CarboNostrum

CLIMATE-SMART AGRICULTURE IN A CHANGING WORLD

WebGIS

PRACTICAL GUIDE

CarboNostrum Partnership:

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WebGIS Practical Guide

CarboNostrum WebGIS Practical Guide

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The aim of this guide is to help trainees create a public account on **ArcGIS Online** and equip them with the necessary training to explore, navigate and use the tools that the WebGIS provides, according to their interests and purposes. A public ArcGIS Online account allows trainees to **create** and **share** contents with **usage limits**.

A) How to create an ArcGIS Online account

1. Go to the ArcGIS Online website: **https://www.arcgis.com/index.html** and press the **"Begin session"** button;
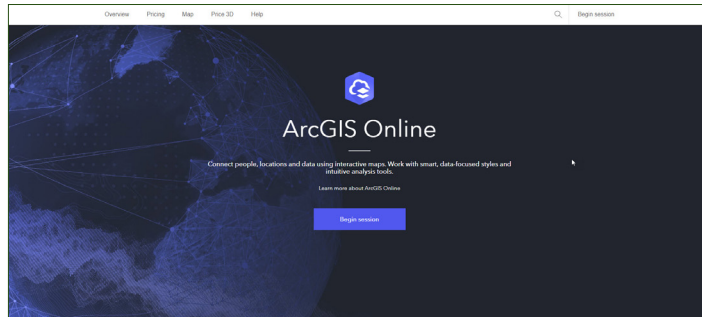

IMAGE 1: Sign in ArcGIS Online (Esri)

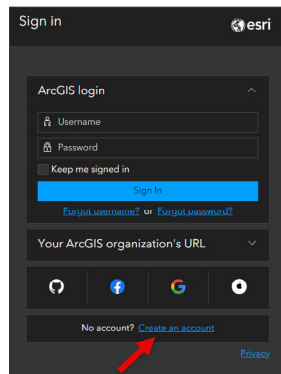**2.** Go to: **"Create an account"**;

IMAGE 2: Create an account (Esri)

3. From this stage onwards, we recommend that you use the website in the **"English (Global)"** language, as this language offers the possibility of creating a public account without a **"trial"**, i.e. without a time limit;
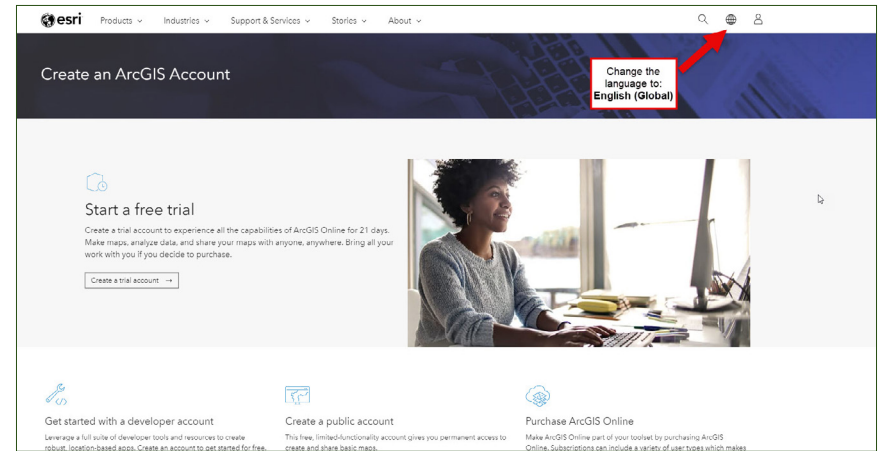

IMAGE 3: Change the language to English Global (Esri)

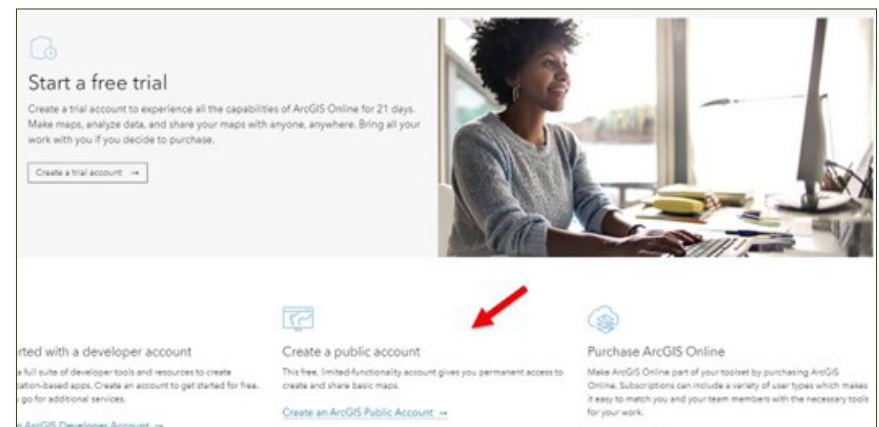**4.** Go to: **"Create an ArcGIS Public Account"** to create a free public account;

