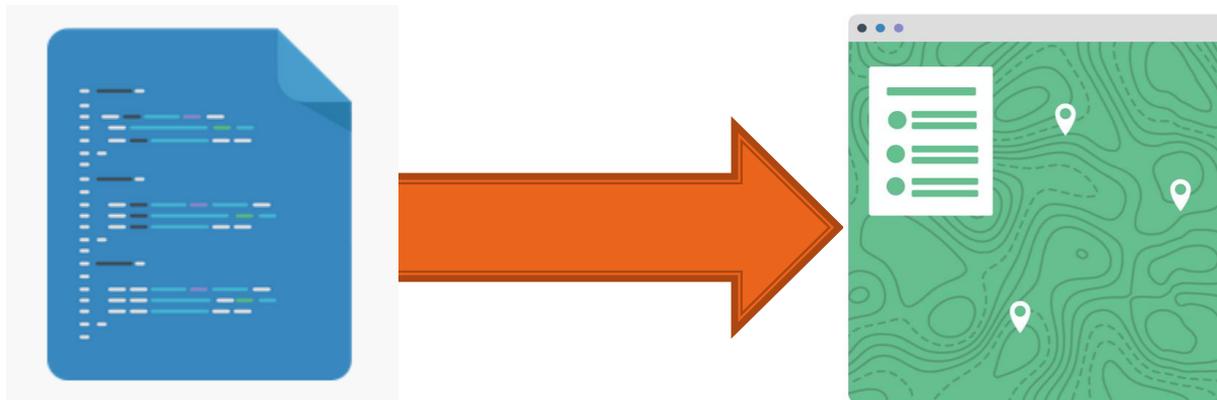
# Cartographie en ligne avec mapbox.js

HTML et Javascript



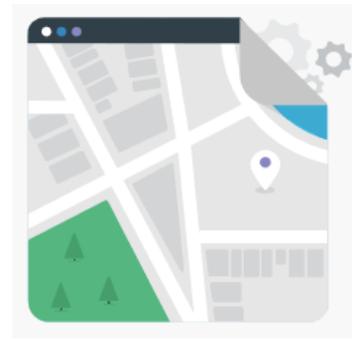
# Objectifs atelier

- ▶ 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

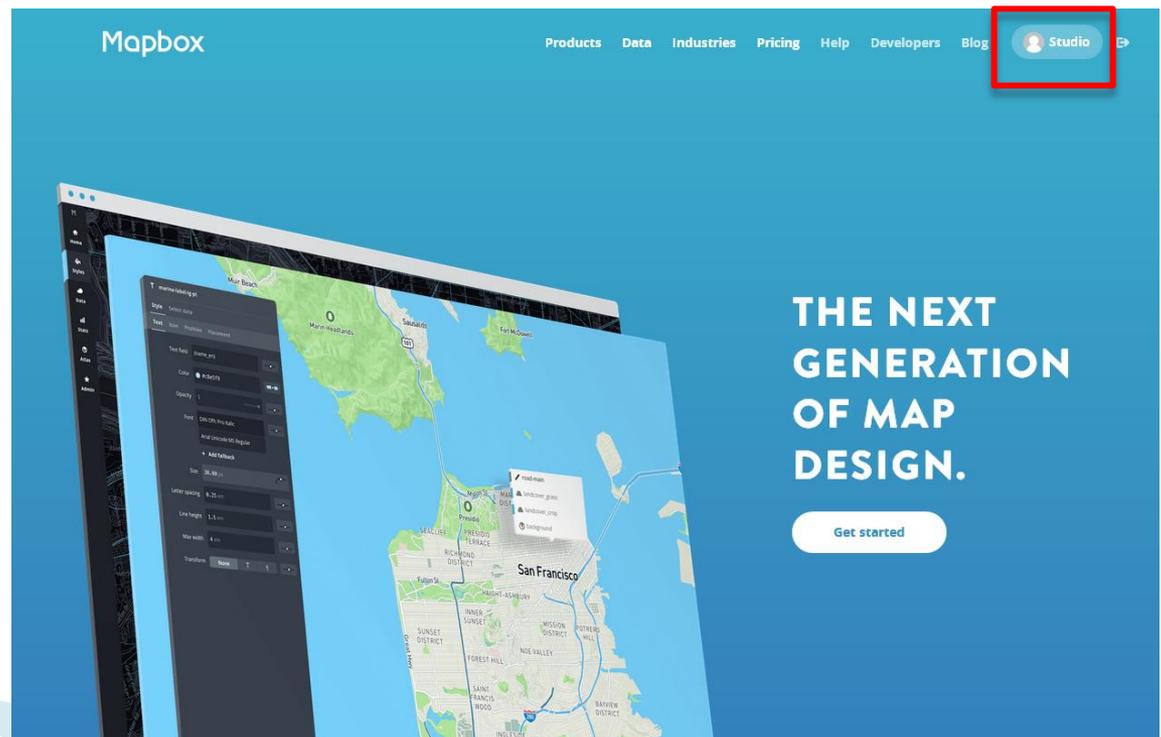
- MapBox est une société américaine qui fournit une panoplie de service autour de la cartographie en ligne
  - Service de stockage et de diffusion de données géographique
  - API et librairie en Javascript pour mettre en place des applications en ligne
  - SDK pour le développement d'applications mobiles (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



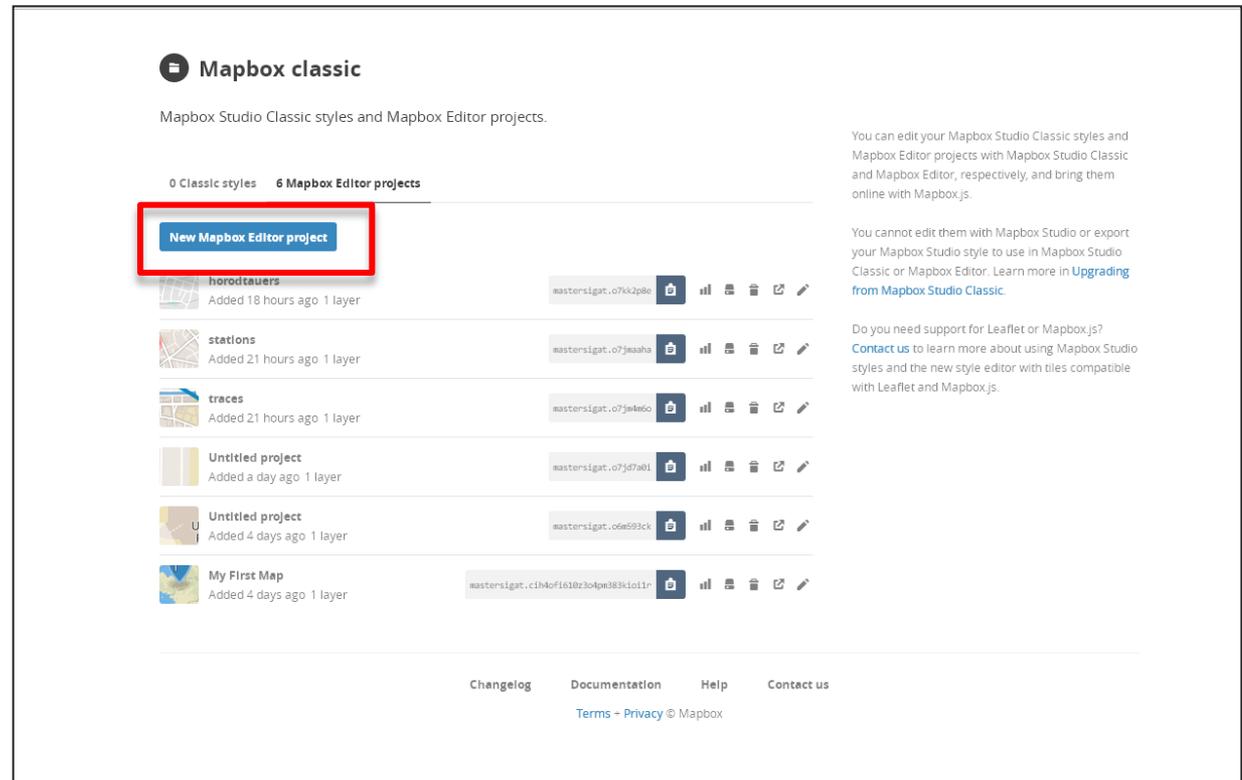
# Débuter

- ▶ Ouvrir l'environnement classique de Mapbox

The screenshot displays the Mapbox Studio Classic interface. On the left, a vertical sidebar contains navigation icons for Home, Styles, Data, Stats, Classic, and Account. The main content area is organized into several sections: a top section with a map preview and 'Edit' button; a 'Data' section with links to 'Mapbox data' and 'Vector tiles documentation'; a 'Recent datasets' section featuring a dataset named 'Nancy.shp' (188 B, Modified 19 hours ago); and a 'Develop' section with links to 'Developer tools' and 'Mapbox GL style specification'. On the right side, there is an 'Access token' section with a 'Manage' button, an 'On the blog' section with links to 'Introducing Mapbox Studio', 'Designing The Blueprint style in Mapbox Studio', and 'Animated atmospheric water', and a 'Classic styles and Editor projects' section highlighted with a red box. This highlighted section contains the text: 'Looking for your Mapbox Studio Classic styles and Editor projects? You can still access them as part of Mapbox Classic.' followed by an 'Open Mapbox Classic' button and a link to 'Check out our guide for upgrading from Mapbox Studio Classic.'

# 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	ID	Actions
horodateurs	Added 18 hours ago	1 layer	masters1gat.o7kk2p8e	Share, List, Delete, Refresh, Edit
stations	Added 21 hours ago	1 layer	masters1gat.o7jwaha	Share, List, Delete, Refresh, Edit
traces	Added 21 hours ago	1 layer	masters1gat.o7jw46o	Share, List, Delete, Refresh, Edit
Untitled project	Added a day ago	1 layer	masters1gat.o7j47a0l	Share, List, Delete, Refresh, Edit
Untitled project	Added 4 days ago	1 layer	masters1gat.o6w593ck	Share, List, Delete, Refresh, Edit
My First Map	Added 4 days ago	1 layer	masters1gat.ciMof1610z3o4pm383ki01r	Share, List, Delete, Refresh, 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](#).

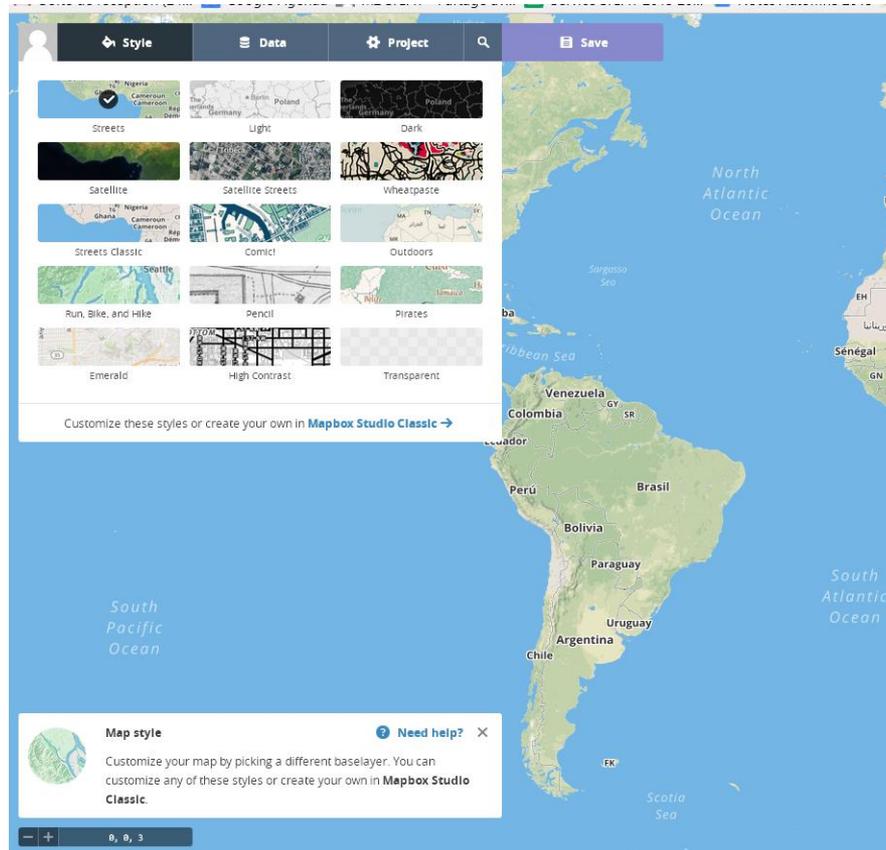
Do you need support for Leaflet or Mapbox.js? [Contact us](#) to learn more about using Mapbox Studio styles and the new style editor with tiles compatible with Leaflet and Mapbox.js.

