Sharing Maps: The GIS Cloud

Summer School on Digital Humanities
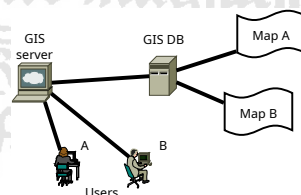### Web site: https://bit.ly/dt4h-gis

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Sharing Maps: The GIS Cloud

- OpenStreetMap (OSM) does not support adding custom layers
  - It lacks infrastructure for proprietary data storage
- Desktop GIS applications (e.g., QGIS) allow users to overlay OSM data with their own layers
- Alternative services provide infrastructure for collaborative map sharing

- In these services, the server acts as an intermediary between users and data storage
- Unlike OSM, access and sharing restrictions are enforced

The uMap Service

- A stable project (launched in 2014)
- Open-source (can be installed on a private server)
- Uses OpenStreetMap as a background raster layer
- Users can:
  - Import and display vector layers
  - Connect to external databases
  - Create new maps stored within the uMap infrastructure
- Supports *popup* feature annotations with:
  - Text, images, and web links
- Maps can be shared and collaboratively edited by a restricted user group

A uMap Tour (Sect. 5 in the Booklet)

- Open a browser and visit `https://umap.openstreetmap.fr`
- Log in using OpenStreetMap credentials (or via Bitbucket, or GitHub)
  - It is also possible to explore uMap without an account (with limited functionality)
- Click "Create a map"
  - An OpenStreetMap raster background will appear

Editing Your Shared Map

- Upon map creation, you are in Edit Mode
  - To exit, click the blue Save draft button, then View
  - To re-enter edit mode, click the pencil icon Edit in the top-right corner
- Two toolboxes appear on the right:
  - Upper box: feature creation tool
  - Lower box: map management tools
  - On the left panel, click 🔍 to search for a town (e.g., "Pisa")
- If town names are displayed in French, switch the raster layer:
  - Click 🔳 and select "OpenStreetMap"

Adding a Feature

- Choose a feature type from the right-hand menu:
  - 📍 Point
  - ⌐ Line
  - ▱ Area
- Click on the desired feature type, then interact with the map:
  - A single click places a point
  - Multiple clicks define a line or area
  - A double-click ends the line or closes the area
- Once the feature is created, a form appears:
  - Enter the *name* and *description* of the feature
  - Explore additional customization options
- To edit an existing feature, click it and select the pencil icon

  - Click the question mark near *Description* for formatting tips

Special Content in the **Description** Field

The *Description* field can contain interactive elements:

(Note: these appear only after Save and View)

- Add an image by inserting its link within double braces:

  `{{http://gardenersnet.com/flower/pics/daffodil04.jpg}}`

- Add a hyperlink using double brackets:

  `[[http://www.google.com]]`

- Embed a video (e.g., YouTube) using triple braces:

  `{{{https://player.vimeo.com/video/56810854}}}`

Creating a Slideshow

- A slideshow cycles through the map features sequentially
  - Features are displayed in the order they were added
- To enable the slideshow:
  - Click the ⚙ gear icon and select *Slideshow*
  - Enable *Slideshow mode*
  - Set the time interval between slides
  - Optionally, enable auto-play on map load
  - Click Save
- Familiar playback controls ("Play," "Pause," "Next," "Previous") appear in the bottom right corner
- If auto-play is enabled, the slideshow starts automatically upon loading the map
- Not fully functional, but may be useful

How to Share, Embed, and Export

To share your map with specific users or anyone

- Click 🔑 (right panel)
- Adjust editor permissions and visibility settings

To embed your map in a webpage

- Click ⊘ (left panel)
- Export features in various formats
    - GeoJSON – JavaScript-compatible format
    - KMZ – Google Maps format
    - GPX – GPS-compatible format
    - CSV – spreadsheet compatible format
- Copy the embed code ("iframe" tag) for use in web pages
- Configure a custom URL with query

Time for a uMap *Challenge*! (Step 1)

Geolocate Yourself

- Open `https://umap.openstreetmap.fr/it/map/dhss_2025_616270`
- Add a *point* feature at a location you like (e.g., your town, favorite hike, birthplace)
- Enter your nickname in the *Description* field
- Save the point as a visible feature
- Warning: the map is public: avoid personal data

Time for a uMap *Challenge* (Step 2)

The Map to the Tower
- Help a friend visiting Pisa for the first time:
  - Add points of interest (leaning tower, train station, whatever...)
    - Fill "Description" fields as you like
    - try with an image of the tower,

      https://upload.wikimedia.org/wikipedia/commons/6/66/The_Leaning_Tower_of_Pisa_SB.jpeg
  - Create a map showing a route from the train station to the Leaning Tower
    - Draw a path from the station to an imaginary bus stop, then the bus route, and finally the walk to the tower
    - At the bus stop, enter details: bus number, direction, stop name, and estimated travel time