## Using UCD Library’s GeoJSON mapper to visualise GeoJSON data sources on the Web

### 1. Identify or create a GeoJSON data source on the web

If your data source resides at UCD Library and you have a URL for requesting that data--for example, if you need to access a file on digital.ucd.ie or it is requested from UCD Digital Library’s Geospatial Data API--then you are ready to use the GeoJSON mapper.

If you are referencing a GeoJSON data source that exists elsewhere on the web, you must be sure that the web server that hosts the GeoJSON data has taken steps that enable other web sites to request and use its data with javascript applications. This is called “cross-origin resource sharing,” and addresses a basic web security issue which is explained here: <https://en.wikipedia.org/wiki/Cross-origin_resource_sharing>. An example of a resource that provides GeoJSON data with cross-origin resource sharing enabled is the [UCD Digital Library Geospatial Data API](https://digital.ucd.ie/research/#services-api). For that reason, the examples that follow request data from this resource, but many other such sites provide GeoJSON data in this way.

### 2. Create a URL to visualise the data

To visualise data with the UCD GeoJSON mapper, create a URL that begins with:

https://digital.ucd.ie/maps-geojson/?

that includes the following information as parameters:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Parameter | Options | Default | Description | Required |
| src | Web accessible GeoJSON | NA | URL to GeoJSON source | True |
| title | Any string | GeoJSON Data | navbar, app title | False |
| logo | Any accessible URL | NA | URL to a custom navbar logo | False |
| title\_field | Any valid property | First property | Field used for marker/sidebar title | False |
| fields | Any valid properties | All | Comma separated list of specific properties to show | False |
| attribution | Any string | NA | Source attribution added to text in bottom right of map | False |
| cluster | true / false | True | Should markers be clustered? | False |

For example, the UCD Digital Library Geospatial Data API allows you to request all geocoded entities in the UCD Digital Library that lie within a given bounding box. A sample request, based on an area of greater Dublin would be:

https://data.ucd.ie/api/geo/v1/dl/searchFilter=bbox(-6.789551,52.84923,-5.971069,53.212612)&format=geojson

Or whatever new address at which you have placed it. This URL is therefore assigned to the ‘src’ parameter in your new UCD GeoJSON mapper URL. However, because this URL itself also includes query parameters, it must first be [URL-encoded](https://en.wikipedia.org/wiki/Percent-encoding). It’s easy to encode a URL at one of several free sites on the web; we recommend <https://www.urldecoder.org/>.

Once you have an encoded URL, it can be assagned to the *src* parameter of your new URL:

https://digital.ucd.ie/maps-geojson/?src=  
https%3A%2F%2Fdata.ucd.ie%2Fapi%2Fgeo%2Fv1%2Fdl%2FsearchFilter%3Dbbox%28-6.789551%2C52.84923%2C-5.971069%2C53.212612%29%26format%3Dgeojson

For the optional title parameter, choose whatever is appropriate, for example, “Selected Sites in Wicklow”:

https://digital.ucd.ie/maps-geojson/?src=  
https%3A%2F%2Fdata.ucd.ie%2Fapi%2Fgeo%2Fv1%2Fdl%2FsearchFilter%3Dbbox%28-6.789551%2C52.84923%2C-5.971069%2C53.212612%29%26format%3Dgeojson  
&title=Selected Sites in Wicklow

If you want a graphical logo to appear on the map visualisation, associate the *logo* parameter with its address. If this URL has parameters, it should also be URL encoded as described above. For example, to use the UCD Digital Library logo:

https://digital.ucd.ie/maps-geojson/?src=  
https%3A%2F%2Fdata.ucd.ie%2Fapi%2Fgeo%2Fv1%2Fdl%2FsearchFilter%3Dbbox%28-6.789551%2C52.84923%2C-5.971069%2C53.212612%29%26format%3Dgeojson  
&title=Selected Sites in Wicklow  
&logo=https://digital.ucd.ie/images/logos/ucd\_logo\_sm.png

Data displayed in maps should be attributed to its source, in this case *UCD Library* (attributions appear in the lower right-hand corner of the map):

https://digital.ucd.ie/maps-geojson/?src=  
https%3A%2F%2Fdata.ucd.ie%2Fapi%2Fgeo%2Fv1%2Fdl%2FsearchFilter%3Dbbox%28-6.789551%2C52.84923%2C-5.971069%2C53.212612%29%26format%3Dgeojson  
&title=Selected Sites in Wicklow  
&logo=https://digital.ucd.ie/images/logos/ucd\_logo\_sm.png  
&attribution=UCD Library, University College Dublin