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

[Terms](#) + [Privacy](#) © Mapbox

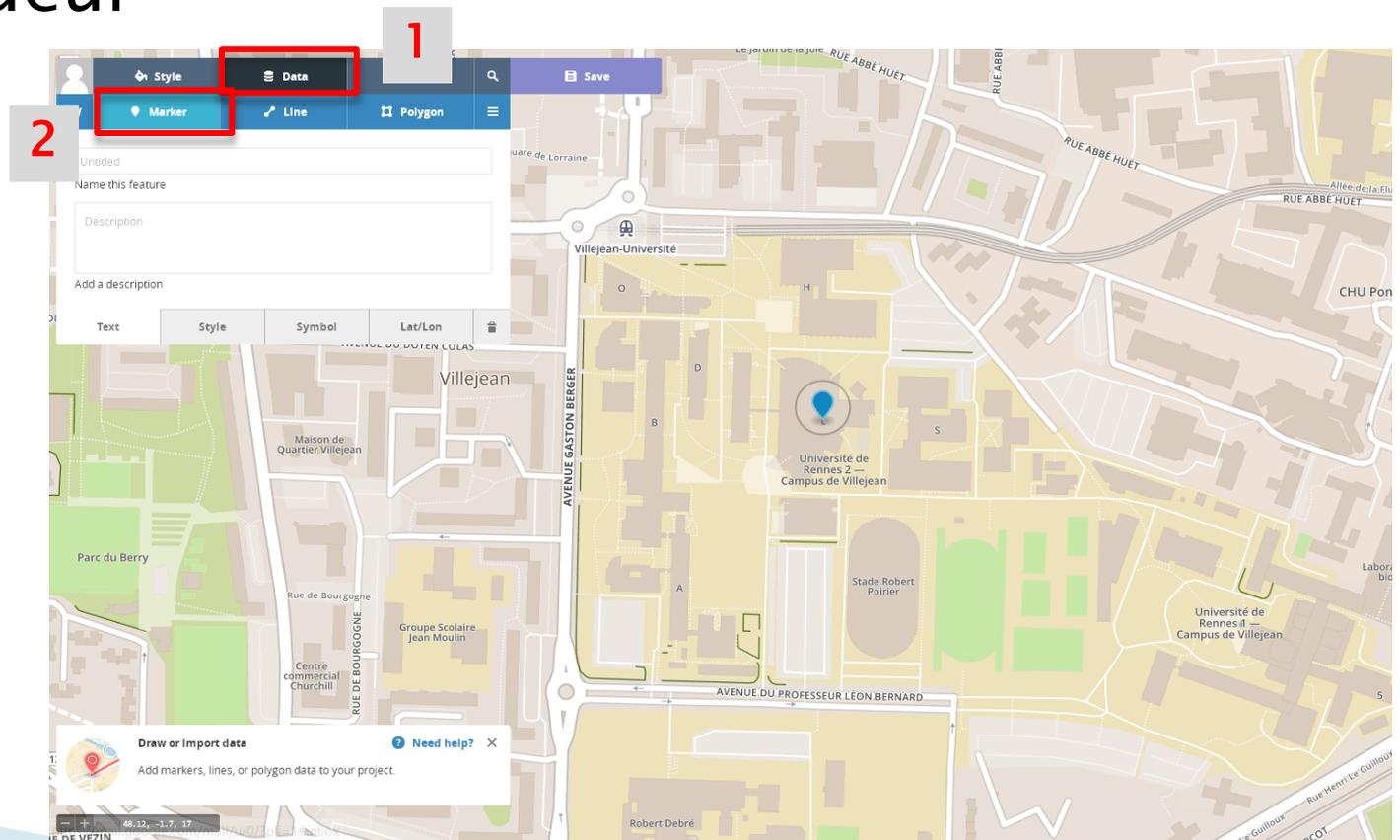
# Personnaliser la carte

- ▶ Sélectionner un fond de carte



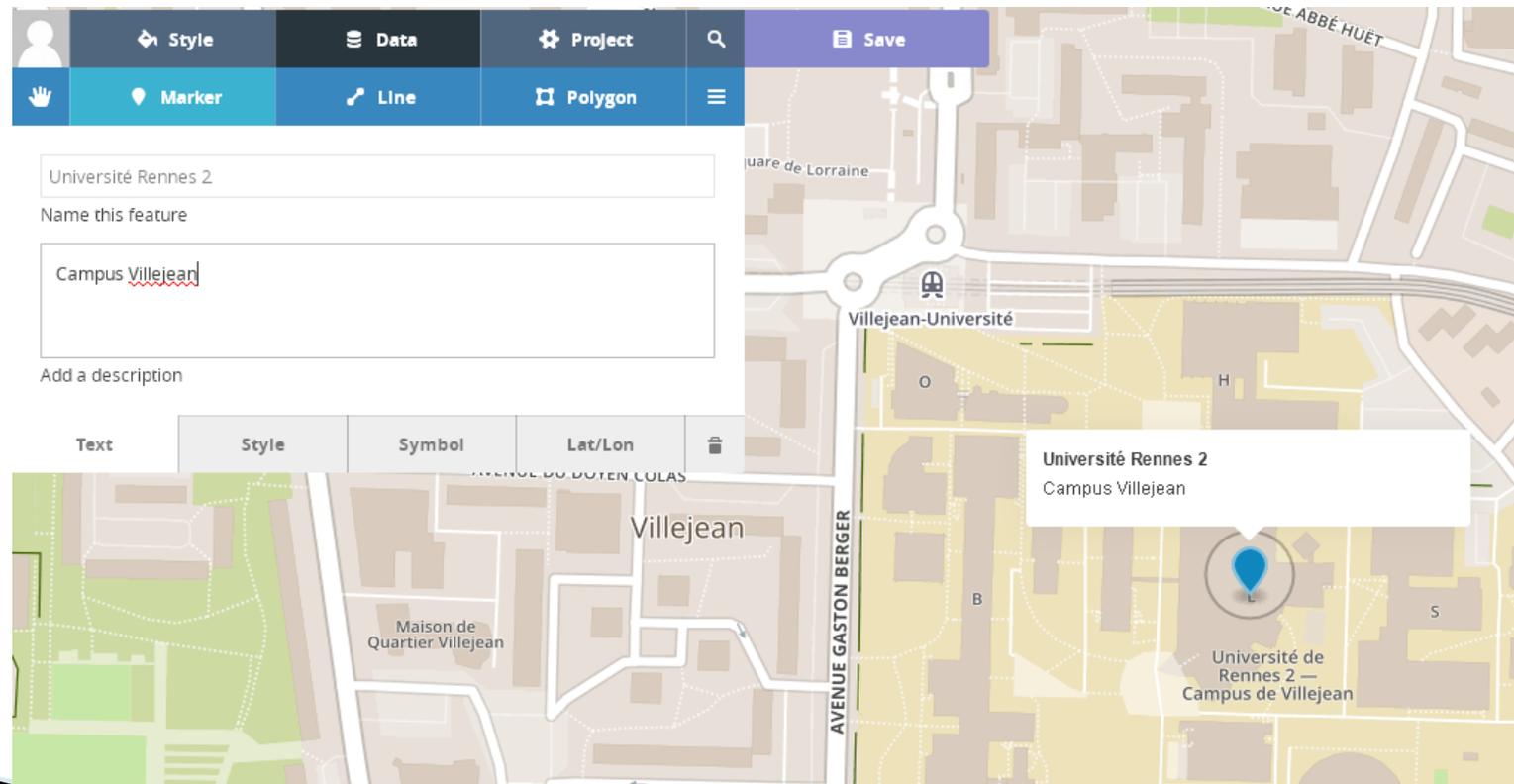
# Ajouter un marqueur

- ▶ Zoomer sur le campus et ajouter un marqueur



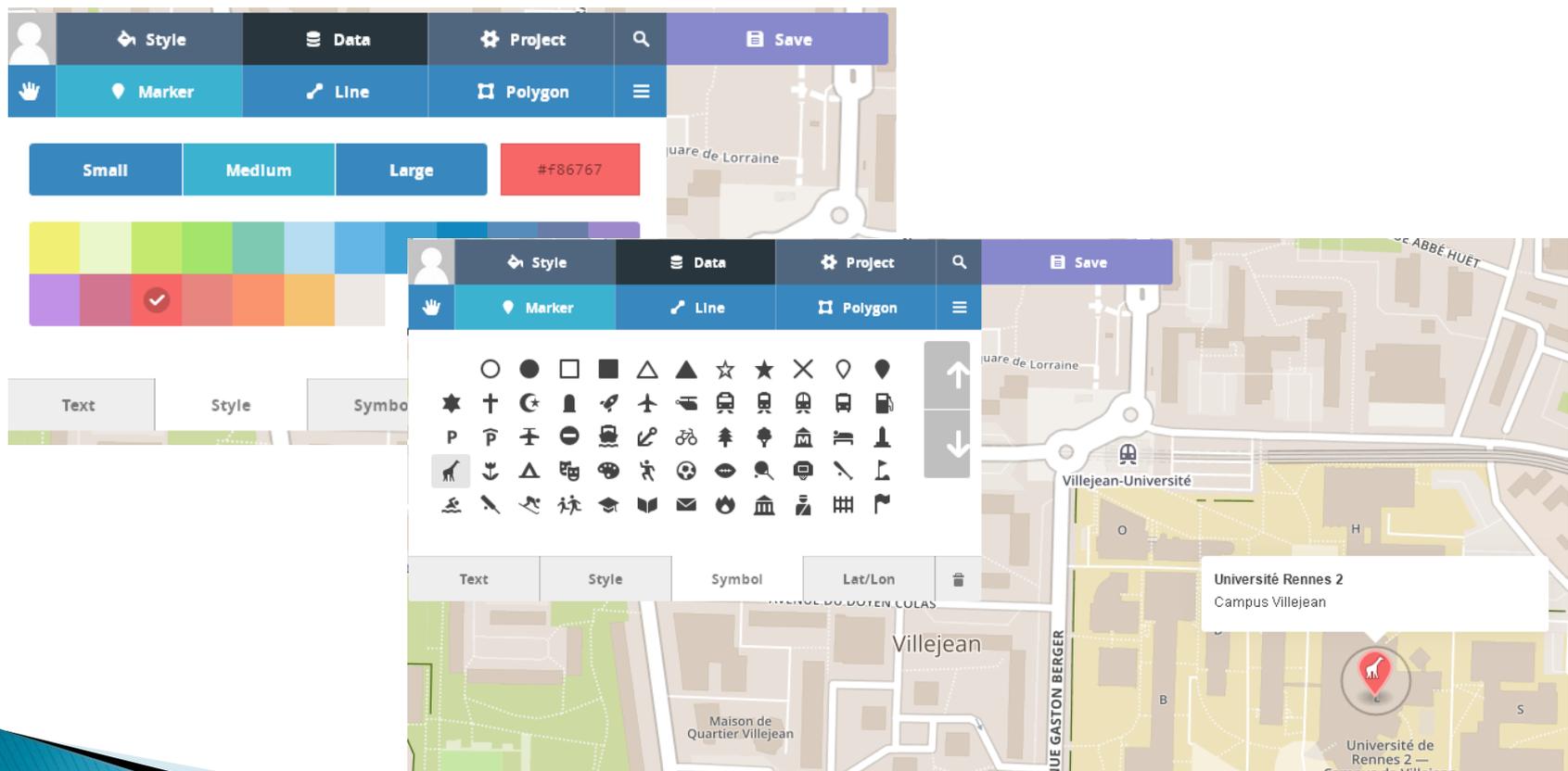
# Renseigner le marqueur

- ▶ Décrivez le point (nom, description)