IMAGE 4: Create a public account (Esri)

5. Fill in the details as **required** and read the ArcGIS Online terms of use and privacy policy. Then, tick both boxes and move on;

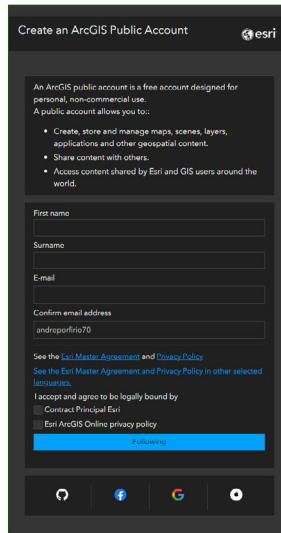**NOTE:** If the language changes to Portuguese, don't worry, it's a system default.

IMAGE 5: Details to be filled (Esri)

6. You will then receive a link to **complete** the account activation in the email address you entered in the step above;

7. Open your e-mail and click on the link provided to **set up** your public account;

IMAGE 6: Link to set up account (Esri)

8. Set up your public account according to the **requirements** by filling in the following fields:

  • Username;

  • Password;

  • Re-enter your password;
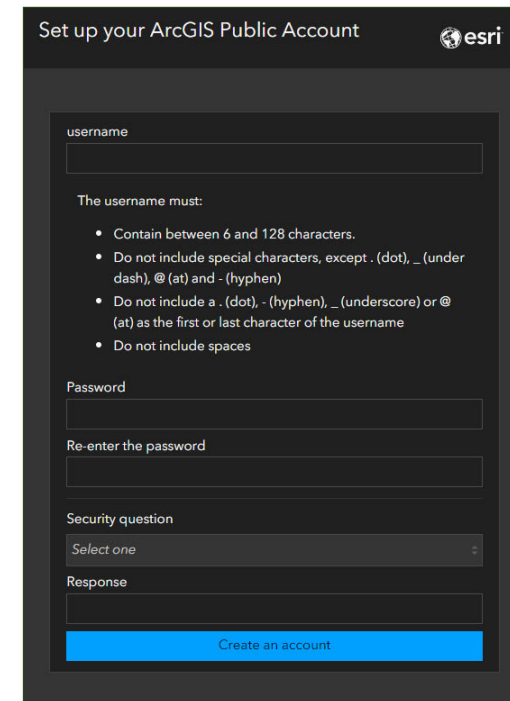
  • Safety question (select one);

  • Answer.

IMAGE 7: Set up public ArcGIS Online account (Esri)

9. You're **ready** to start your GIS adventure!

B) Creating maps in ArcGIS Online

1. Once you have created your account, you are redirected to a page where you can **explore** Esri's various web functionalities. Each box contains a use manual for each feature and can be useful from the point of view of a new user, acting as a **tutorial**.
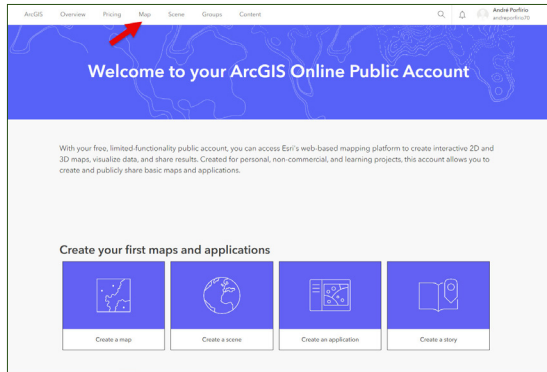

IMAGE 8: Welcome page & Map access (Esri)

2. To create a map, in the top tab, select the **"Map"** option, as indicated by the arrow in the image above, to open the **"Map Viewer"**. The image below shows the interface of this tool;

IMAGE 9: WebGIS interface (Esri)

3. The **black tab** on the left-hand side has various functions, including:

- Basemap;
- Layers;
- Legend;
- Bookmarks.