When many points plotted on a map are close to each other, it is sometimes helpful to the user to cluster these in groups. Clustering is enabled by default, so it is only necessary to add &cluster=false to a URL to *disable* clustering; the effect will be to display all points plotted on a map with individual map markers, regardless of their density:

https://digital.ucd.ie/maps-geojson/?src=  
https%3A%2F%2Fdata.ucd.ie%2Fapi%2Fgeo%2Fv1%2Fdl%2FsearchFilter%3Dbbox%28-6.789551%2C52.84923%2C-5.971069%2C53.212612%29%26format%3Dgeojson  
&title=Selected Sites in Wicklow  
&logo=https://digital.ucd.ie/images/logos/ucd\_logo\_sm.png  
&attribution=UCD Library, University College Dublin  
&cluser=false

We have not yet used the *title\_field* or *fields* parameters, but we can do so after previewing our map using the above URL:

|  |
| --- |
|  |

From the index on the left, we can see that the titles that identify places plotted on the map are not optimal! This is where you can use the *title\_field* and *title* parameters to make the map visualisation more useable to its users. To identify values for these two parameters, click on a map cluster than drill down until you can view an individual place represented by a map marker:

|  |
| --- |
|  |

From this screen we can see that there is a ‘title’ field that we can map to the *title\_field* parameter. We can also see that some fields may not be useful to an end user and could be excluded from the display. Therefore we can specify only the field names seen in the left-hand column above that we wish a user of the map to view, and asign them to the *fields* parameter.

We can therefore now complete our UCD GeoJSON mapper URL as follows:

https://digital.ucd.ie/maps-geojson/?src=  
https%3A%2F%2Fdata.ucd.ie%2Fapi%2Fgeo%2Fv1%2Fdl%2FsearchFilter%3Dbbox%28-6.789551%2C52.84923%2C-5.971069%2C53.212612%29%26format%3Dgeojson  
&title=Selected Sites in Wicklow  
&logo=https://digital.ucd.ie/images/logos/ucd\_logo\_sm.png  
&attribution=UCD Library, University College Dublin  
&cluser=true  
&title\_field=title  
&fields=title,url,date,pid,place,category,theme,license

Our map is now ready to use by copying [the above URL](https://digital.ucd.ie/maps-geojson/?src=https%3A%2F%2Fdata.ucd.ie%2Fapi%2Fgeo%2Fv1%2Fdl%2FsearchFilter%3Dbbox%28-6.789551%2C52.84923%2C-5.971069%2C53.212612%29%26format%3Dgeojson&title=Selected%20Sites%20in%20Wicklow&logo=https://digital.ucd.ie/images/logos/ucd_logo_sm.png&attribution=UCD%20Library,%20University%20College%20Dublin&cluser=true&title_field=title&fields=title,url,date,pid,place,category,theme,license) into a web browser (if you copy from the text above, don’t forget to delete the line breaks in the URL before copying into your browser’s navigation bar).

For noting: The map index displayed in the first figure about is configured to include and sort a maximum of 2000 entries. If your GeoJSON data source include more than 2,000 geographic entities, only 2,000 will be displayed in the index.

### 3. Implement a Public View of Your Map

If you have access to a web server, then you have two options for implementing a public view of your GeoJSON map visualisaiton:

1. Simply create a hyperlink to the URL you have created and direct people to viewing it on the UCD Digital Library.
2. Integrate the map visualisation with your web application with the HTML iframe element.

If you choose the latter option, you can simply form an iframe element similar to this:

<iframe id="iframeMap" class="iframeMap" width="100%" style="display: inline;" height="99%" frameborder="0" scrolling="no" marginheight="0" marginwidth="0" src="https://digital.ucd.ie/maps-geojson/?src=https://data.ucd.ie%2Fapi%2Fgeo%2Fv1%2Fdl%2FsearchFilter%3Did(duchas%3A5145372)%26format%3Dgeojson&title\_field=title&fields=pid,place,date,category,theme,centroid,geonamesreference,url,id,license&amp;cluster=true&logo=https://digital.ucd.ie/images/logos/ucd\_logo\_sm.png&attribution=UCD%20Library, University College Dubliniframe=true"></iframe>

But note that you should add one more parameter to your URL, namely, ‘&iframe=true.” Adding this parameter will make the map more responsive in its embedded context. If in addition you wish to suppress the text index from the display, substitute “&embed=true” for the iframe parameter in the URL. This may be desirable if the context of the web page limits the space available for displaying the map.