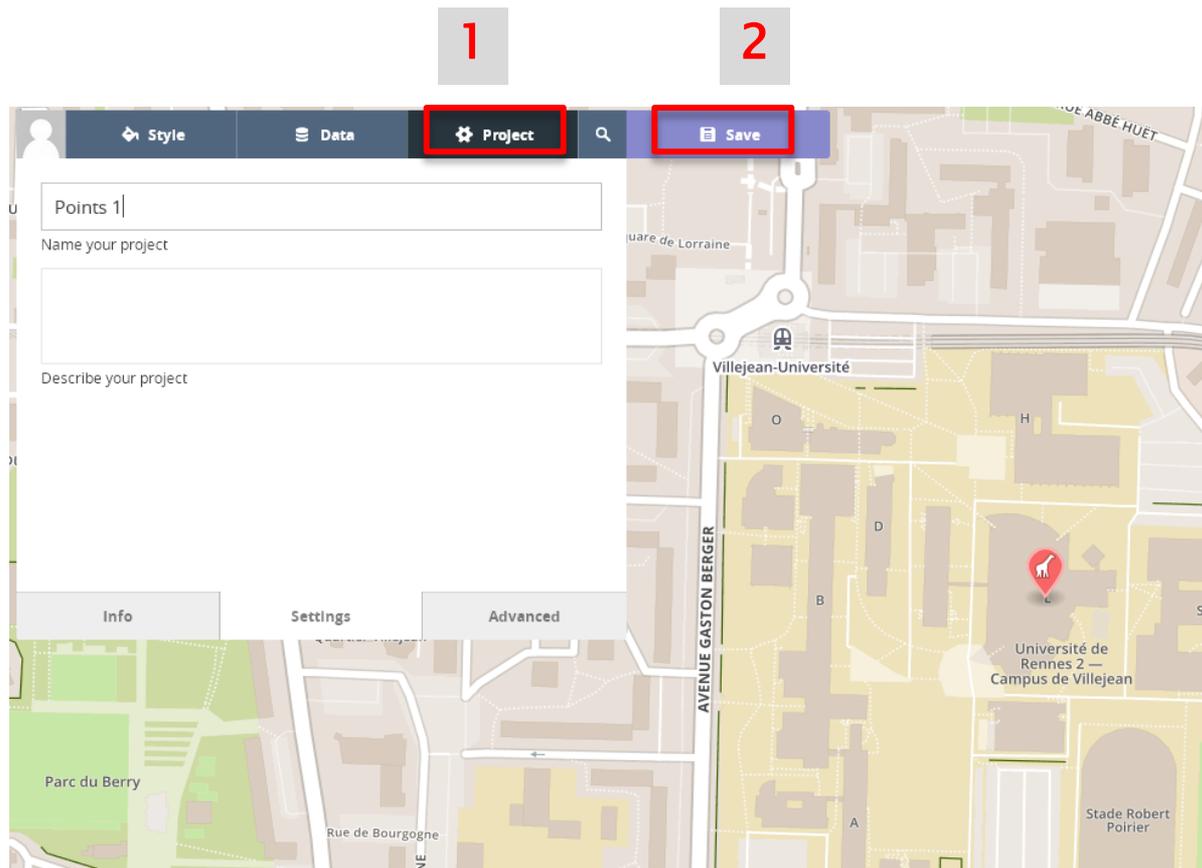
# Personnaliser le marqueur

- ▶ Changer la couleur et le symbole



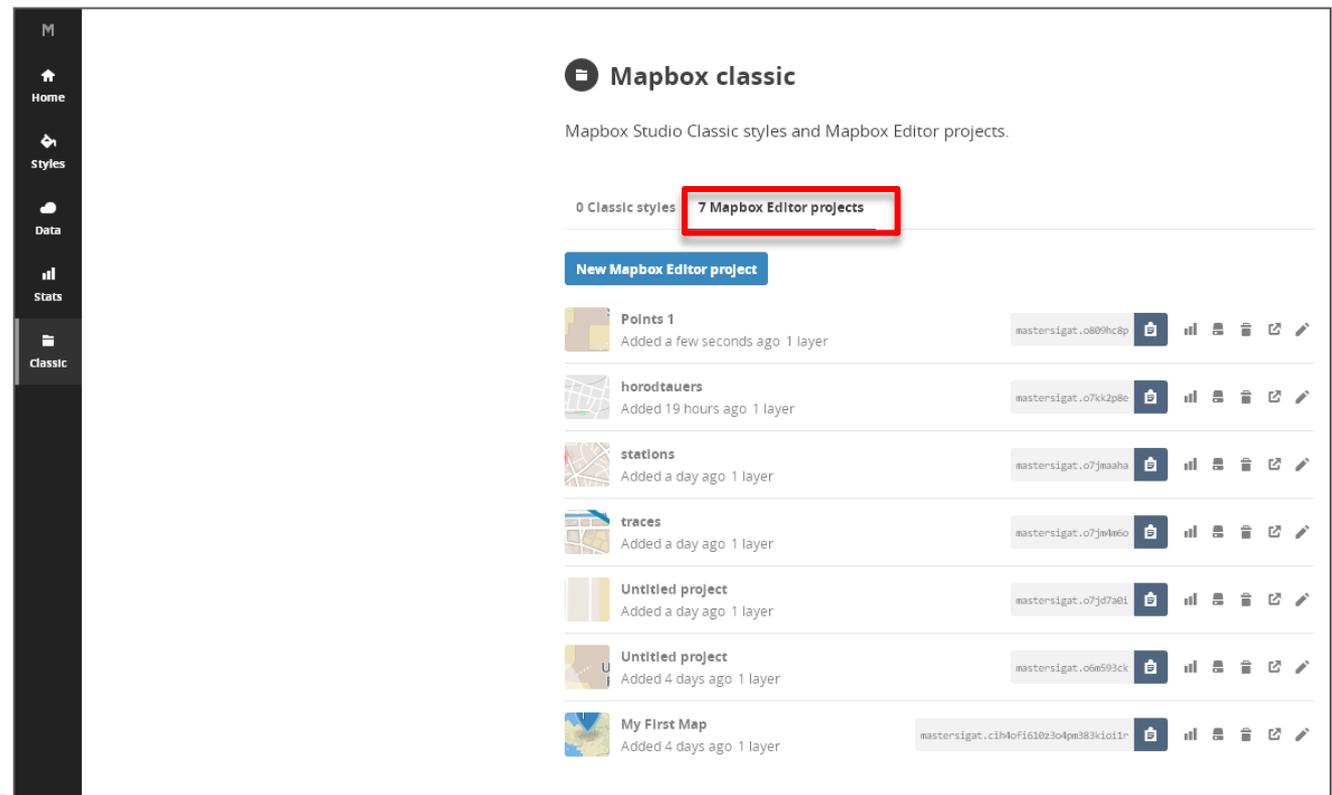
# Projet Mapbox

- ▶ Donnez un nom à votre projet et enregistrer



# Projet Mapbox

- ▶ Votre projet est maintenant disponible dans vos données

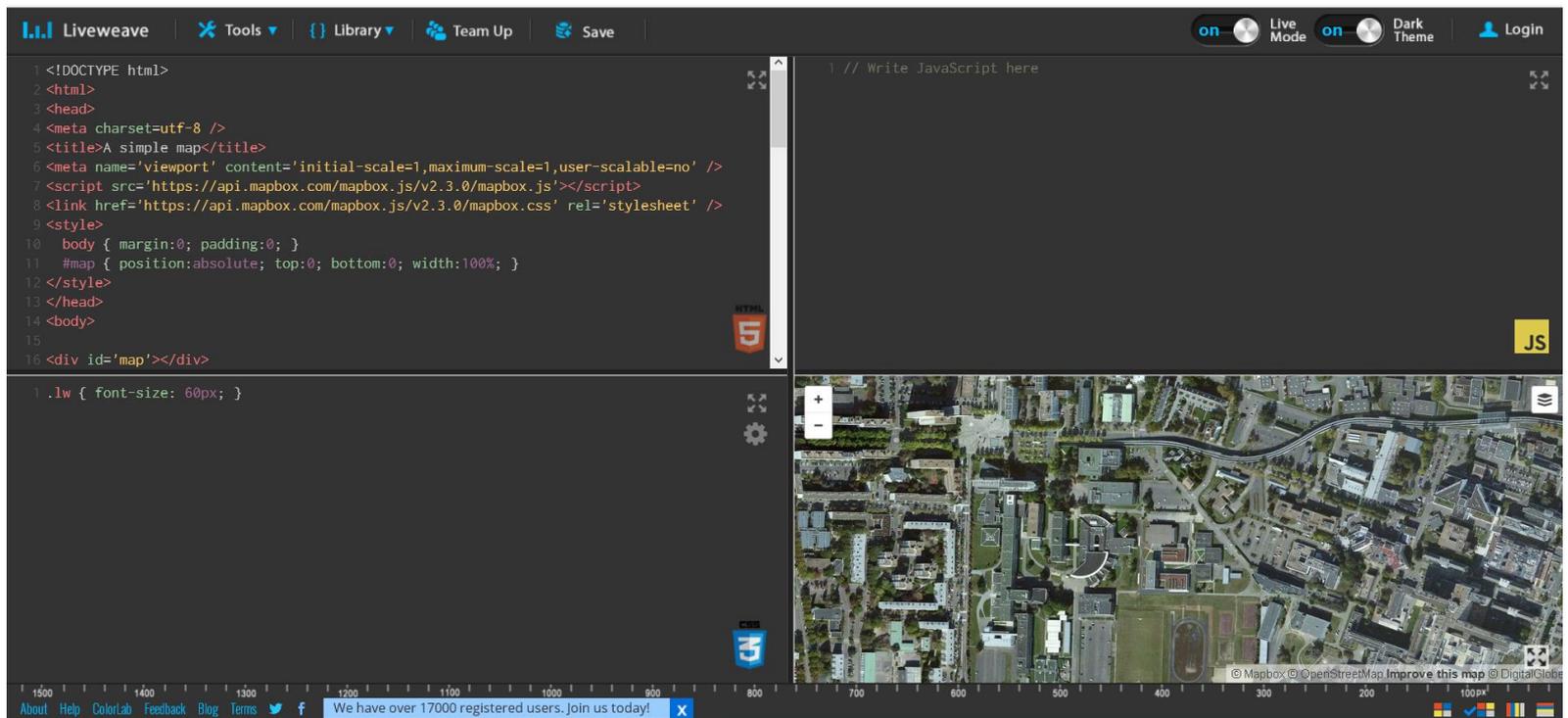


The screenshot displays the Mapbox Studio Classic interface. On the left is a dark sidebar with navigation icons for Home, Styles, Data, Stats, and Classic. The main content area is titled "Mapbox classic" and includes the subtitle "Mapbox Studio Classic styles and Mapbox Editor projects." Below this, there are two counts: "0 Classic styles" and "7 Mapbox Editor projects", with the latter highlighted by a red rectangular box. A blue button labeled "New Mapbox Editor project" is positioned above a list of seven projects. Each project entry includes a small map icon, the project name, the time it was added, a unique ID, and a set of action icons (share, refresh, delete, etc.).

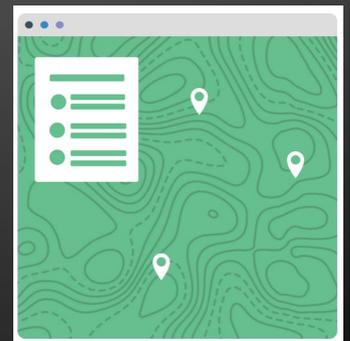
Project Name	Added	Layer Count	ID
Points 1	Added a few seconds ago	1 layer	mastersigat.o809hc8p
horodtauers	Added 19 hours ago	1 layer	mastersigat.o7k2p8e
stations	Added a day ago	1 layer	mastersigat.o7jeaaha
traces	Added a day ago	1 layer	mastersigat.o7je4n6o
Untitled project	Added a day ago	1 layer	mastersigat.o7jd7a8i
Untitled project	Added 4 days ago	1 layer	mastersigat.o6n593ck
My First Map	Added 4 days ago	1 layer	mastersigat.ci14ofi610z3o4pm383kioi1r

# 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 !



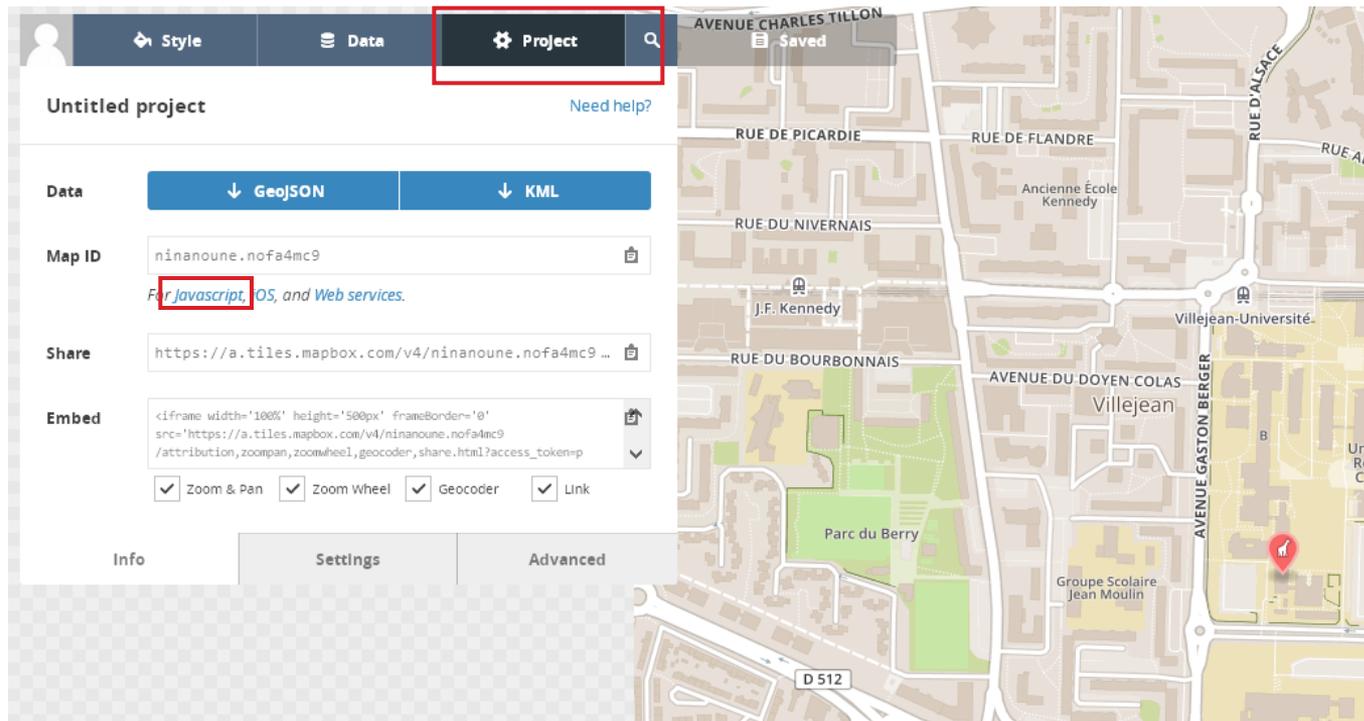
```
L.mapbox.accessToken = 'pk.eyJ1Ijoibm1uYW5vdW4iLCJhIjo1SkN4dndmTSJ9.6p1St07M5AuaAbDa601m54A';
var map = L.mapbox.map('map', 'mapbox.light').setView([48.11,-1.66], 13);
// Ajouts des WMS

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);
```

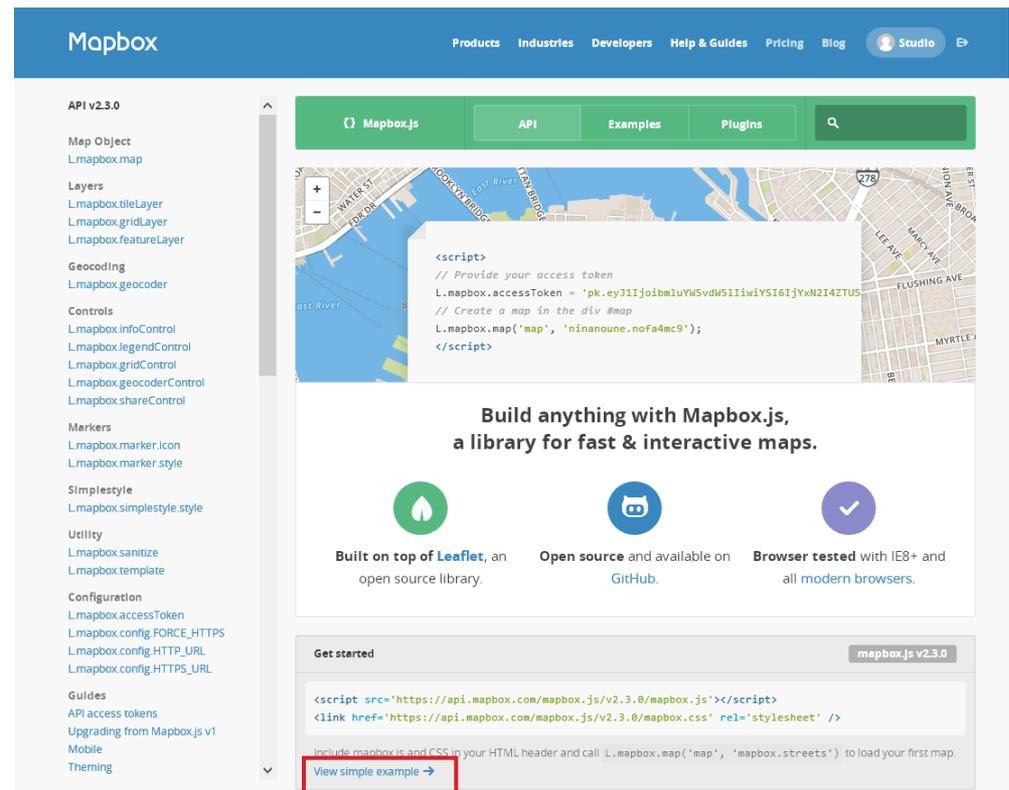
# Passer en HTML

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



# Passer en HTML

- ▶ Explorer la documentation
  - Aller voir un modèle existant



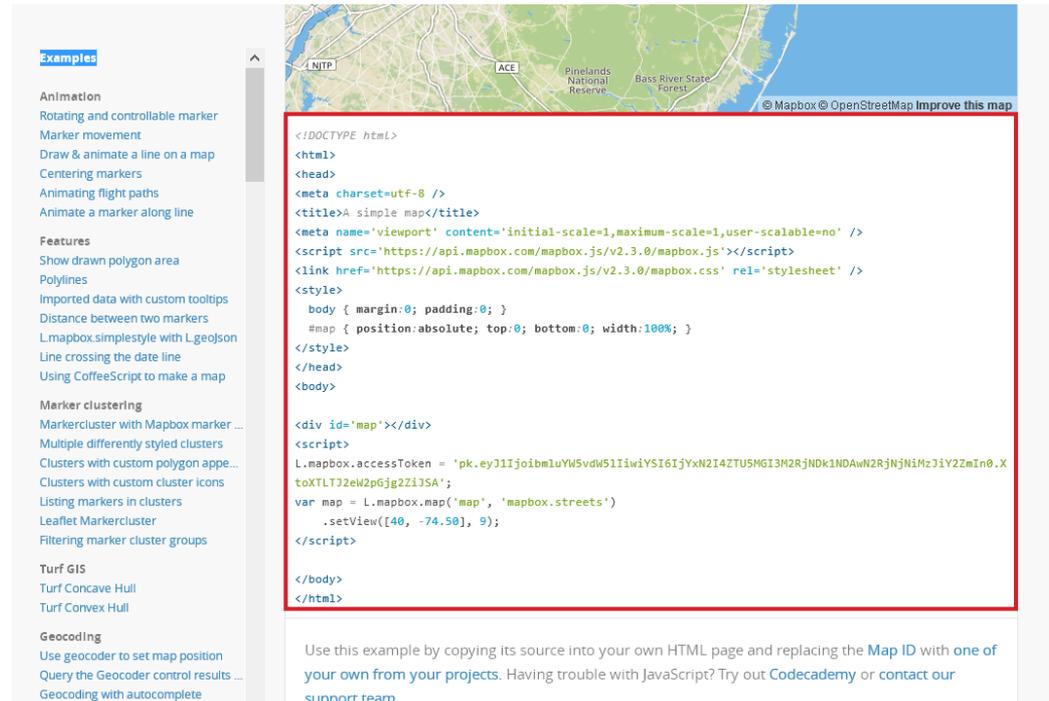
The screenshot shows the Mapbox documentation website. The top navigation bar includes 'Products', 'Industries', 'Developers', 'Help & Guides', 'Pricing', 'Blog', and 'Studio'. The left sidebar lists the 'API v2.3.0' section with various sub-entries like 'Map Object', 'Layers', 'Geocoding', 'Controls', 'Markers', 'Simplestyle', 'Utility', 'Configuration', 'Guides', and 'Theming'. The main content area features a green header with 'Mapbox.js', 'API', 'Examples', and 'Plugins' tabs. Below this is a map of New York City with a code editor overlay showing the following JavaScript code:

```
<script>
// Provide your access token
L.mapbox.accessToken = 'pk.eyJ1IjoibmluYV5vdW51IiwiaW51IjYxN2I4ZTU5';
// Create a map in the div #map
L.mapbox.map('map', 'ninanoune.nofa4mc9');
</script>
```

Below the code editor, the text reads: "Build anything with Mapbox.js, a library for fast & interactive maps." This is followed by three icons and their descriptions: "Built on top of Leaflet, an open source library.", "Open source and available on GitHub.", and "Browser tested with IE8+ and all modern browsers." Below this is a "Get started" section with a "mapbox.js v2.3.0" button and a code block showing the HTML header tags for Mapbox.js and CSS. A red box highlights a link that says "View simple example →".

