

Dynamic Web Map services

Summer School on Digital Humanities

Course material available at

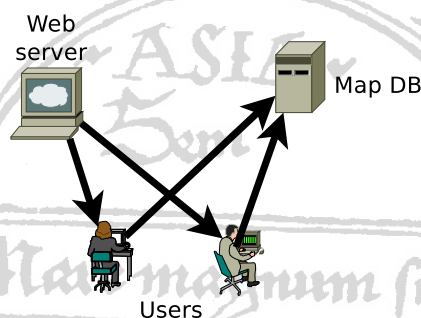
https://github.com/AugustoCiuffoletti/DHSS_2025

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Dynamic Web Map services

- A local application does not help to share a map
- We want an **interactive** map service



- Web Mapping: enabling the cartographer to update a shared map
 - The cartographer reaches the mapping service using a browser
 - The server renders a web page that incorporates the map
 - The code embedded in the web page connects to the remote database and uses/registers data
 - The cartographer modifies the view or enters new data

Web GIS vs resident GIS application

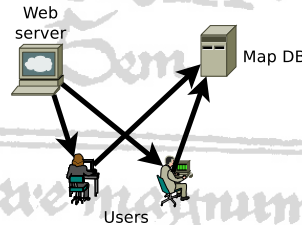
- Compared with a resident GIS application (like qGis):
 - no installation required
 - no problems of computing capacity
 - does not depend on the operating system
 - adaptable to different devices (PC or smartphone)
 - sharing by design, need to restrict access
- To create such a dynamic application we need a specialized JavaScript library

Tools for Web Maps: JavaScript libraries

- JavaScript is the language used to embed complex functions in web pages
- The JavaScript library **Leaflet** allows the web page to interact with remote GIS servers and integrate user data into the database
- The user can modify the map
- A complex structure is created: the user who downloads a certain web page (created by the cartographer) also interacts with a postGis server and a raster repository
- We explore the OpenStreetMap case, which is based on the *Leaflet* library

Example of an open Web Map service: OpenStreetMaps

- The server (www.openstreetmap.org) renders on my browser a (dynamic) map recorded in a public database



- I have write access to the public database: **everyone** sees my updates!
- I cannot work in a private space
- If I use the online editor **Id**
 - I create easily: a bar, a swimming pool, a street
 - ... I could **Save**, but with great care
 - ... since **everyone** would see!

Get access to OpenStreetMaps

- Open the browser on <https://www.openstreetmap.org>
- Enter the service:
 - **Register** a new account (recommended to use uMap later on) or
 - **Access** if in a hurry and you have an account with one of the "third parties"

Creating a Point in OpenStreetMaps

- To create a point feature (but **do not** Press **Save**)
 - Zoom-in using the trackpad (until **Edit** is unshaded)
 - Select the **Edit** option (Thus using the *ID* editor)
 - Hit the **Point** button (which turns blue)
 - Select a point on the map with a mouse click
 - Select the type of stitch (e.g. **Coffee**) in the left sidebar
 - Fill out the relevant attributes
 - Press **Cancel** (back arrow, next to Area)

More with OpenStreetMaps

- To draw a **Line** or an **Area**:
 - one click for each point,
 - *Esc* key or double-click to finish
- Edit a feature by right-clicking on it
 - transform into a circle
 - transform into a point
 - make all angles multiple of 90°
 - flip
 - rotate
- Ctrl-C, Ctrl-V to cut/paste, Ctrl-Z to undo
- By pressing **Save** (please don't!) your mock feature is recorded in the OpenStreet database

Lab Activity

- South of Pescara, there is a town named "Francavilla al Mare" equipped for seaside tourism
 - Find the "Lido Merope"
 - Add an area for its beach as an "unpaved" area
 - Add a Note field "sand" to be more specific
 - Add a Description field as "Beach resort"
 - Add one further "name" tag "Spiaggia del Lido Merope"