### Additional Examples

#### Gaeltacht areas (boundaries):

<https://digital.ucd.ie/maps-geojson/?src=/maps-geojson/data/Gaeltacht_Boundaries_Ungeneralised__OSi_National_Statutory_Boundaries.geojson&title_field=COUNTY&title=Gaeltacht%20Area%20Boundaries%20&logo=https://digital.ucd.ie/images/logos/ucd_logo_sm.png&attribution=UCD%20Library,%20University%20College%20Dublin%20&cluster=true&iframe=true>

[Galway (county) Protected Structures:](https://digital.ucd.ie/maps-geojson/?src=/maps-geojson/data/Gaeltacht_Boundaries_Ungeneralised__OSi_National_Statutory_Boundaries.geojson&title_field=COUNTY&title=Gaeltacht%20Area%20Boundaries%20&logo=https://digital.ucd.ie/images/logos/ucd_logo_sm.png&attribution=UCD%20Library,%20University%20College%20Dublin%20&cluster=true&iframe=true)

[https://digital.ucd.ie/maps-geojson/?src=/maps-geojson/data/Galway\_County\_Record\_of\_Protected\_Structures.geojson&title\_field=FEATURES&title=UCD%20Digital%20Library%20&logo=https://digital.ucd.ie/images/logos/ucd\_logo\_sm.png&attribution=UCD%20Library,%20University%20College%20Dublin%20&cluster=true&iframe=true](https://digital.ucd.ie/maps-geojson/?src=/maps-geojson/data/Gaeltacht_Boundaries_Ungeneralised__OSi_National_Statutory_Boundaries.geojson&title_field=COUNTY&title=Gaeltacht%20Area%20Boundaries%20&logo=https://digital.ucd.ie/images/logos/ucd_logo_sm.png&attribution=UCD%20Library,%20University%20College%20Dublin%20&cluster=true&iframe=true)

#### Main Harbours of Ireland (points):

<https://digital.ucd.ie/maps-geojson/?src=/maps-geojson/data/Main_Harbours__OSi_National_250k_Map_of_Ireland.geojson&title_field=NAMN1&title=Main%20Harbours%20of%20Ireland&logo=https://digital.ucd.ie/images/logos/ucd_logo_sm.png&attribution=UCD%20Library,%20University%20College%20Dublin%20&cluster=true&iframe=true>

#### Piers and Harbours of County Galway (points):

<https://digital.ucd.ie/maps-geojson/?src=/maps-geojson/data/Piers_and_Harbours_of_Galway_County.geojson&title_field=Name&title=Piers%20and%20Harbours%20of%20County%20Galway&logo=https://digital.ucd.ie/images/logos/ucd_logo_sm.png&attribution=UCD%20Library,%20University%20College%20Dublin%20&cluster=true&iframe=true>

#### Protected Structures, Galway City (points):

<https://digital.ucd.ie/maps-geojson/?src=/maps-geojson/data/ProtectedStructuresOpenData.geojson&title_field=Address&title=Protected%20STructures,%20Galway&logo=https://digital.ucd.ie/images/logos/ucd_logo_sm.png&attribution=UCD%20Library,%20University%20College%20Dublin%20&cluster=true&iframe=true>

#### Protected Structures (numbered addresses), Dún Laoghaire-Rathdown (points):

<https://digital.ucd.ie/maps-geojson/?src=/maps-geojson/data/protected_structures_DLR_numbered_addresses.geojson&title_field=address&title=Protected%20Structures%20(numbered%20addresses),%20D%C3%BAn%20Laoghaire-Rathdown&logo=https://digital.ucd.ie/images/logos/ucd_logo_sm.png&attribution=UCD%20Library,%20University%20College%20Dublin%20&cluster=true&iframe=true>

#### Protected Structures (numbered addresses), Dún Laoghaire-Rathdown (points):

<https://digital.ucd.ie/maps-geojson/?src=/maps-geojson/data/protected_structures_DLR_unnumbered_addresses.geojson&title_field=address&title=Protected%20Structures%20(unnumbered%20addresses),%20D%C3%BAn%20Laoghaire-Rathdown&logo=https://digital.ucd.ie/images/logos/ucd_logo_sm.png&attribution=UCD%20Library,%20University%20College%20Dublin%20&cluster=true&iframe=true>

#### Galway City, Administrative Boundary:

<https://digital.ucd.ie/maps-geojson/?src=/maps-geojson/data/Galway_City_Administrative_Boundary.geojson&title_field=BOUNDARY&title=Galway%20CIty,%20administrative%20boundary&logo=https://digital.ucd.ie/images/logos/ucd_logo_sm.png&attribution=UCD%20Library,%20University%20College%20Dublin%20&cluster=true&iframe=true>