# Passer en HTML

- ▶ Récupérer un modèle existant
  - Copier le code HTML



The screenshot displays a Mapbox example page. On the left is a sidebar with a list of examples under the heading "Examples". The main content area shows a map of a coastal region with labels for "INTP", "ACE", "Pinelands National Reserve", and "Bass River State Forest". Below the map is a code editor containing the HTML and JavaScript code for the map. The code includes a DOCTYPE declaration, HTML and head tags, a meta charset declaration, a title, a viewport meta tag, and script and link tags for Mapbox JS and CSS. The JavaScript code initializes a Mapbox map and sets its view to a specific location.

```
<!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.eyJ1Ijoibm1uYW5vdM51Iiw1YSI6IjYxN2I4ZTU5MGI3M2RjNDk1NDAwN2RjNjNiMzJiV2ZmIn0.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.eyJ1IjoibmluYW5vdW51IiwiaW50IjYxN2I4ZTU5MGI3M2RjNDk1NDAwN2RjNjNiMzJiY2ZmIn0.XtoXLTJTJ2eW2pGig2ZiJ3SA';
  var map = L.mapbox.map('map', 'mapbox.streets')
    .setView([40, -74.50], 9);
</script>
</body>
</html>
```

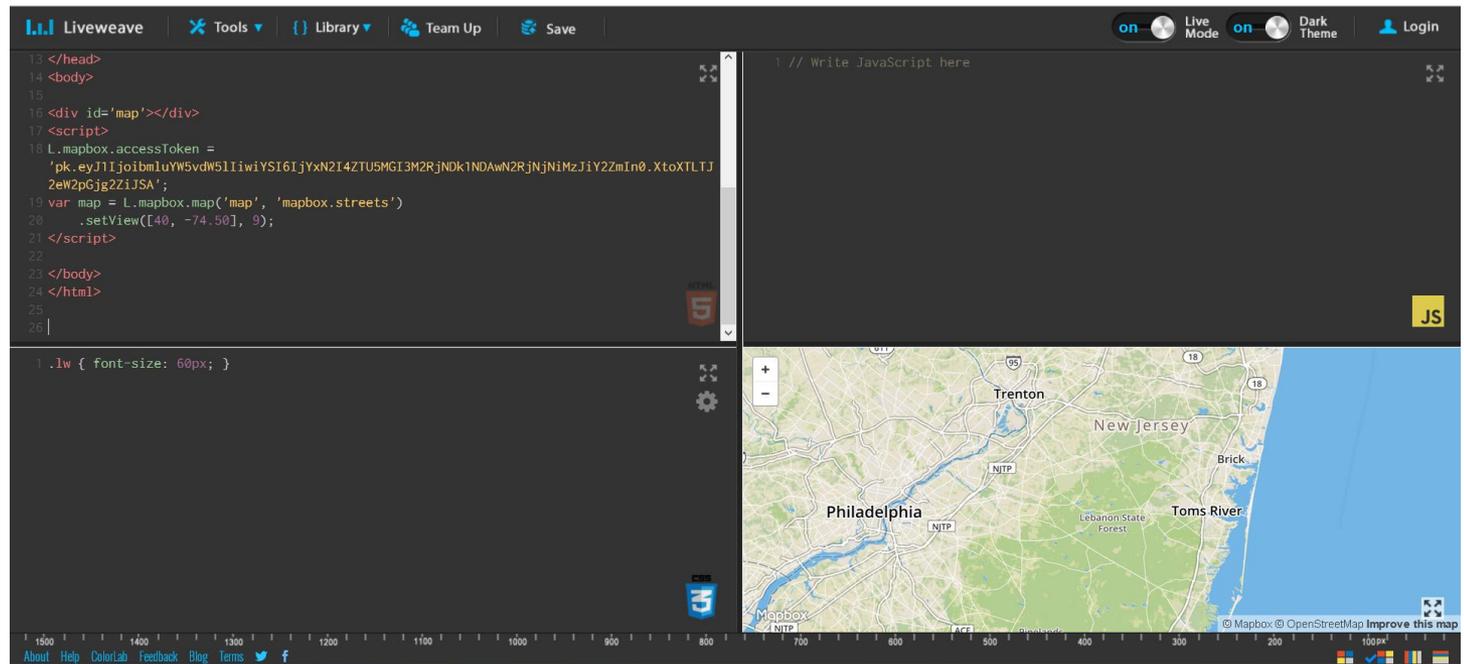
Conteneur carte

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 a web development environment with two main panels. The left panel shows the HTML code for a map, and the right panel shows a live preview of the map.

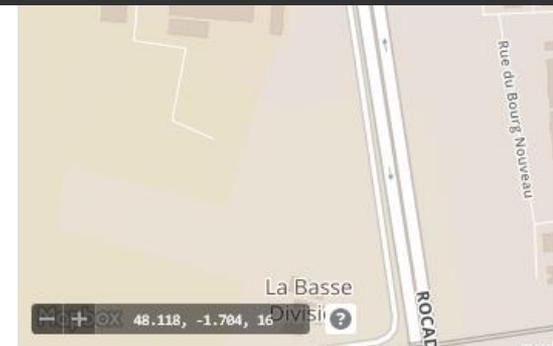
```
1 <!DOCTYPE html>
2 <html>
3 <head>
4 <meta charset=utf-8 />
5 <title>A simple map</title>
6 <meta name='viewport' content='initial-scale=1,maximum-scale=1,user-scalable=no' />
7 <script src='https://api.mapbox.com/mapbox.js/v2.3.0/mapbox.js'></script>
8 <link href='https://api.mapbox.com/mapbox.js/v2.3.0/mapbox.css' 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   L.mapbox.accessToken =
19     'pk.eyJ1IjoibmluYW5vdW51IiwiaW50IjYxN2I4ZTU5MGI3M2RjNDk1NDAnRjNjNiMzJiY2ZmIn0.XtoXLTJJ2
20     W2pGjg2ZiJSA';
21   var map = L.mapbox.map('map', 'mapbox.streets')
22     .setView([40, -74.5], 9);
23 </script>
24 </body>
25 </html>
26
```

The right panel shows a live preview of the map, displaying a street view of the Philadelphia area. The map includes labels for Philadelphia, Trenton, Middletown, Brick, Toms River, and Atlantic City. The map is styled with a light green and blue color scheme. The interface includes a toolbar with zoom in (+) and zoom out (-) buttons, a scale bar, and a copyright notice: "Mapbox © OpenStreetMap Improve this map".

# 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.eyJ1IjoibWFzZGVyc2lnYXQiLCJhIjoieY2loNG9mamxwMHP2dHgxbTBjY2h1b2Rteij9.dDYK0X9907pbT6sTAJ4fvA';
19 var map = L.mapbox.map('map', 'mapbox.streets')
20 .setView([48.12, -1.70], 16);
```







# 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 <script>
18
19
20 L.mapbox.accessToken =
  'pk.eyJ1IjoibWFzZGVyc2lnYXQzLCJhIjo1Y2loNG9mamxwMHP2dHgxbTBjY2h1b2Rte1J9.dDYKXX9907pbT6sTAJ4fvA';
21
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   ]
36 }).addTo(map);
37
38 </script>
39
40 </body>
41 </html>
42
43
```



# Afficher plusieurs marqueurs

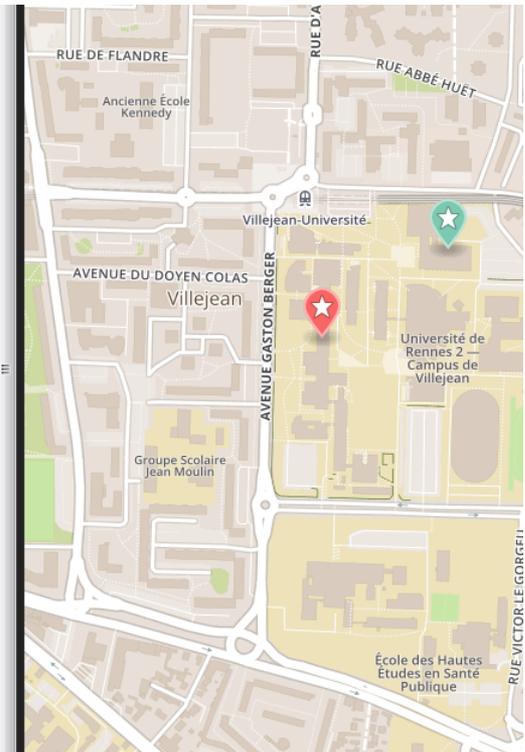
- ▶ Ligne de commande pour afficher plusieurs marqueurs

```
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

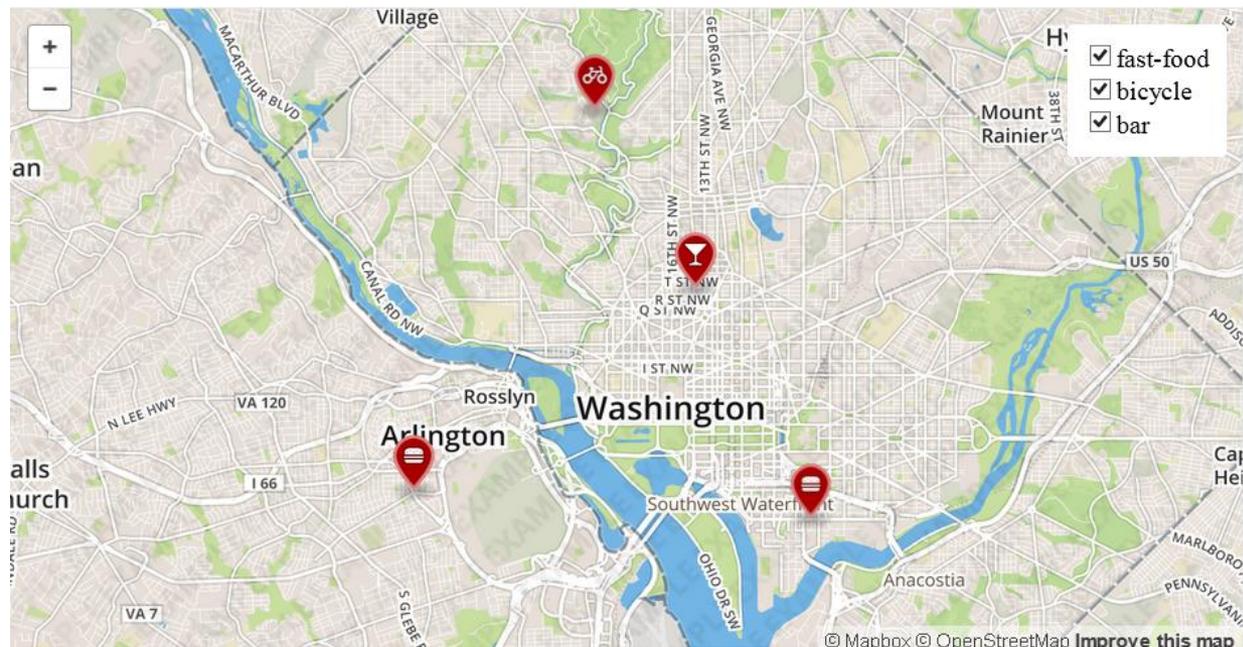
```
18 <script>
19
20 L.mapbox.accessToken =
21   'pk.eyJ1IjoibWFzdGVyc2lnYXQ1LjIjIjo1Y21oNG9mamxwMHp2dHgxbTBjY2h1b2RteiJ9.dDYkXX9907pbT6sTAJ4fvA';
22
23 var map = L.mapbox.map('map', 'mapbox.streets')
24   .setView([48.12, -1.70], 16);
25
26
27 L.mapbox.featureLayer({type: 'FeatureCollection', features: [
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

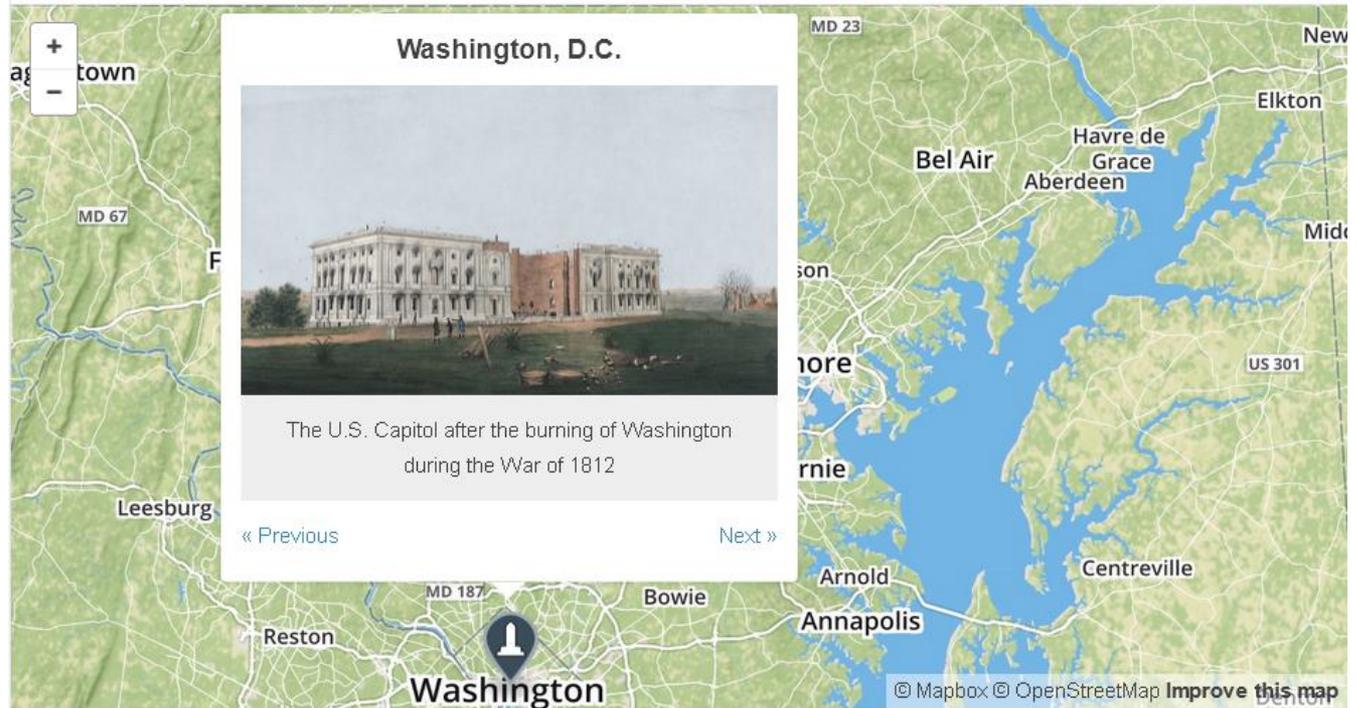
<https://www.mapbox.com/mapbox.js/example/v1.0.0/non-exclusive-markers/>



