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H₂O Map: Innovative learning by hydraulic heritage mapping

E-LEARNING COURSE FOR TEACHERS: *Innovative Educational Tools for Assessment of the Hydraulic Heritage with by ICT Tools.*

PART I: GIS ON THE WEB

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AGRUPAMENTO DE ESCOLAS DE CAMPO MAIOR

General Structure

Module VII: Basics using GIS on the web

- 7.1 Creating a web map
- 7.2 Adding information
- 7.3 Modifying symbology
- 7.4 Saving and sharing the map



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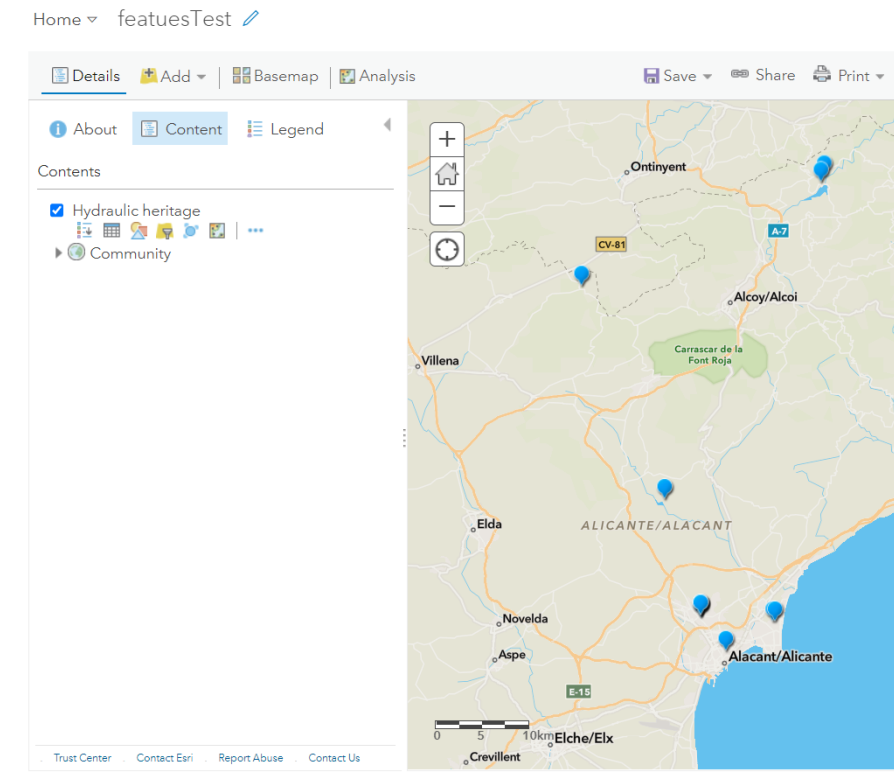


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7.1 CREATING A WEB MAP

A web map is an interactive visualization of geographic information that you can use to tell stories and answer questions. For example, you can find or create a map that answers the question: Where are the hydraulic heritage infrastructures in Europe? Then, this map would have layers showing what kind of hydraulic heritage is in Spain, Italy and Portugal, and for contextualization, the map would also have a topographic base map that includes cities, roads and buildings overlaid with images of land cover and shaded relief.

Typically, web maps contain a base map, a set of data layers (many of which include interactive pop-ups with information about the data), an extension, and navigation tools for scrolling and zooming. Primarily, the base map and layers are hosted and shared across the web. Many maps also contain scaled symbols and other intelligent styles that reveal data and patterns as you interact with them.



7.1 CREATING A WEB MAP

You can create maps in a few basic steps and open them in standard web browsers, mobile devices and desktop map viewers. You can share them via links or embed them in websites and use them to create map-based web applications. When a map is shared, the author decides what to include in it. For example, when the map is shared with the general public through a map viewer, many times, the map includes options to change basemaps; view a legend (if the map contains one); view details about the map; share, print, and make measurements; and find locations on the map. Maps embedded in websites and shared through applications typically contain a set of tools focused on a specific purpose, such as gathering information, editing features, or comparing two maps side-by-side.

As a conclusion, web maps are online maps created that provide a way to work and interact with geographic content organized in the form of layers. They are shared on the web and through smartphones and tablets. Each web map contains a reference base map along with a set of additional data layers, plus tools that work on these layers.



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7.2 ADDING INFORMATION

Layers, also called web layers, are logical collections of geographic data that are used to create maps; they are also the basis for geographic analysis. For example, a heritage layer could represent a collection of hydraulic heritage and include attributes that describe the properties of each infrastructure, such as name, what type it is, size, and other possible attributes. Other examples of layers are historical traffic patterns, terrain, 3D buildings, and parcels.

The type of layer determines how you can interact with the layer data. For example, you can view and query the data in a feature layer to see the attributes of a feature. You can also edit the data represented by the feature layer. In the case of tiled layers, you see only tiled images of the features.

The following are the types of web layers you can publish or add to a GIS portal as a feature:

- Map Image, Images, Mosaic, Elevation, Feature Layer, and Scene, also Tables.



