



Dynamic Web Map Services

Summer School on Digital Humanities

Web site: <https://bit.ly/dt4h-gis>

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10 giugno 2025

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- A local application does not facilitate map sharing
- We need an **interactive** web-based map service

- Web Mapping enables cartographers to maintain a shared map



Dynamic Web Map Services

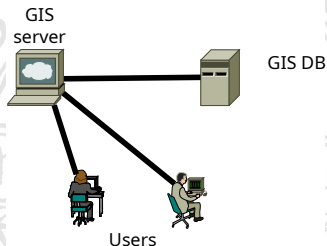
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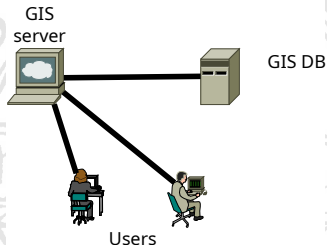
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 - The cartographer accesses the mapping service via a web browser
 - The server generates an interactive map

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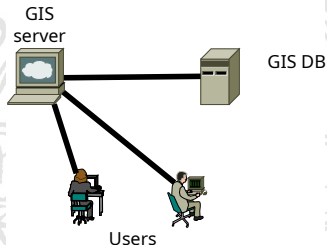
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- Web Mapping enables cartographers to maintain a shared map
 - The cartographer accesses the mapping service via a web browser
 - The server generates a web page integrating the map
 - Embedded code connects to a remote database to retrieve and update data
 - The cartographer can then view or input new data

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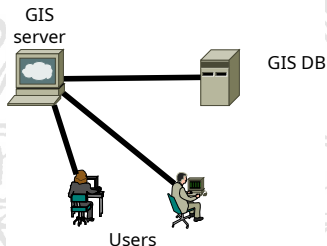
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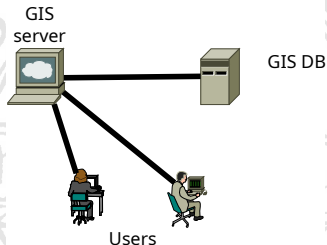
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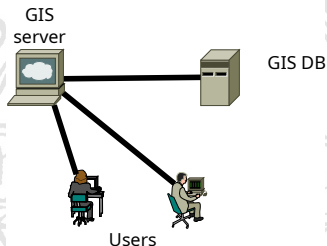
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Web GIS vs. Desktop GIS Applications

- Compared to a desktop GIS application (like QGIS):
 - No installation required
 - Platform-independent (works on any OS)
 - Responsive design for different devices (PC, tablet, smartphone)
 - Designed for sharing - map services and mechanisms
 - Development such as ArcGIS Online uses a specialized JavaScript

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Tools for Web Maps: JavaScript Libraries

- JavaScript enables complex functionalities in web pages
- The **Leaflet** library allows web pages to interact with GIS servers and store user data
- Users can modify and update the map interactively
- This setup creates a complex architecture
- We will explore OpenStreetMap, which is implemented using the **Leaflet** library

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 - ...and explore Leaflet in the lab session

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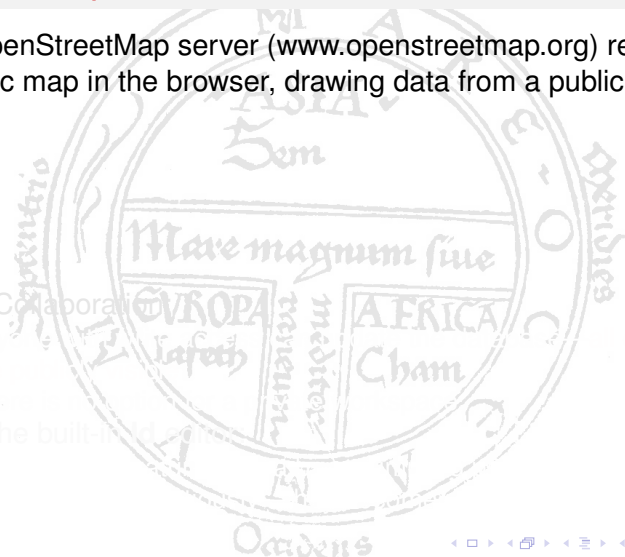
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Example of an Open Web Map Service: OpenStreetMap

- The OpenStreetMap server (www.openstreetmap.org) renders a dynamic map in the browser, drawing data from a public database

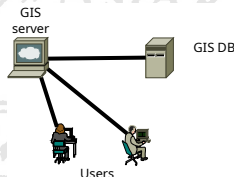
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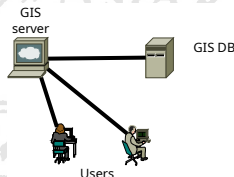
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- Public Collaboration
 - Anyone with an Internet connection can edit the database—all changes are public, visible to everyone
 - There is no official OpenStreetMap workspace
- Using the built-in tools

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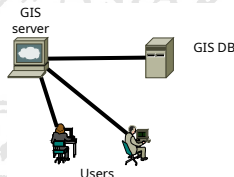
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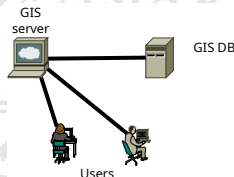
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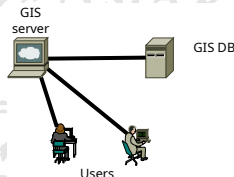
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 - Easily create features like Area, swimming pool, or street
 - Save changes called "Changesets" immediately visible in the map