# Aller plus loin

## ▶ Marqueur interactifs

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





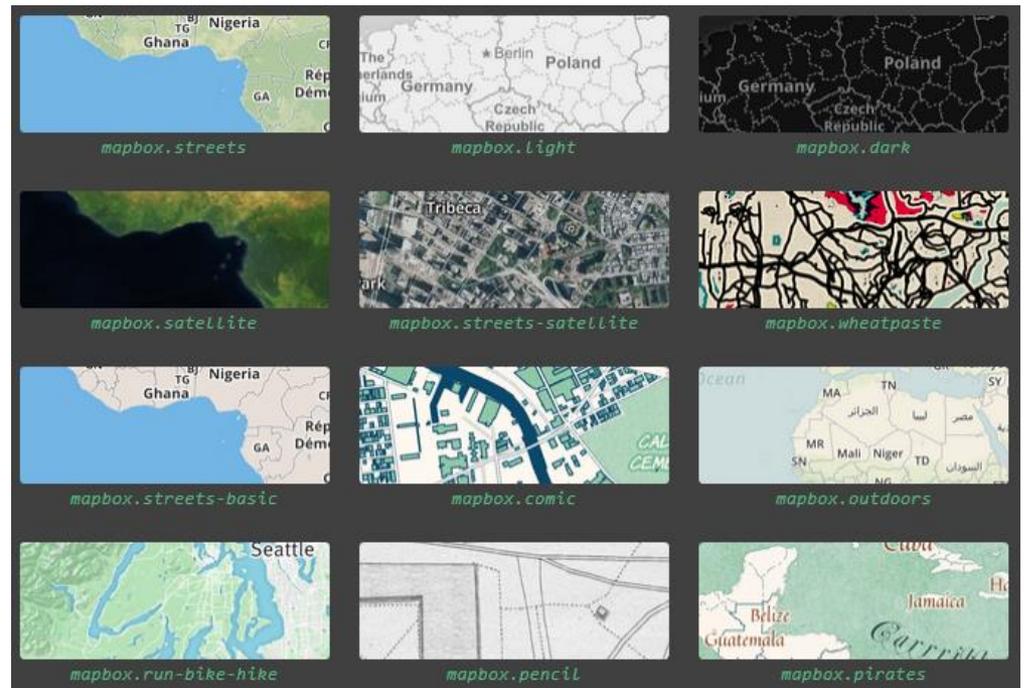
Ajouter des  
fonds de carte



# 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/>

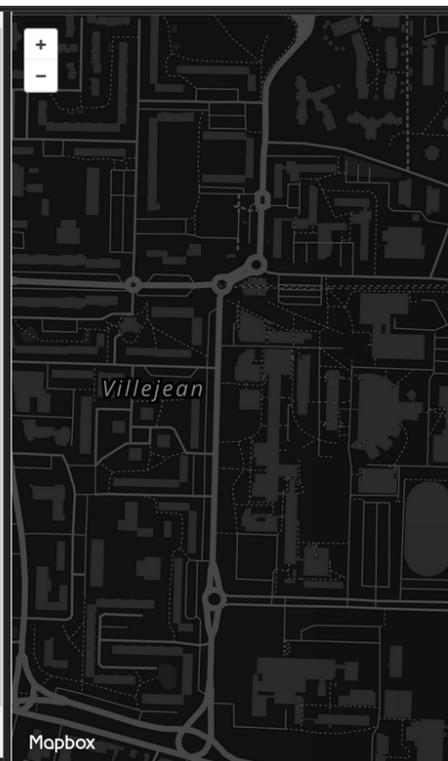


# Fonds de carte

- ▶ 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.XtoXLTJz
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 = L.mapbox.tileLayer('mapbox.dark').addTo(map);
29
30 </script>
31 </body>
32 </html>
```



# Fonds de carte

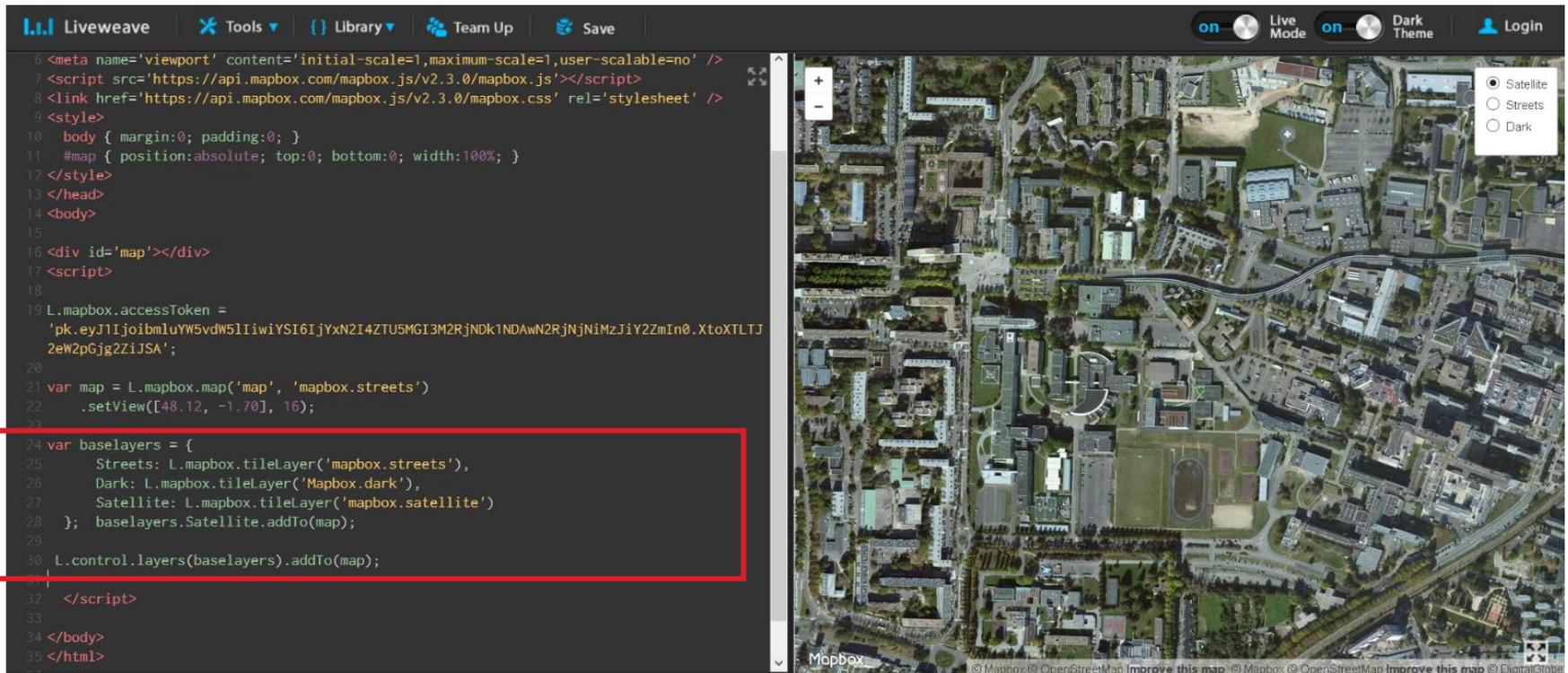
- ▶ Appel de plusieurs fonds de carte

```
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



The image shows a web editor interface with a code editor on the left and a map view on the right. The code editor contains HTML and JavaScript code for a Mapbox map. A red box highlights the `baselayers` object definition. The map view shows a satellite image of a city with a control panel on the right.

```
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.eyJ1IjoibmluY5V5dW5lIiwiaW50IjYxN2I4ZTU5MGI3M2RjNDk1NDAwN2RjNjN1MzJiY2ZmIn0.XtoXTLTJ
21   2eW2pGjg2ZiJSA';
22
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 }; baselayers.Satellite.addTo(map);
29
30 L.control.layers(baselayers).addTo(map);
31
32 </script>
33
34 </body>
35 </html>
```

The map view on the right shows a satellite image of a city. A control panel on the right side of the map has three options:  Satellite,  Streets, and  Dark. The map view also includes a zoom control (plus and minus buttons) and a Mapbox logo at the bottom left.

# Fonds de carte

- ▶ Des choix de fonds de carte infinis

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

[Leaflet-providers preview](#)

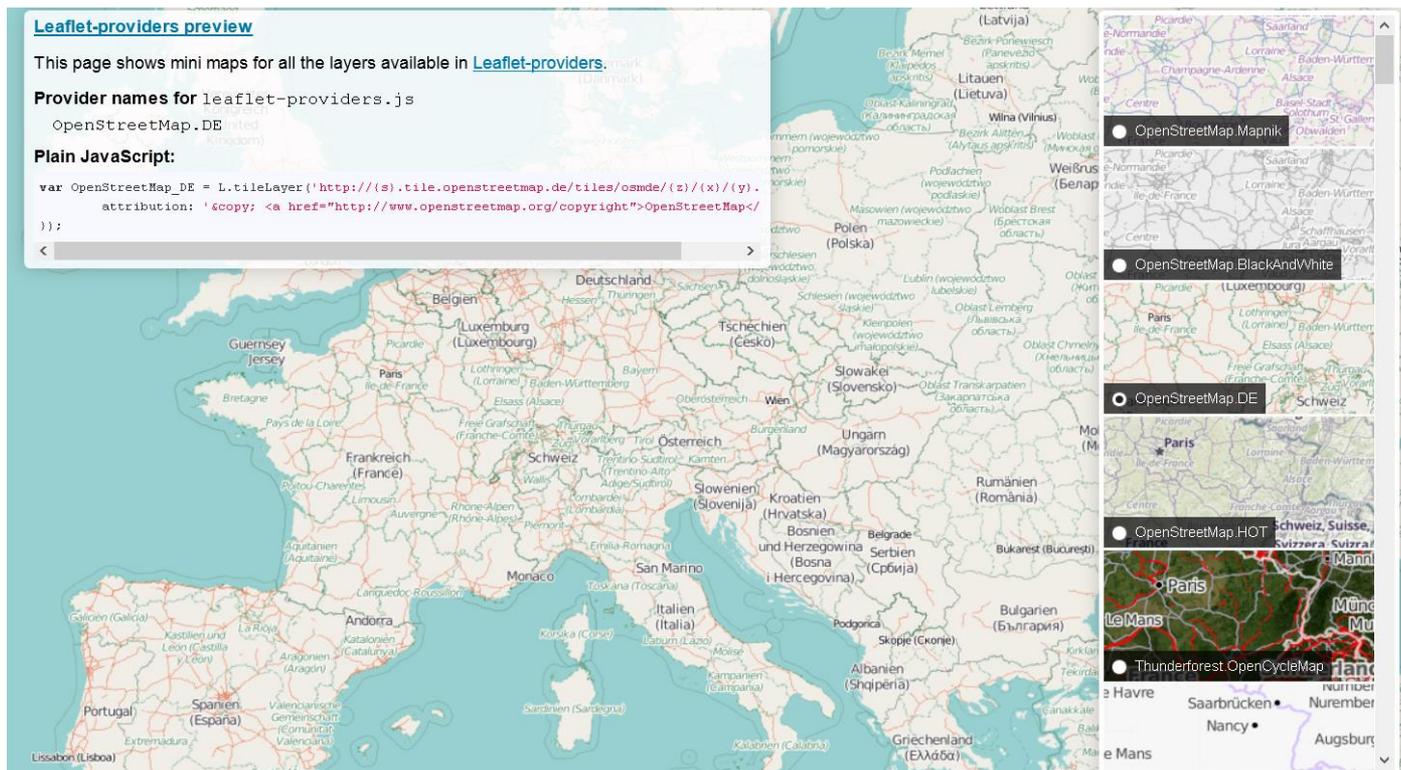
This page shows mini maps for all the layers available in [Leaflet-providers](#).

**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 interface. It features a main map of Europe with various map styles applied. On the right side, there is a vertical sidebar containing a list of map providers, each with a small thumbnail and a radio button for selection. The providers listed include:

- OpenStreetMap Mapnik
- OpenStreetMap BlackAndWhite
- OpenStreetMap.DE
- OpenStreetMap.HOT
- Thunderforest OpenCycleMap

The main map shows a detailed view of Europe, with labels for various countries and regions in multiple languages, including German, French, and English. The map is rendered in a light, clean style with clear lines and text.

# 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')
```

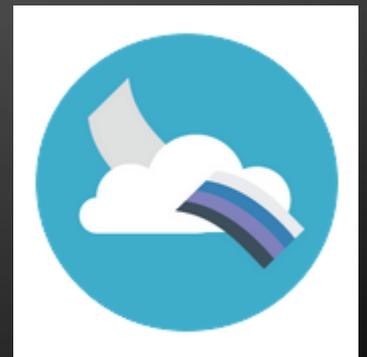
The image shows a screenshot of a web editor (LiveWeave) displaying code for a Mapbox map. The code includes a meta tag for viewport, Mapbox JS and CSS links, and a script that initializes a map and adds several baselayers: 'mapbox.streets', 'Mapbox.dark', 'mapbox.satellite', and an external OpenStreetMap tile layer. A red box highlights the external tile layer code. The right side of the image shows a map view of the Villejean area in Rennes, France, with various landmarks and streets visible. The map interface includes controls for zooming, switching between Live Mode and Dark Theme, and a login button.