4. To choose a basemap, click on the **Basemap** icon and browse through the options to find the one you like the best for your map. For this example, we will use the **Image** basemap, as shown in image 10.
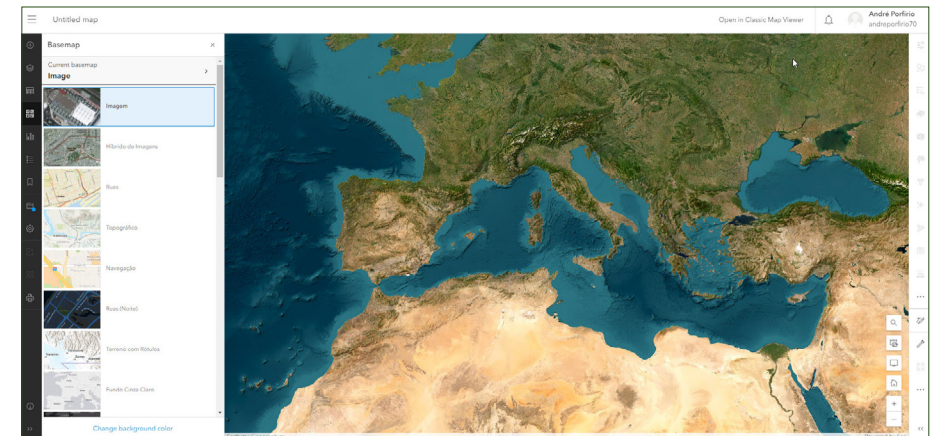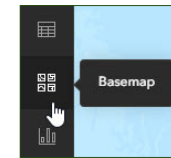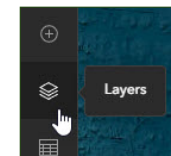

IMAGE 10: Image Basemap (Esri)

5. To add layers, click in the **Layers** icon.

From this feature, you can add layers in **five** different ways:

- Browse layers;
- Add layers from URL (link);
- Add layer from file;
- Create Drawing layer;
- Add multimedia layer.

For this examples, we're going to add data in **two** different ways:

1. BROWSE LAYERS

From here, you can search for layers in **five** different ways, but for the following example, we're going to search data via **ArcGIS Online**. **Living Atlas** is also viable, if you want to give it a try.

Browse layers > My content > Select ArcGIS Online > Browse: carbonostrum > Add both "Feature Layers" (layers).
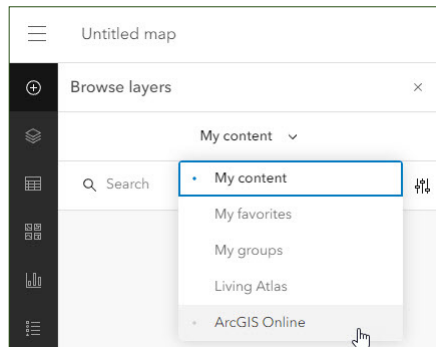

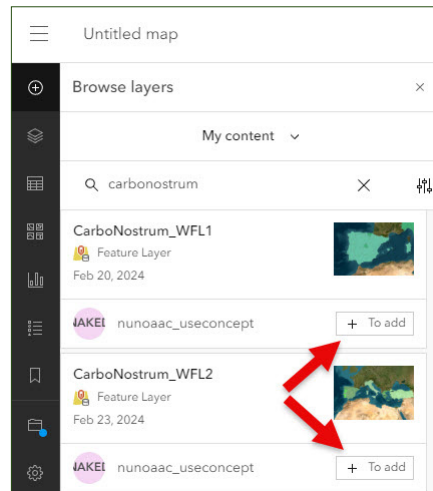**IMAGE 11:** Browsing layers in ArcGIS Online (Esri)

IMAGE 12: Adding feature layers (Esri)

Layers added to the map, representing the **administrative boundaries** of the **CarboNostrum** project's partner countries.
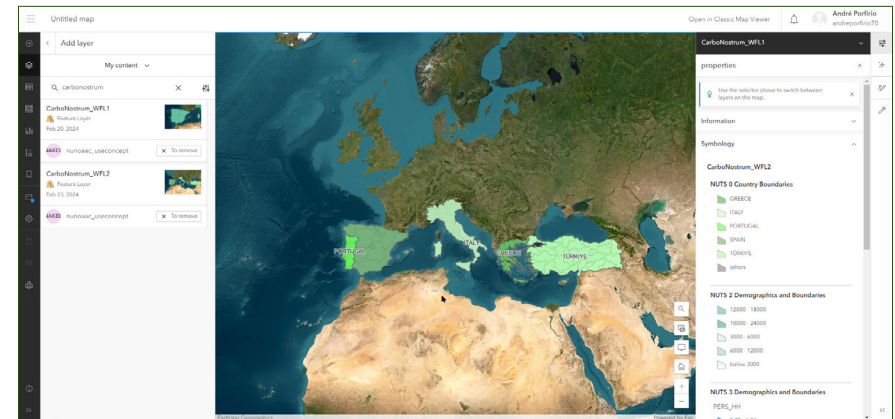

IMAGE 13: Administrative boundaries added to the map (Esri)

On the right-hand side of the picture above is the **symbology legend**, made up of the elements inserted directly into the database. On this same tab, the tool allows you to change the appearance of the layers, such as adding transparency, among others.

