🌐 Lagash Archaeological Survey and Recording System (LASRS) - Importing ArcGIS Field Maps Data to QGIS

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AUG 16, 2023

Protocol status: Working
We use this protocol and it's working

Created: Feb 28, 2023

ABSTRACT

This protocol describes how data collected with ArcGIS Field Maps, using forms generated according to the **Rectangular Survey Grid Creation with QGIS** and **Creating Collection Forms with ArcGIS Field Maps** protocols, can be imported into QGIS and combined with tabular data of the collected artifacts (such as counts and weights) for further analyses such as the creation of heat maps.

Protocol

NAME

Lagash Archaeological Survey and Recording System (LASRS) - Rectangular Survey Grid Creation with QGIS

CREATED BY

Paul C. Zimmerman

PREVIEW

Protocol

NAME

Lagash Archaeological Survey and Recording System (LASRS) - Creating Collection Forms with ArcGIS Field Maps

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PREVIEW

MATERIALS

This protocol was developed with ArcGIS Online and QGIS 3.28, but earlier and later versions of QGIS should function similarly (though perhaps with minor differences its interface).

Export the Targets Shapefile from ArcGIS Field Maps

1   Log into your ArcGIS Online account with the web browser of your choice.

2   Click on **Content** in the page header, navigate to where your *Targets* shapefile is stored, and click on its name.

3   Click the **Download** button on the right to download a zip file which will contain the components of the Targets shapefile.

4   Locate the *Archive.zip* file on your computer (probably in the Downloads folder) and rename it to *Targets.zip*.

> **Note**
>
> There is no need to unzip this archive, because QGIS is able to read the zip file as-is.

Export Observations Recorded with ArcGIS Field Maps

5   Click on **Content** in the page header, navigate to where your *Observations* feature layer is stored, and click on its name.

6   On the right, choose **Export Data** > **Export to CSV File**, then click the **Export** button.

7 When the export file is created the page will refresh. Click the **Download** button on the right to download a zip file which will contain the data in the *Samples* and *Notes* layers.

8 Locate the zip file on your computer (probably in the Downloads folder) and expand it. The expanded folder should have two CSV files within it: *Notes_1.csv* and *Samples_0.csv*.

Import the Targets Shapefile into QGIS

9 Launch QGIS and open a project or create a new one. Make sure that the project CRS indicated in the lower right corner of the QGIS window shows the correct EPSG code.

10 In QGIS select **Layer** > **Add Layer** > **Add Vector Layer…**

11 Click the **three dots** button to the right of the **Vector Dataset(s)** field, locate the *Targets.zip* file, and click the **Add** button.

12 Find the *Targets — Survey Grid.shp* layer on the left, and rename it to *Targets*.

> **Note**
>
> You might also want to change the *Targets* layer's symbology, but this is not necessary.

Import the Observations CSV into QGIS

13 in QGIS select **Layer** > **Add Layer** > **Add Delimited Text Layer…**

14   Click the **three dots** button to the right of the **File name** field and locate the *Samples_0.csv* file.

15   If necessary, expand the **Geometry Definition** panel. Make sure that **Point coordinates** is selected and that the **X** and **Y** fields are mapped properly. Change the **Geometry CRS** to *EPSG:4326 - WGS 84*, then click the **Add** button.

> **Note**
>
> Your project will almost certainly have a different CRS (such as a local one with UTM coordinates), but ArcGIS exports CSV files in WGS 84, so this must be set explicitly when importing CSV files from ArcGIS.

Import the Collections and Measurements CSV into QGIS

16   Processing of the collections should result in well-formed tabular data that can be exported as a CSV. Each line in the CSV should have the data from a single Positive sample. One column in the table must have the target name, spelled exactly as the nodes are in the *Targets* layer, and each subsequent column must contain one discrete measurement.