```
1 <meta name='viewport' content='initial-scale=1,maximum-scale=1,user-scalable=no' />
2 <script src='https://api.mapbox.com/mapbox.js/v2.3.0/mapbox.js'></script>
3 <link href='https://api.mapbox.com/mapbox.js/v2.3.0/mapbox.css' rel='stylesheet' />
4 <style>
5   body { margin:0; padding:0; }
6   #map { position:absolute; top:0; bottom:0; width:100%; }
7 </style>
8 </head>
9 <body>
10 <div id='map'></div>
11 <script>
12 L.mapbox.accessToken =
13   'pk.eyJ1IjoibmluYW5vdW51IiwiaW5SI6iYxN2I4ZTU5MGI3M2RjNDk1NDAnN2RjNjNiMzJiY2ZmIn0.XtoXLTJj
14   2eK2pGjg2ZiJSA';
15
16 var map = L.mapbox.map('map', 'mapbox.streets')
17   .setView([48.12, -1.70], 16);
18
19 var baselayers = {
20   Streets: L.mapbox.tileLayer('mapbox.streets'),
21   Dark: L.mapbox.tileLayer('Mapbox.dark'),
22   Satellite: L.mapbox.tileLayer('mapbox.satellite'),
23   OSM : L.tileLayer('http://{s}.tile.openstreetmap.org/{z}/{x}/{y}.png')
24 }; baselayers.Satellite.addTo(map);
25
26 L.control.layers(baselayers).addTo(map);
27 </script>
```

# 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

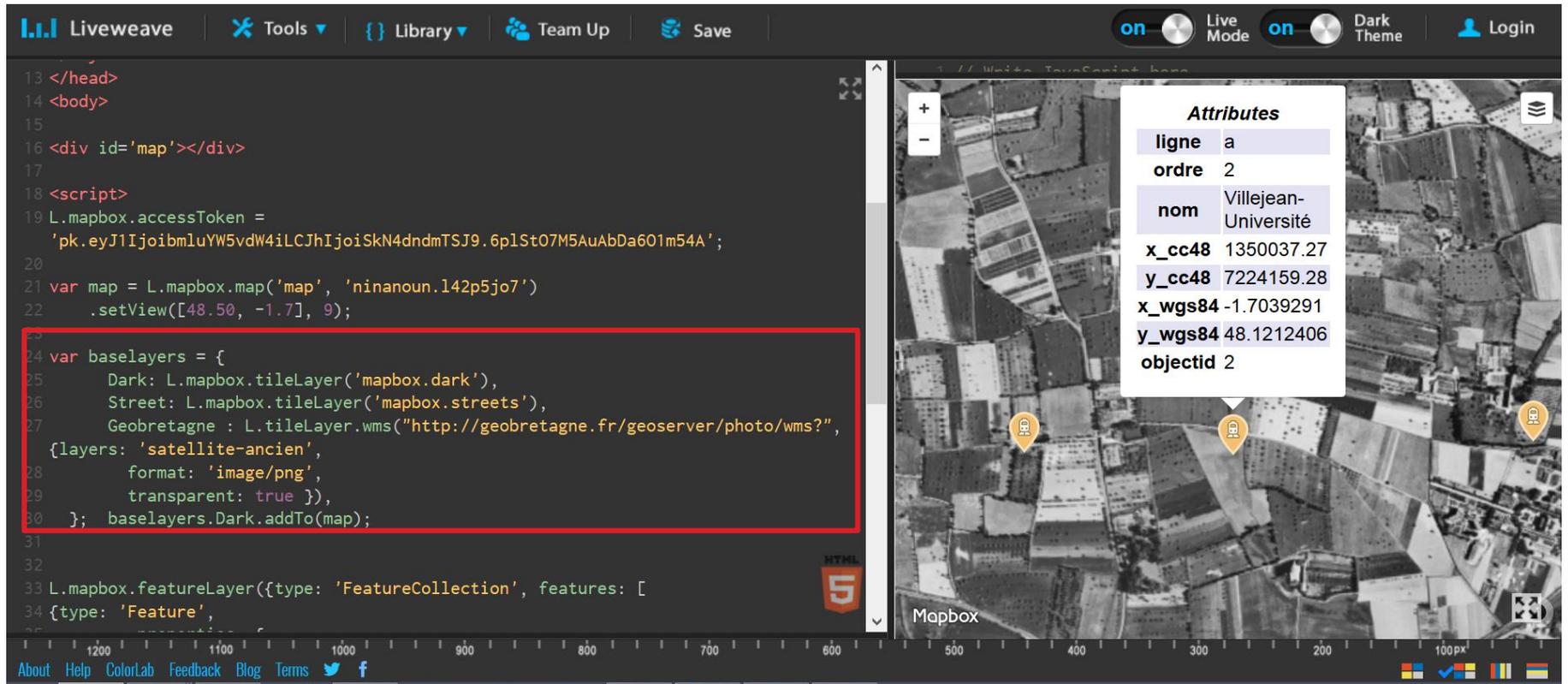
- ▶ Mobiliser le service wms pour afficher le cadastre (Géobretagne)

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

- ▶ Sélectionner la couche à afficher, ici le cadastre

satellite-ancien

# Ajouter un WMS



The image shows a web editor interface with a code editor on the left and a map view on the right. The code editor contains JavaScript code for initializing a Mapbox map and adding a WMS layer. The map view shows a satellite image of a city with a popup window displaying attributes for a selected feature.

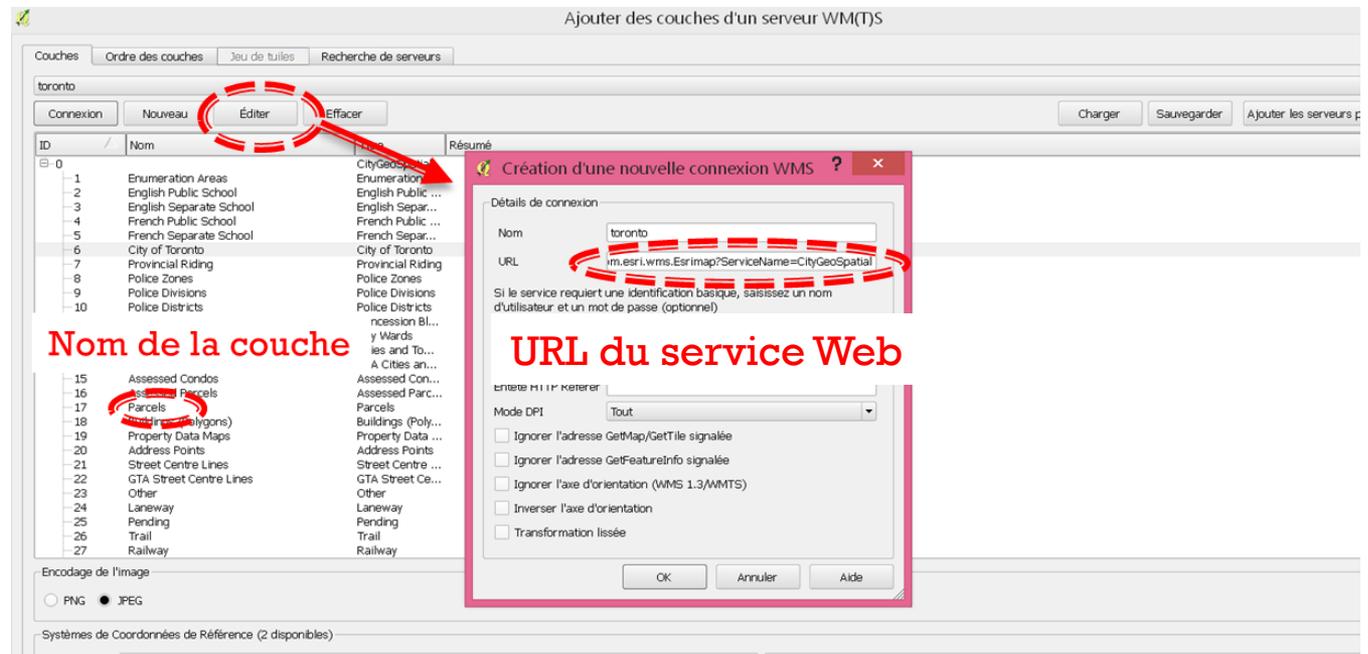
```
13 </head>
14 <body>
15
16 <div id='map'></div>
17
18 <script>
19 L.mapbox.accessToken =
20   'pk.eyJ1IjoibmluYW5vdW4iLCJhIjoiaSkN4dndmTSJ9.6p1St07M5AuAbDa601m54A';
21
22 var map = L.mapbox.map('map', 'ninanoun.142p5jo7')
23   .setView([48.50, -1.7], 9);
24
25 var baselayers = {
26   Dark: L.mapbox.tileLayer('mapbox.dark'),
27   Street: L.mapbox.tileLayer('mapbox.streets'),
28   Geobretagne : L.tileLayer.wms("http://geobretagne.fr/geoserver/photo/wms?",
29     {layers: 'satellite-ancien',
30     format: 'image/png',
31     transparent: true }
32   );
33   baselayers.Dark.addTo(map);
34
35 L.mapbox.featureLayer({type: 'FeatureCollection', features: [
36   {type: 'Feature',
37     geometry: {type: 'Point', coordinates: [48.50, -1.7]},
38     properties: {}
39   }
40 ]}).addTo(map);
41
42 </script>
43 </body>
44 </html>
```

The map view shows a satellite image of a city with a popup window displaying attributes for a selected feature. The popup window is titled "Attributes" and contains the following data:

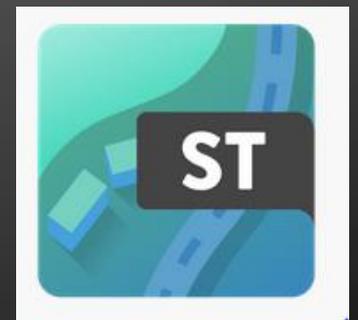
Attributes	
ligne	a
ordre	2
nom	Villejean-Université
x_cc48	1350037.27
y_cc48	7224159.28
x_wgs84	-1.7039291
y_wgs84	48.1212406
objectid	2

# Ajouter un WMS

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

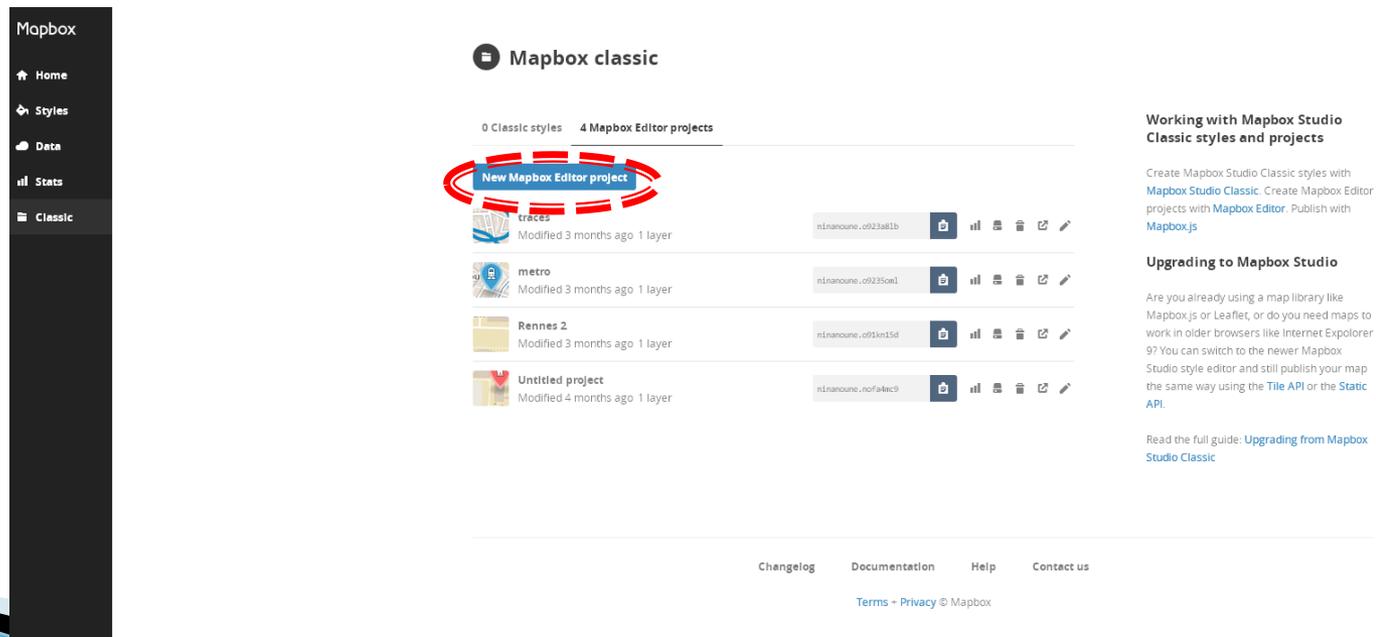


» Ajouter des données  
personnelles



# Ajouter des données personnelles

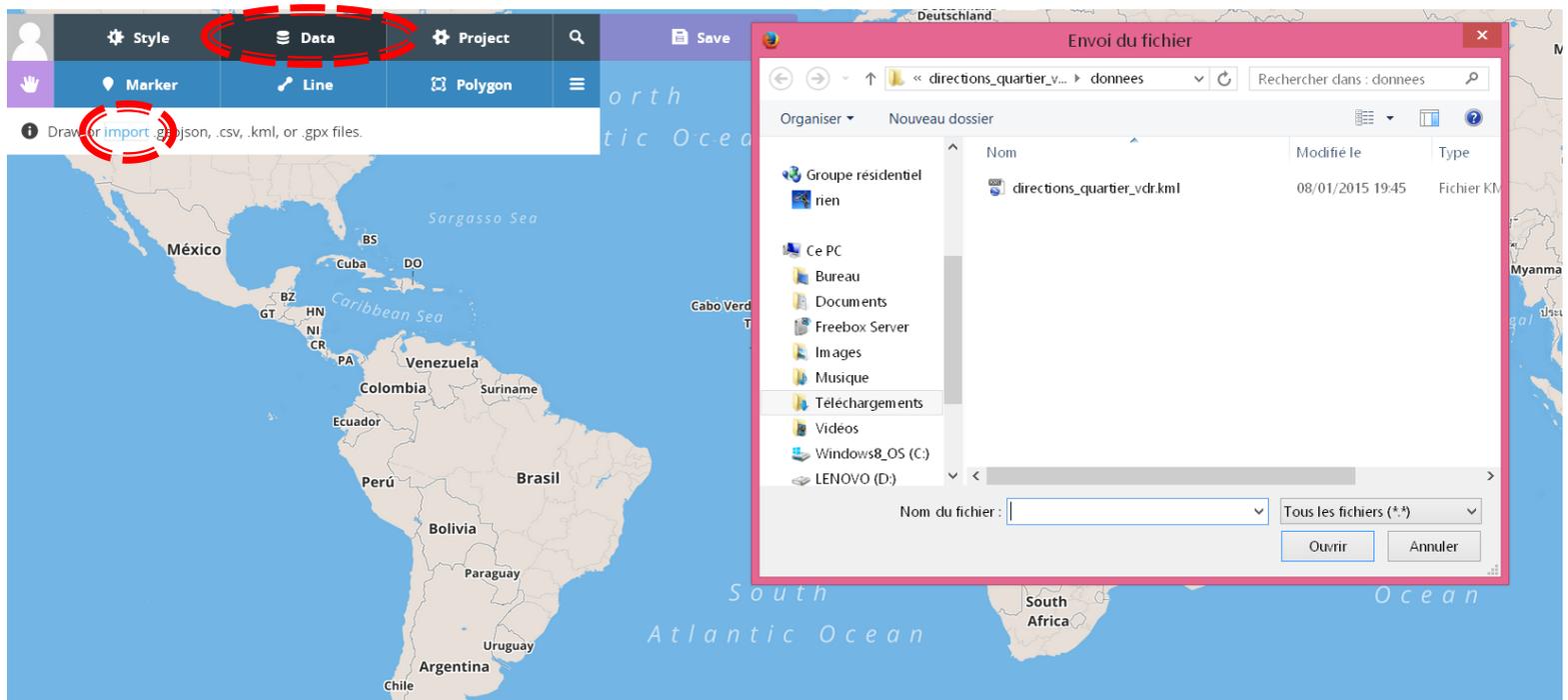
- ▶ Vous devez créer un projet par couche de données
  - Une couche de ponctuels (stations de métros)
  - Une couche de linéaires (lignes de métros)



The screenshot displays the Mapbox Classic web interface. On the left is a dark sidebar with navigation options: Home, Styles, Data, Stats, and Classic. The main content area is titled 'Mapbox classic' and shows '0 Classic styles' and '4 Mapbox Editor projects'. A red dashed circle highlights a blue button labeled 'New Mapbox Editor project'. Below this are four project entries: 'traces' (modified 3 months ago, 1 layer), 'metro' (modified 3 months ago, 1 layer), 'Rennes 2' (modified 3 months ago, 1 layer), and 'Untitled project' (modified 4 months ago, 1 layer). Each entry includes a small map icon, a name, a modification date, a layer count, and a unique ID. To the right of the projects list, there are two informational sections: 'Working with Mapbox Studio Classic styles and projects' and 'Upgrading to Mapbox Studio', both with links to guides. At the bottom, there are links for 'Changelog', 'Documentation', 'Help', and 'Contact us', along with 'Terms + Privacy © Mapbox'.

# 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

Title	Description	Style	Symbol
Small	Medium	Large	#7d7d7d

Style each imported marker with a size & color.

↑ Finish importing

## FORME DE L'ELEMENT

### Import features

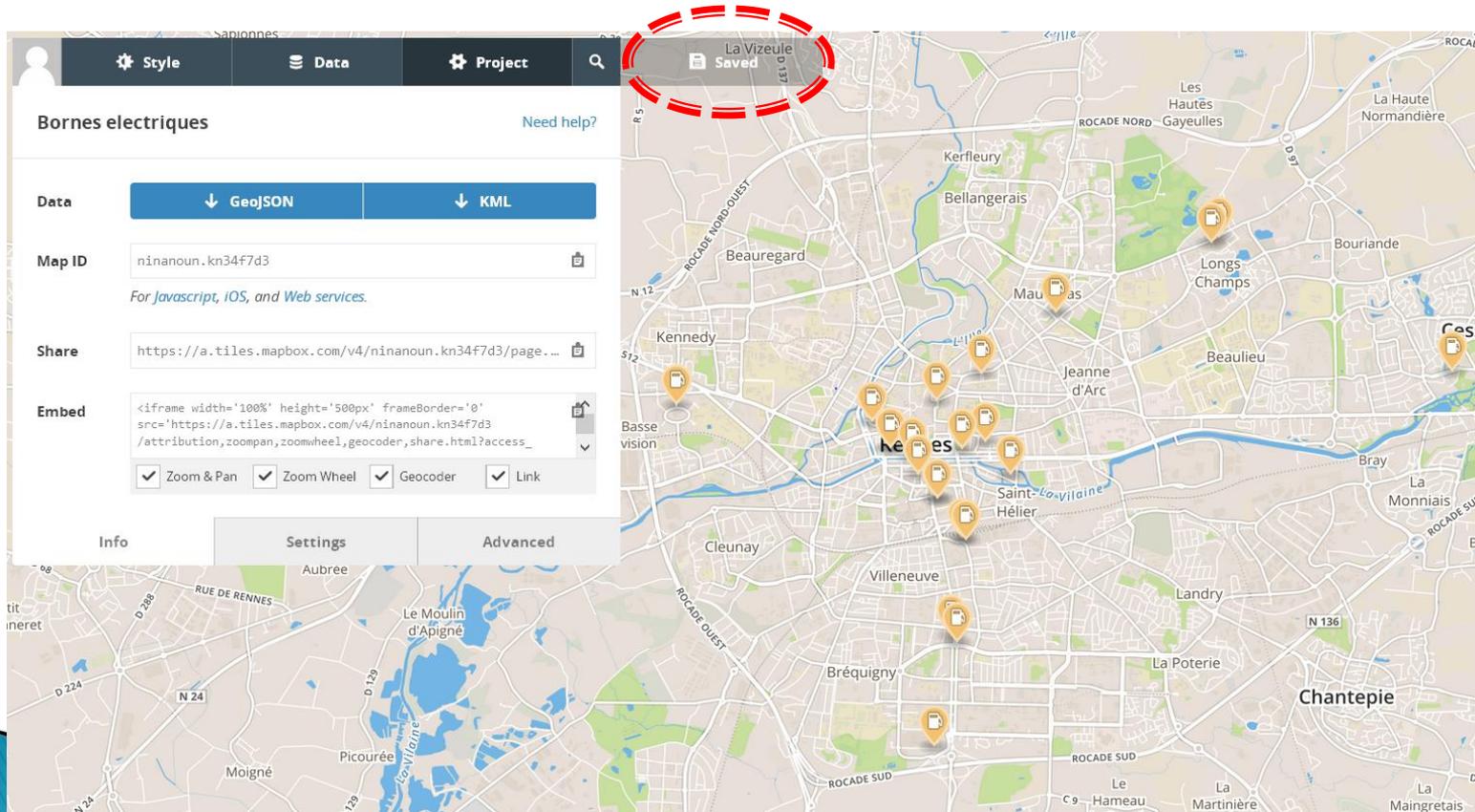
Title	Description	Style	Symbol
-------	-------------	-------	--------

Provide each imported marker with a symbol icon.

↑ Finish importing

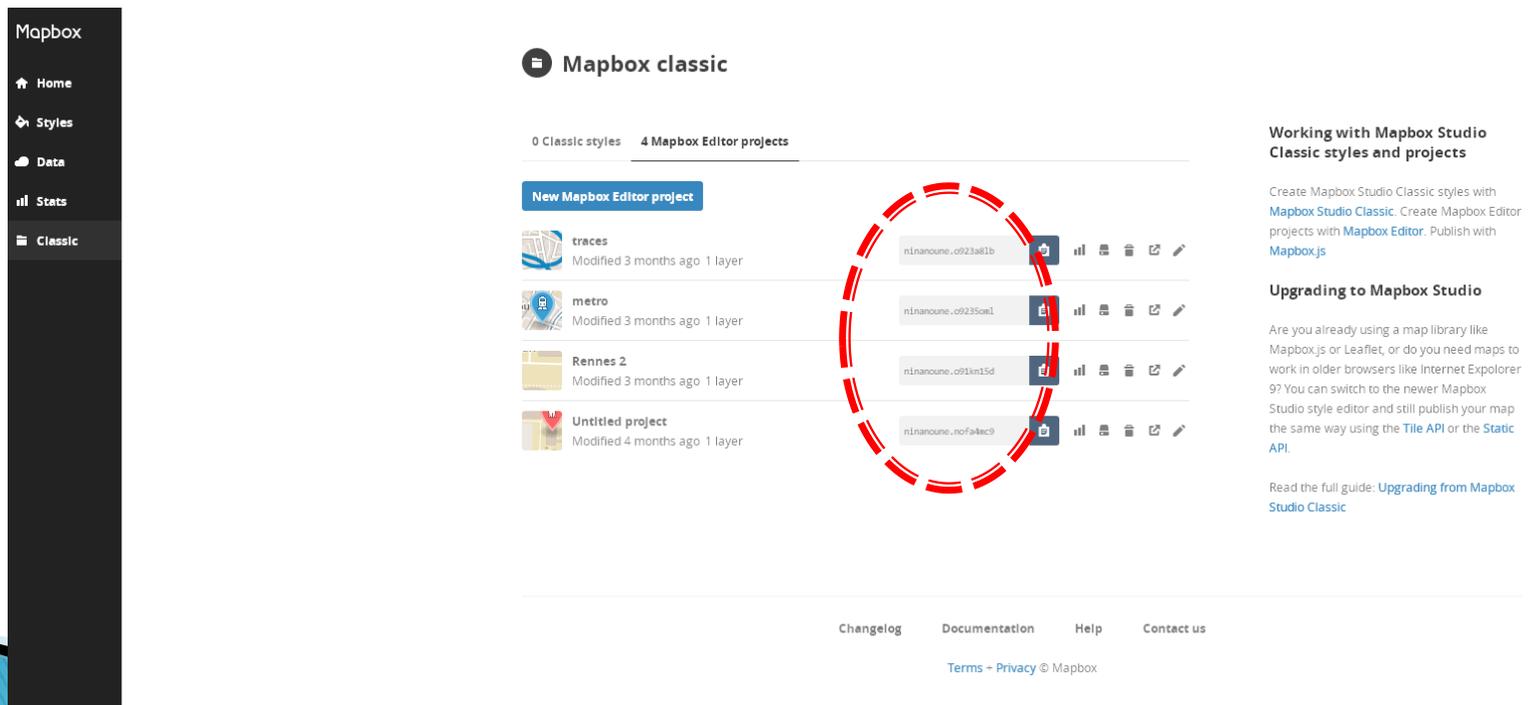
# Ajouter des données personnelles

- ▶ 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 shows the Mapbox Classic 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 '0 Classic styles' and '4 Mapbox Editor projects'. A blue button 'New Mapbox Editor project' is at the top. Below it is a list of projects:

Project Name	Modified	Layers	ID	Actions
traces	Modified 3 months ago	1 layer	n1nanoune..o923a81b	Share, View, Delete, Edit
metro	Modified 3 months ago	1 layer	n1nanoune..o9235on1	Share, View, Delete, Edit
Rennes 2	Modified 3 months ago	1 layer	n1nanoune..o91en15d	Share, View, Delete, Edit
Untitled project	Modified 4 months ago	1 layer	n1nanoune..nofa4ec9	Share, View, Delete, Edit

A red dashed circle highlights the ID field for the 'Untitled project'.

On the right side of the interface, there are two sections:

- 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](#).

At the bottom, there are links for Changelog, Documentation, Help, and Contact us, along with a footer: [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 browser interface with a code editor on the left and a map on the right. The code editor shows the following JavaScript code:

```
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.XtoXLTJj
  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 map on the right shows a satellite view of a city area with a blue line representing a river or canal. A white callout box labeled "Villejean-Université" is positioned over a building. The map interface includes a toolbar with zoom controls, a "Live Mode" toggle, a "Dark Theme" toggle, and a "Login" button. A legend on the right side of the map shows the following options:

- Satellite
- Streets
- Dark
- OSM
- Lignes
- Stations

The code editor has a red box highlighting the overlay configuration code (lines 32-35). The map interface also has a red box highlighting the legend and map controls area.

# Ajouter un WMS

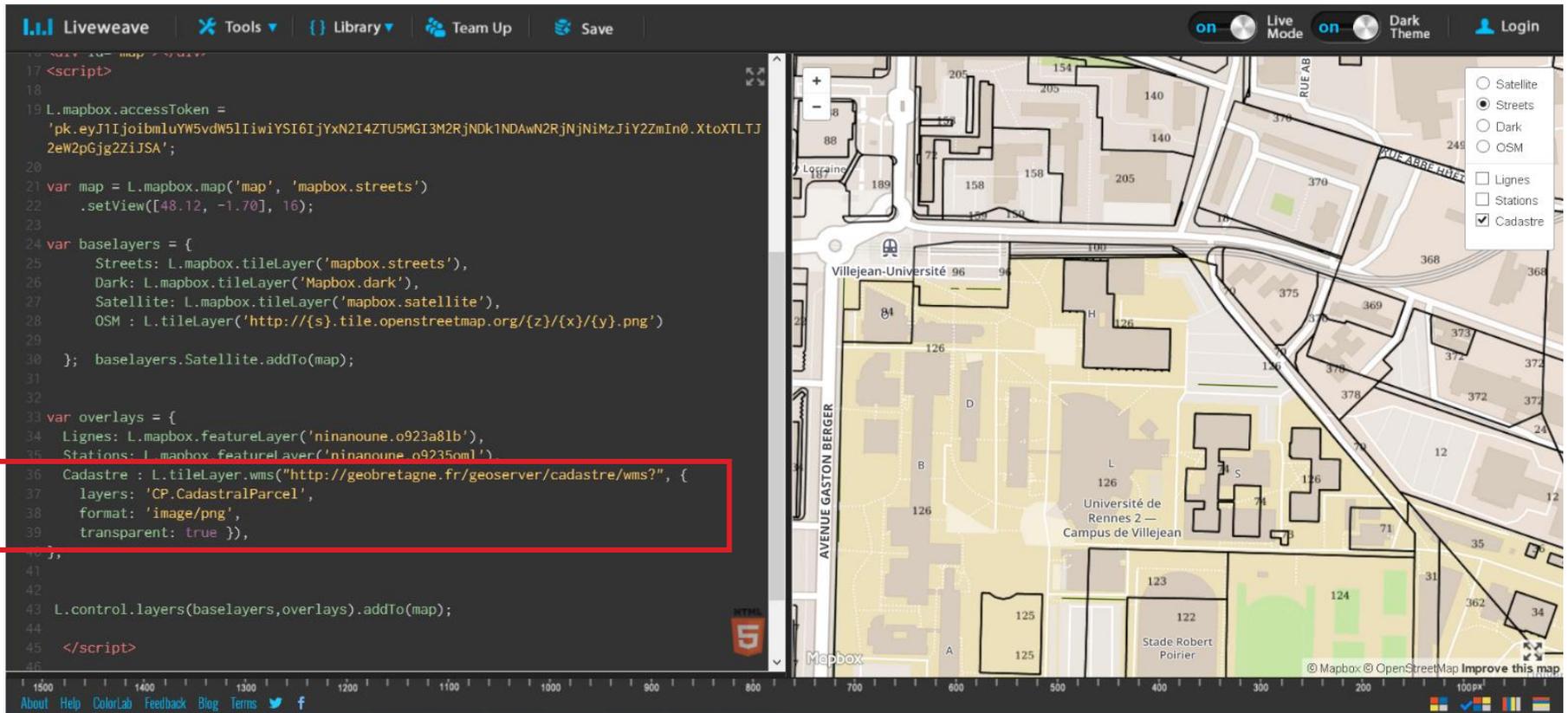
- ▶ Mobiliser le service wms pour afficher le cadastre (Géobretagne)

<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 a map. On the left, a code editor shows JavaScript code for a Leaflet map. The code includes a script tag, an access token, and configurations for baselayers and overlays. A red box highlights the WMS layer configuration in the overlays section.

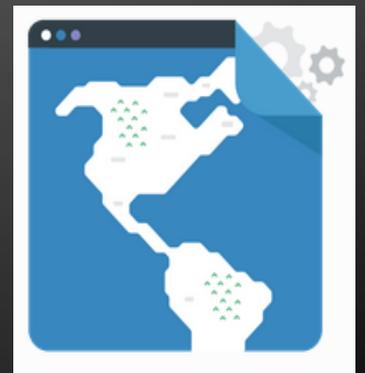
```
17 <script>
18
19 L.mapbox.accessToken =
  'pk.eyJ1Ijoibm1uYW5vdW51IiwiaW50IjYxN2I4ZTU5MGI3M2RjNDk1NDAN2RjNjNmZjIyZmIn0.XtoXLTJ2eW2pGjg2ZiJSA';
20
21 var map = L.mapbox.map('map', 'mapbox.streets')
22   .setView([48.12, -1.70], 16);
23
24 var baselayers = {
25   Streets: L.mapbox.tileLayer('mapbox.streets'),
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 };
30 baselayers.Satellite.addTo(map);
31
32
33 var overlays = {
34   Lignes: L.mapbox.featureLayer('ninanoune.o923a81b'),
35   Stations: L.mapbox.featureLayer('ninanoune.o9235om1')
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
43 L.control.layers(baselayers,overlays).addTo(map);
44
45 </script>
46
```

The map on the right shows a street grid and buildings in a city area. The map is titled "Villejean-Université 96" and "Université de Rennes 2 — Campus de Villejean". The map includes a legend on the right side with the following options:

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

The map also includes a scale bar at the bottom, a "Mapbox" logo, and a "© Mapbox © OpenStreetMap Improve this map" copyright notice.