For instance, you can add other data such as:

- **NDVI** (Normalized Difference Vegetation Index);
- **World Soils Groups** – World Reference Base (WRB);
- **Corine Land Cover Europe** – Contains land use and occupation cartography.
- Among others.

Before creating your drawing layer, in the bottom right-hand corner click on the search icon 🔍 and search for Ermida de São Luís da Mogueira (Montemor-o--Novo), at Herdade de São Luís - Porcus Natura). This will help you locate yourself in the space in the next steps.

2. CREATE DRAWING LAYER

From this, you can assign **point**, **linear** and **polygonal** elements by drawing or referencing them (as is the case with the point) on the map. Below is an example of how to draw the elements mentioned:
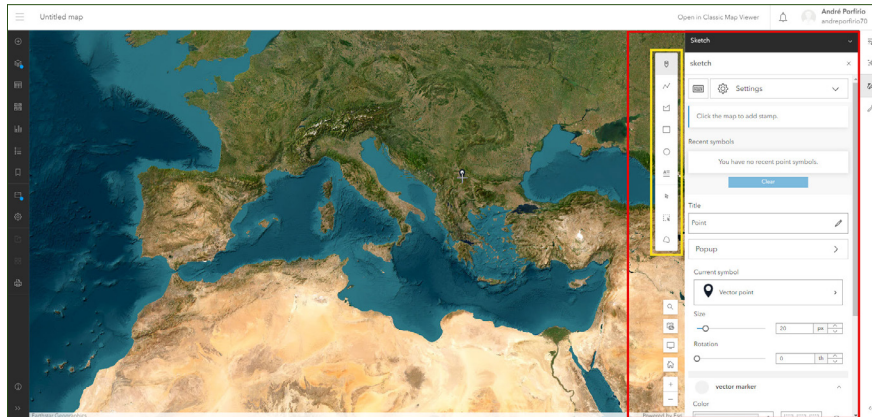

IMAGE 14: Create Drawing layer interface (Esri)

i. Point

Create drawing layer > Select [icon] > Assign to the desired location (example: Ermida de São Luís da Mogueira (Montemor-o-Novo), at Herdade de São Luís - Porcus Natura) > Assign a name (**Herdade de São Luís**) > Change symbol and size (40px) > Change the colour of the symbology (from here you can assign transparency, decrease/increase the size and rotate the point) – Image 15.

NOTE: from the **"Pop-up Window"**, once the option has been activated, it is possible to assign a title and description to the point that has been georeferenced. To see the information on this point in a **pop-up window**, simply select the point to see the information attached to it. – Image 16.
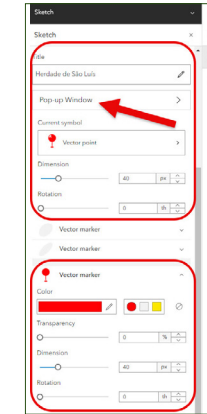
The **result** is represented in Image 17.

IMAGE 15: Create Drawing layer options (Esri)

IMAGE 16: Point Pop-up window (Esri)

IMAGE 17: Point final result (Esri)

ii. Line

Having finished assigning the point element above, to return to the layer you created for drawing purposes, simply select the layer in the layers tab: **"Sketch"** and **"Add element"**, in this case, **linear**, to continue.

To create a line, you'll have to follow the same procedure as before, selecting the line from the elements menu. 〰

To make it easier to understand how to get to the property, we're going to draw a line that will represent the route from the N2 exit to the property.:

• **First**, select the linear element;

• Next, place a point at the intersection between the N2 and the particular path we're going to draw, as shown in Image 18;

• From that point, draw the privated road that gives access to Herdade de São Luís. The more points you add, the more detailed the drawing will be and vice versa;

• When you've finished drawing, double-click the right mouse button to close the line.

NOTE: To make this process easier for you, use the arrow keys on your keyboard to move around the map if you're drawing the road more accurately.