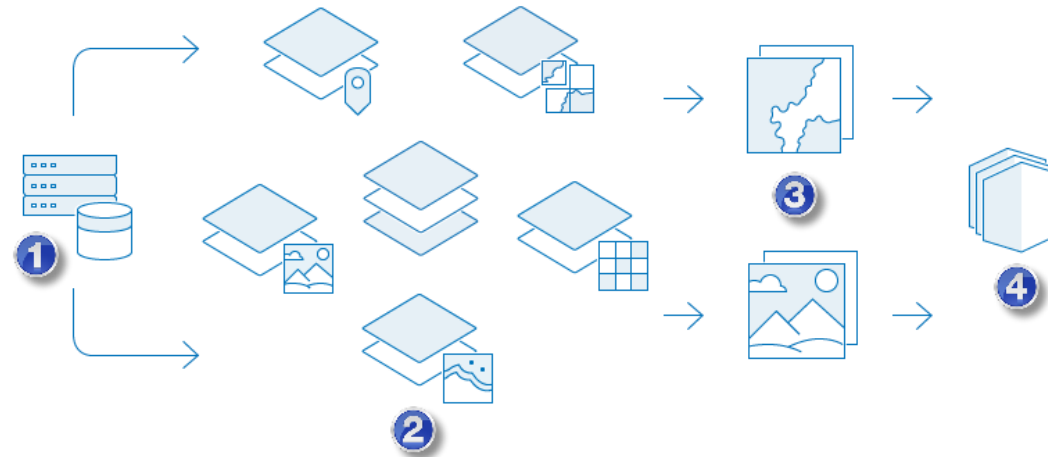
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7.2 ADDING INFORMATION

How Layers are used



1	Obtain the source data.
2	Publish the data as layers.
3	Create maps and scenes that contain the layers.
4	Create apps that contain the maps and scenes.



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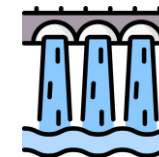
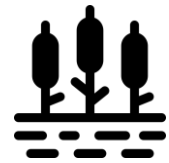


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7.3 MOFIYING SYMBOLOGY

Maps are powerful because they allow you to visualize your data in a variety of ways. For example, population data for countries can be visualized as a sequence of colors, such as from light to dark, or as proportional circles, such as from small to large. This flexibility allows you to tell different stories and discover hidden patterns depending on how the data is presented. But because map making is so flexible, it requires making decisions when there isn't always a single best answer.

Fortunately, web maps allow you to explore different styling options using smart mapping defaults. In addition, you can make changes to its appearance that are immediately reflected on the map, having the control over graphic elements such as color ramps, line weights, transparency, and symbols.



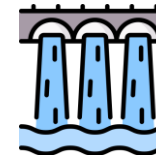
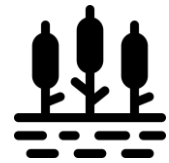
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7.3 MOFYIYING SYMBOLOGY

The styling options provided for a layer are based on the type of data you are mapping. You will see different choices depending on whether your layer is composed of point, line, or polygon features. The options offered are also influenced by the type of data associated with your features. For example, a point feature might only have location information such as geographic coordinates but could also have categorical information such as type of hydraulic heritage. Styling options also vary depending on whether you want to show one or two attributes, such as type or built year. Not every styling option can be used for every type of data.



7.4 SAVING AND SHARING THE MAP

When you initially save a map or save a copy of a map, a new map item is created by you. Depending on your sharing privileges, you may be able to share your map with groups you belong to, your organization, or everyone (public).

You can share any map you find on the website by sending an email with a link, posting it to your Facebook or Twitter account, embedding it in a website or blog, or creating an app that includes the map.

Considerations:

- If you want your map to be accessible to the general public (and your organization allows sharing outside the organization), you need to share it with everyone.
- When you share a map through a link or embed it in a website, the extent you last viewed is automatically captured and included in the link or embedded map. When the map is opened, it shows the extent you were viewing when you shared it. This allows you to share and embed maps that open at specific locations.



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ONLINE SOURCES

<https://www.esri.com/training/catalog/57630434851d31e02a43ef4d/creating-and-sharing-gis-content-using-arcgis-online/>

<https://doc.arcgis.com/en/arcgis-online/reference/what-is-web-map.htm>

<https://gisgeography.com/esri-arcgis-online-agol/>

<https://www.esri.com/arcgis-blog/products/product/uncategorized/web-mapping-101/>

https://en.wikipedia.org/wiki/Web_mapping

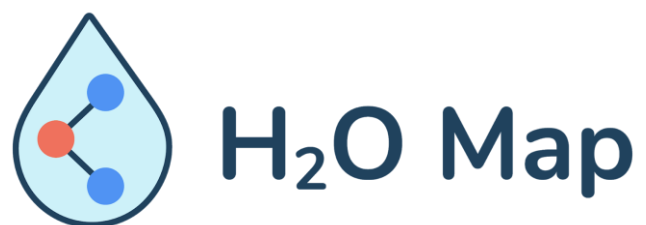
<https://www.axismaps.com/guide/what-is-a-web-map>



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