## »» Personnalisation de la carte



# Mini carte

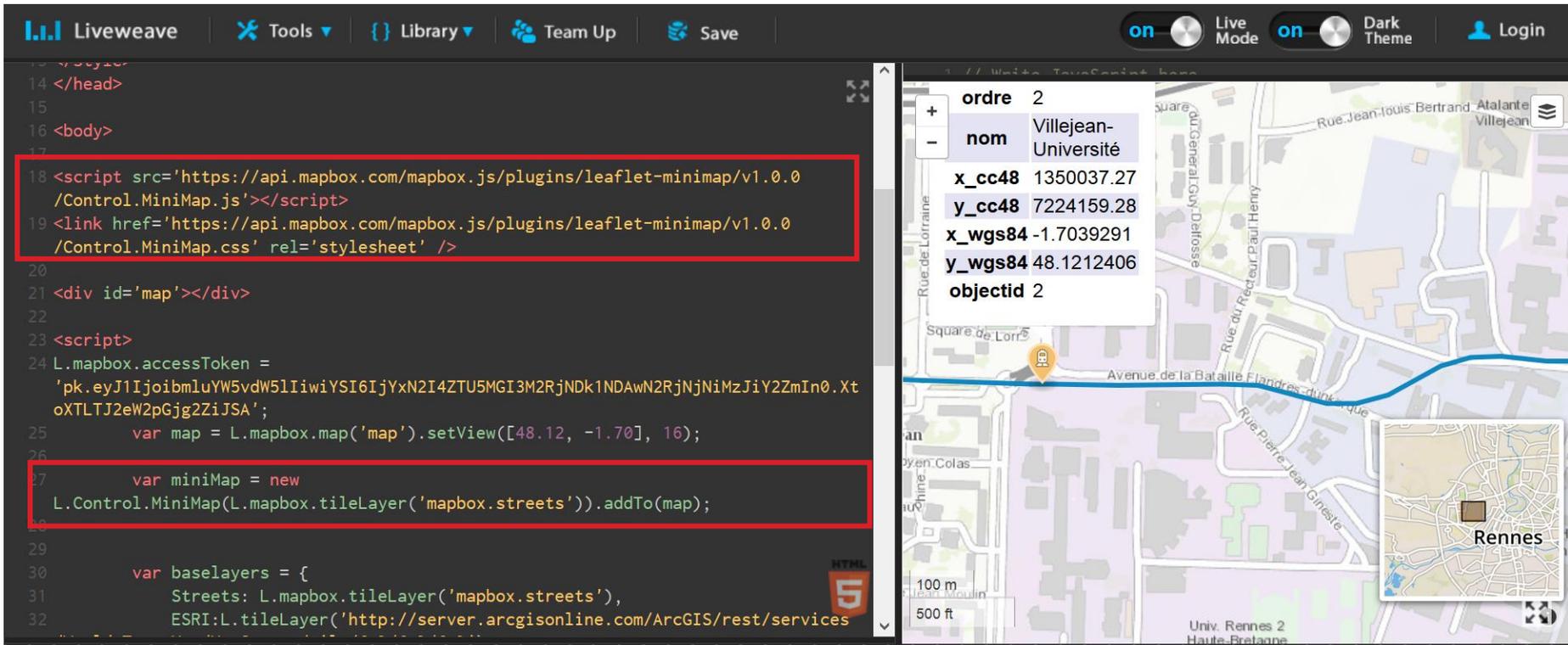
- ▶ Vous avez la possibilité d'ajouter une mini carte qui localise l'emprise de la carte principale
  - Il faut d'abord insérer au début du "body" l'appel de l'API de Mapbox suivant :

```
<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



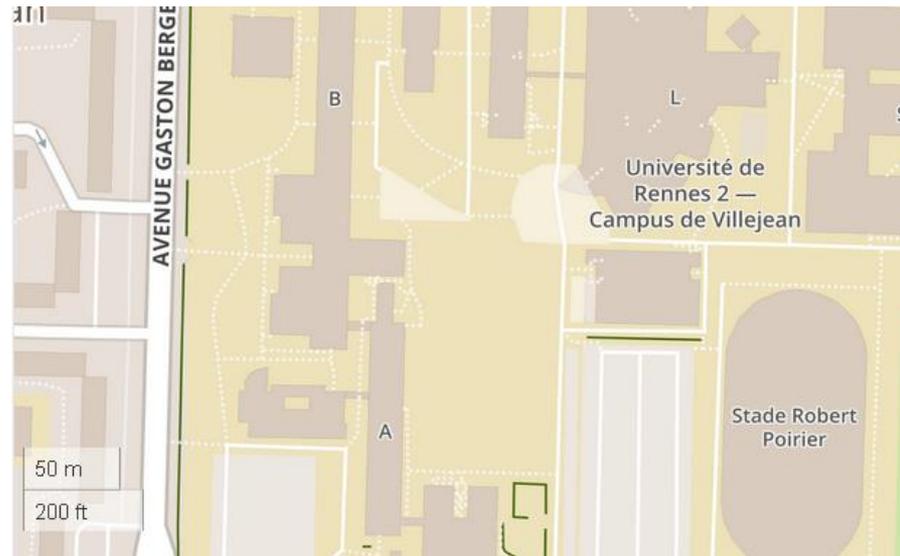
```
13 </body>
14 </head>
15
16 <body>
17
18 <script src='https://api.mapbox.com/mapbox.js/plugins/leaflet-minimap/v1.0.0
19 /Control.MiniMap.js'></script>
20 <link href='https://api.mapbox.com/mapbox.js/plugins/leaflet-minimap/v1.0.0
21 /Control.MiniMap.css' rel='stylesheet' />
22
23 <div id='map'></div>
24 <script>
25 L.mapbox.accessToken =
26 'pk.eyJ1IjoibmluYW5vdW51IiwiaWYiOiI6IjYxN2I4ZTU5MGI3M2RjNDk1NDAn2RjNjNiMzJiY2ZmIn0.Xt
27 oXLTJ2eW2pGjg2ZiJSA';
28 var map = L.mapbox.map('map').setView([48.12, -1.70], 16);
29
30 var miniMap = new
31 L.Control.MiniMap(L.mapbox.tileLayer('mapbox.streets')).addTo(map);
32
33 var baselayers = {
34 Streets: L.mapbox.tileLayer('mapbox.streets'),
35 ESRI: L.tileLayer('http://server.arcgisonline.com/ArcGIS/rest/services
```

ordre	2
nom	Villejean-Université
x_cc48	1350037.27
y_cc48	7224159.28
x_wgs84	-1.7039291
y_wgs84	48.1212406
objectid	2

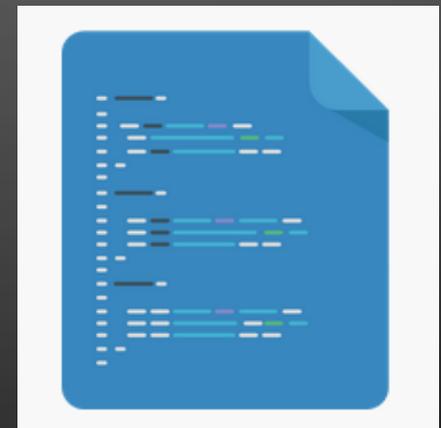
# Ajouter une échelle

- ▶ 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



# Page HTML

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

file:///C:/Users/Boris/Desktop/Template\_Mapbox.html

Rechercher

Boîte de réception (2 ...) Agenda Authentification Sésa... YouTube Service SIGAT 2015 20... Notes SIGAT 2015/201... Google Scholar

## Atelier Mapbox.js

### Carte simple

500 m  
2000 ft

© Mapbox © OpenStreetMap Improve this map

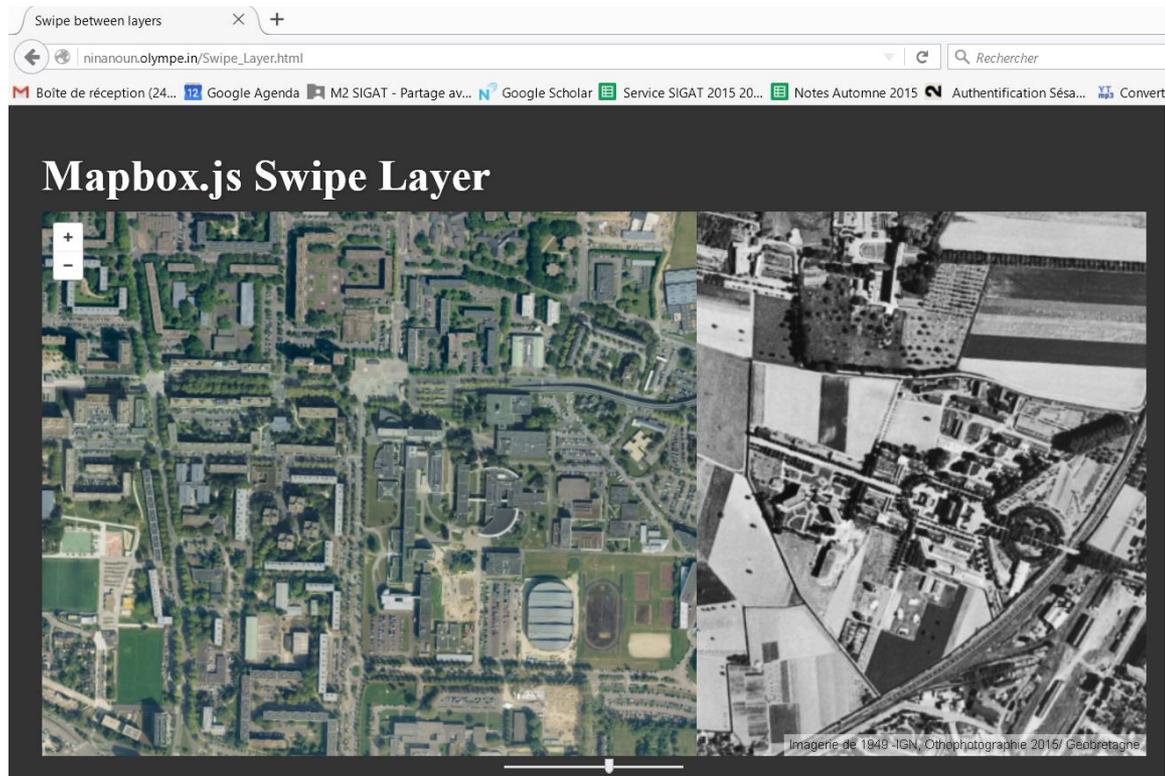
# Récapitulatifs commandes

- ▶ 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.eyJ1IjoiYWdhZGgiLCJhIjoiY2lsMmFwNWxJLmDBiY3dubTB1YTg0MXZ2NiJ9.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 nw = L.point(L.mapbox.Util.containerPointToLayerPoint([0, 0]), map),
95       se = L.point(L.mapbox.Util.containerPointToLayerPoint(map.getSize()), map),
96       clipX = nw.x + (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 </script>
```

Configuration du WMS 1

Configuration du WMS 2

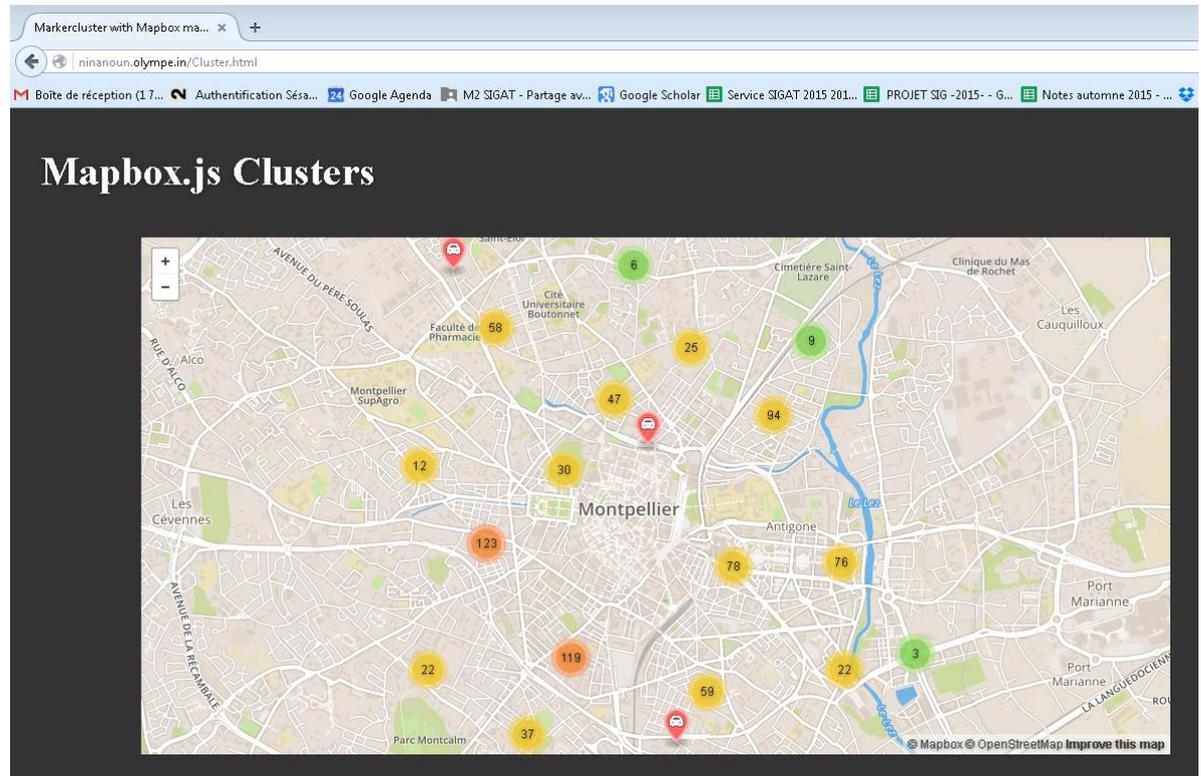
Appel du WMS 2

Configuration de la carte

# Aller plus loin

## Cluster

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



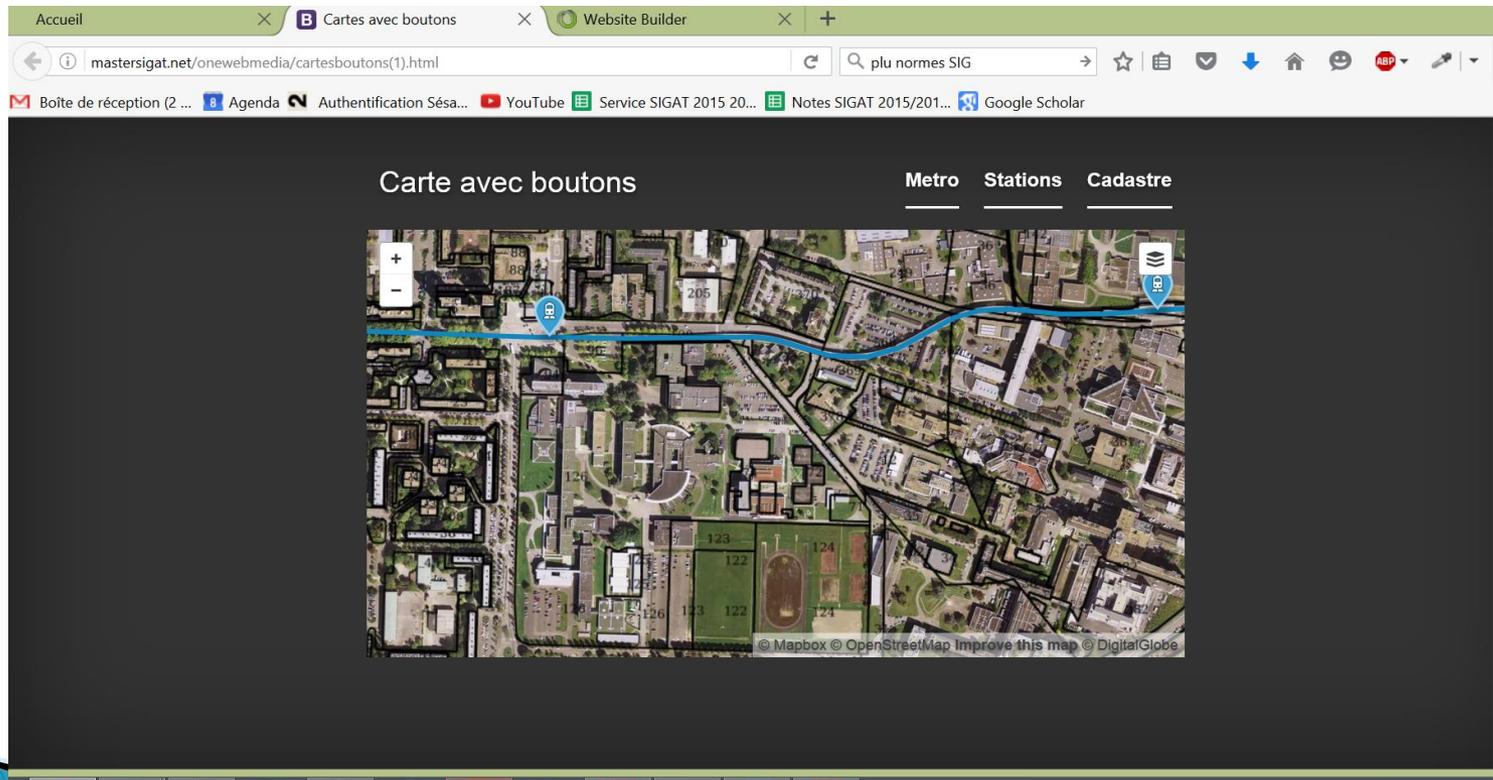
<http://ninanoun.olymp.e.in/Cluster.html>



# 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.eyJ1IjoibmlyYm5ydW51TiwiYXN6IjYyMzI4MzJiY2ZmIn0.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
68 var layers = document.getElementById('menu-ui');
69
70 addLayer(L.mapbox.featureLayer('ninanoune.o923a81b'), 'Métro', 1);
71 addLayer(L.mapbox.featureLayer('ninanoune.o9235oml'), 'Stations', 2);
72 addLayer(L.tileLayer.wms("http://geobretagne.fr/geoserver/cadastre/wms", {
73   layers: 'CP.CadastralParcel',
74   format: 'image/png',
75   transparent: true }), 'Cadastre', 3);
76
77 L.control.layers(baselayers).addTo(map);
78
```

Configuration carte

Configuration fonds de carte

Configuration données personnelles

# Utiliser des templates html

## ► Télécharger les templates de Bootstrap

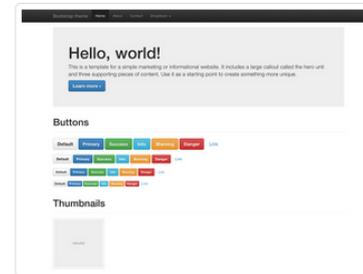
<https://github.com/twbs/bootstrap/archive/v3.3.6.zip>

### Using the framework



#### Starter template

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



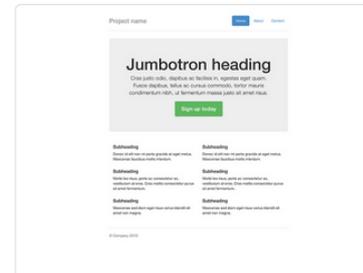
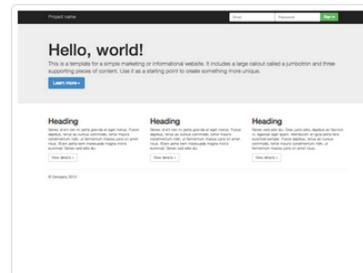
#### Bootstrap theme

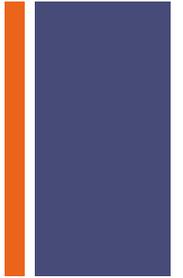
Load the optional Bootstrap theme for a visually enhanced experience.



#### Grids

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





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