IMAGE 18: Starting line (Esri)
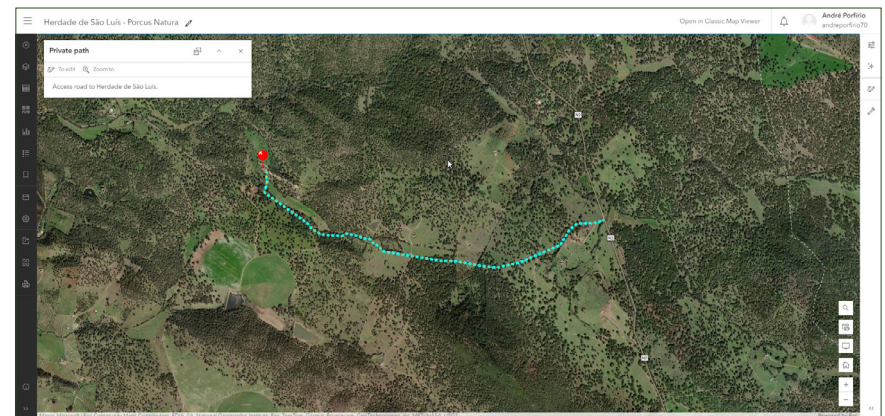
The **result** is represented in the image below.

IMAGE 19: Line final result (Esri)

SUGGESTION: If you want to practice a bit more, here's a suggestion: near the start (starting from the N2) of the private road, put up a sign directing vehicles to Herdade de São Luís. You can use whichever element you think is most appropriate for the purpose, trying to include some of the techniques mentioned above.

iii. Polygon

To finish off, let's draw a fictitious property boundary, using the polygon.

To create a polygon, you'll have to follow the same procedure as before, selecting the **polygon** from the elements menu. ⌂

To draw the property boundary:

• Select the polygonal element;

• Start drawing at a location of your choice (**HINT:** it's easier at one of the property boundaries, as exemplified in Image 20);

• As with the linear element, the more points you place, the more detailed the polygon will be and vice versa;

• When you've finished drawing, double-click the right mouse button to close the polygon.

NOTE: To make this process easier for you, use the arrow keys on your keyboard to move around the map if you're drawing the road more accurately.
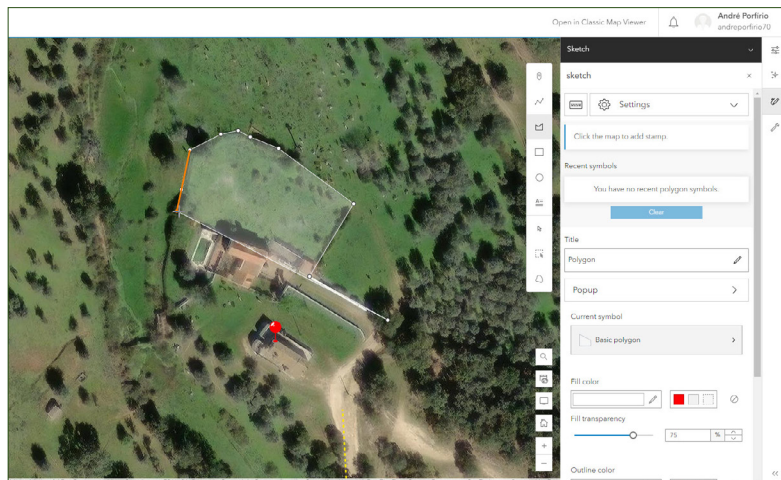

IMAGE 20: Drawing polygon process (Esri)

The **result** is represented in the image below.

IMAGE 21: Polygon final result (Esri)

If you want to edit any of the elements you've drawn, access the **Layers** tab and go to **Sketch**. A tab opens on the right-hand side showing the elements the map contains, where you can add more elements or edit existing ones, as shown below.

IMAGE 22: Sketch properties tab (Esri)

When you've finished your tasks, we recommend that you save your map. To do this, go to the tab on the left-hand side and click on the icon 🗁 to save your project. Follow these steps:

• Save as;

• Assign a title;

• Assign a folder;

• Assign tags and summary (Optional) > **Save.**

If you want to share the map with the Esri community:

• Access the share map icon; ↗

• Select the option: **Everyone** (public) and save.

To check your map (Image 23):

• Select the icon with three horizontal stripes in the top left corner of the browser;

• Access to **Content**;

• *Et voilà*, the map you just created is **available** in the content of your **ArcGIS Online** account.

IMAGE 23: Content tab (Esri)

By using the techniques set out in this manual, we were able to obtain the **final result** shown in the figure below.

IMAGE 24: Final result of the experiment (Esri)