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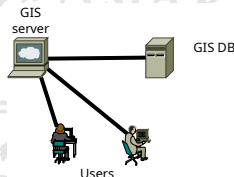
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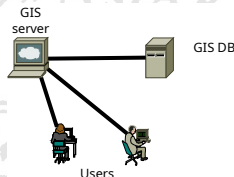
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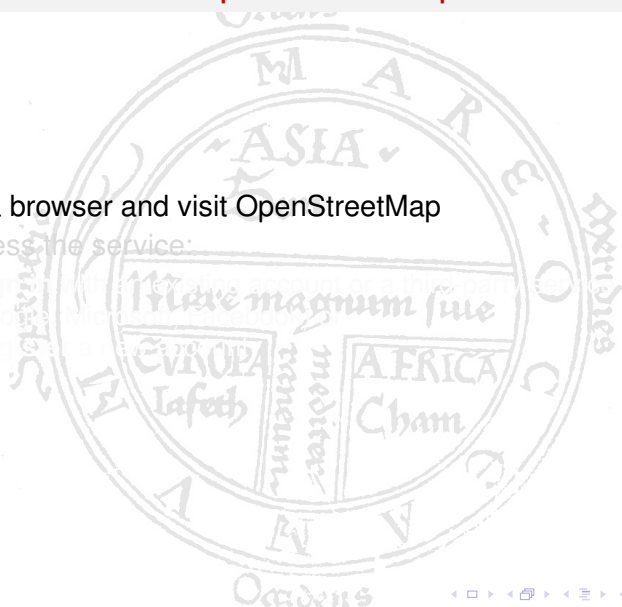


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Getting Started with OpenStreetMap

- Open a browser and visit OpenStreetMap
- To access the service:

- Sign up with the OpenStreetMap account or a third party service (e.g. Google, Facebook, Twitter, etc.)
- Register a new account



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Creating a Point Feature in OpenStreetMap

- To add a point feature (**but do not press Save**):

- Zoom in using the trackpad until **Edit** is enabled
- Select the **Edit** option (opens the *iD* editor)
- Zoom until the "Zoom in to edit" banner disappears
- Click the **Point** icon in the top toolbar (it turns blue)
- Click on the map to place the point
- Choose a feature type (e.g. *amenity* or *amenity=restaurant*)
- Fill in the name and other details
- Press **Undo** (back arrow)

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 - Click on the place you want to place the point
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Additional Editing in OpenStreetMap

- To draw a Line or Area:
 - Click to place each vertex
 - Press *Esc* or double click to finish
- To edit an existing feature

- Keyboard shortcuts
- Pressing **Save** commits changes to OpenStreetMap—please refrain from saving too often

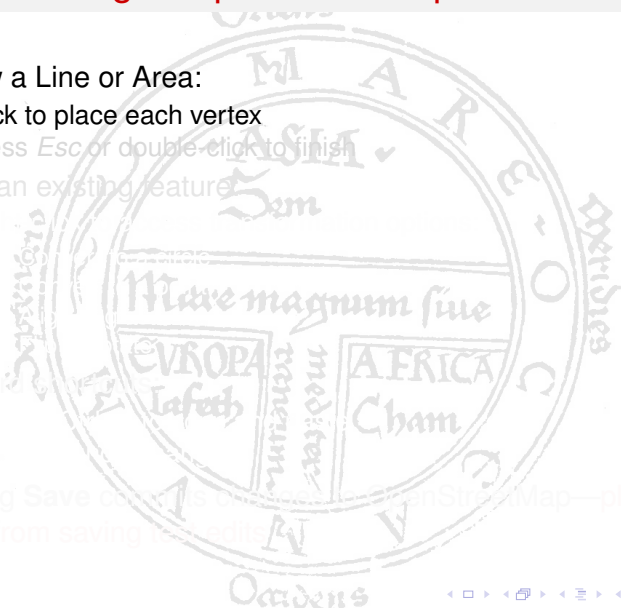


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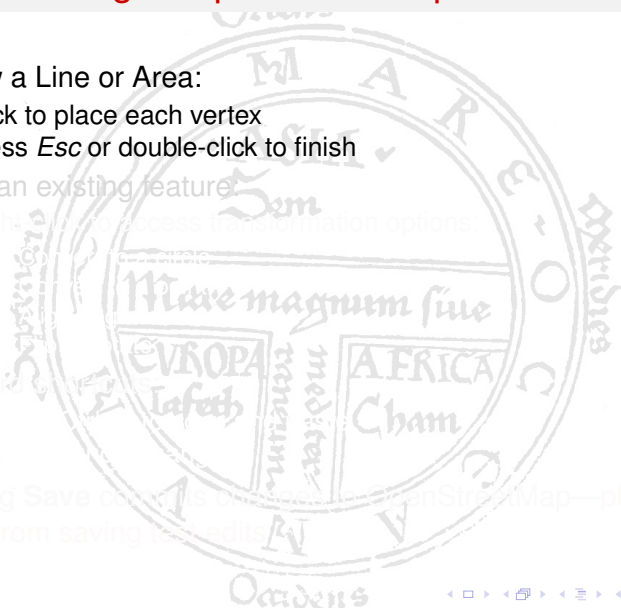
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Lab Activity

- Scenario: South of Pescara lies "Francavilla al Mare," a seaside resort town
 - Locate "Lido Merope"
 - Add an Area for the beach
 - Set Beach Resort as the **feature type**
 - Set the **Name** field to "Spiaggia del Lido Merope"
 - Undo...