The method by which collections can be processed is beyond this protocol. For LAP, we used a bespoke data collection form using [Wildnote](https://) that prompted for counts and weights of certain classes of objects (e.g., counts and weights of simple pottery sherds and ceramic slag pieces). If the stability of your internet connection is sufficient, then a similar form can be generated with Google Forms. Direct entry into a spreadsheet or database is also possible, but the end result

must be a well-formed table as described above. Note, however, that only Positive samples need to be recorded in the CSV file; Negatives and Write-Offs can be omitted.

17   in QGIS select **Layer** > **Add Layer** > **Add Delimited Text Layer…**

18   Click the **three dots** button to the right of the **File name** field and locate the CSV file with the processed collections.

19   In the **Geometry Definition** panel select **No geometry (attribute only table)**. In the Sample Data panel, verify that the data type for each column is correct, then click the **Add** button.

20   Find the newly-added geometry-less layer on the left and rename it to *Collections_0*.

Join the Layers into a New Layer with All the Survey Data

21   If the QGIS Processing Toolbox isn't visible, show it by selecting **View** > **Panels** > **Processing Toolbox**.

22   In the **Search** field of the Processing Toolbox, type *join* and double-click **Join attributes by nearest**.

23   In the Join attributes by nearest window, set **Input layer** to *Samples_0* and **Input layer 2** to *Targets*; then click the **Run** button.

24   Rename the newly-created layer to *Joined layer_0*.

25 In the Processing Toolbox, double-click **Join attributes by field value**.

26 In the Join attributes by field value window, set **Input layer** to *Joined Layer_0* and **Table field** to *node*. Set **Input layer 2** to *Collections_0* and **Table field** to *target* (or whatever the node name field is), then click the **Run** button.

> **Note**
>
> Don't be alarmed at the red text indicating unmatched features. These are the Negatives and Write-Offs, which will still be present in the resulting layer, but with null values for the measurements.

27 Right-click on the newly-created *Joined layer* (not *Joined layer_0*) and select **Export** > **Save Features As…**

28 In the Save Vector Layer as… window set **Format** to *GeoPackage*. Click the **three dots** button next to the **File name** field and choose where you want to save the new file with the name *Samples*. Change the **Layer name** to *Raw Measurements*. Set the **CRS** to the project CRS, and then click the **OK** button.

> **Note**
>
> GeoPackage is preferable to CSV and shapefile formats for this layer because CSV files cannot be modified directly in QGIS and shapefiles have a 10 character limit to their field names, which may cause confusion if field names are truncated.

29 Remove the *Samples_0*, *Collections_0*, *Joined layer_0*, and *Joined layer* layers, then save your QGIS project.

Style the Samples — Raw Measurements Layer

30   Download the following QGIS style file: 📎 Samples Style.qml

31   Double-click the *Samples − Raw Measurements* layer to open its properties window.

32   Click the **Style** button at the bottom of the Layer Properties window and select **Load Style…**

33   Click the **three dots** button to the right of the **File** field and select the styles file downloaded in step *30*, then click the **Load Style** button.

34   Click the **OK** button to apply the style and close the Layer Properties window.

Next Steps

35   The result of the above steps is a map showing the status of each target's collection with differently colored dots. It also preserves the location of each sample, as recorded in ArcGIS Field Maps, and the measurements for each collection as attributes of each point. The data from those attributes can be used as weights for creating contours or heat maps in QGIS. New attributes, created formulaically from the existing data can be created and also used as the basis for such visualizations. However, if modifications will be made to the data, it is recommended that you do so to copies of the *Samples − Raw Measurements* file (created via export), rather than to the source file.

> **Note**
>
> In the *Sample Style.qml* file there is a symbol category for "Post Hoc Write-Off." This symbol, a green dot with a grey X over it, is for marking samples that upon reflection (such as comparison to aerial or satellite imagery) should have been written off in the field, but were initially tagged as Positive samples where collections were made. To display this symbol, change the *Status* attribute of the sample feature from "Positive" to "Post Hoc Write-Off," and QGIS will update its display automatically. Note, however, that if you do this you should also set all of that feature's measurements to NULL, as they would have been if the target location was written off in the field.