QGIS Practical 1: Vector Data - Adding and styling your first datasets

Working with sample data for Grenada, the aim of this session is to understand vector data and to add some simple styling to a selection of layers.

This is the first building block toward the creation of your administrative map.

1.0 Getting Started

The following steps will help you to set up QGIS ready for the exercise. All the files you need for this exercise are in the Grenada folder, which you should have a copy of.

1. Start **QGIS** and create a blank project [Project > New]

2. *From the folder ..\GIS\2_Active\201_admn, add the admin 1 boundaries (grd_admn_ad1_py_s1_gadm_pp_parish.shp) to the map.*
   *Hint: You can add a layer by double-clicking it in the **Browser** window*

3. Pan around the map to navigate around   , and zoom in and out to explore

4. Return to a full extent by right-clicking on the layer in the panel, and choosing **Zoom to Layer**

2.0 Layer Properties and Attributes

1. In the **Layers** list, right-click on the layer you have just added and select **Properties**, then **Information**

This shows basic information about the properties of the dataset you are working with, including the name and location of the data, its storage type (format), and geometry. You will also see the coordinate reference system (CRS) listed, and the units associated with that CRS.

2. Scroll further down the window until you see the section for **Fields**

Here you can see the fields that appear in the attribute table, along with additional information about the type of field e.g. Real (numeric) or string (text). We will now explore the attribute table in more detail.

3. Click OK to close the **Layer Properties** window
4. Right-click on the admin 1 layer in the layers list and select **Open Attribute Table**

Each shape you see on your screen has both geographic information that shows where that shape is, and other qualitative/quantitative attributes associated with it. This non-spatial information is stored in the attribute table. In an attribute table, each row represents a different shape, a different object in the dataset, and each column the type of information available for those shapes.

Looking at the attribute table is a very important first step in working with a vector dataset, as it helps you understand which information, and which attributes, other than the spatial component this dataset holds.

The most useful fields in this table are NAME_1 which contains the names of the admin 1 areas, and ADM1_PCODE which contains P-codes associated with them.

The records in the attribute table and features shown on the map are linked, so that if you select a record in the table it will be highlighted on both the table and on the map, and the same in reverse.

5. Select any record in the table by clicking on its row number, at the left of the row in the attribute table. Notice how this is now highlighted in yellow on the map

6. Use the **Select Feature by Area or Single Click** tool to click on a different feature on the map and select it, then refer back to the attribute table - the associated record has been highlighted in blue.

Another way to easily see attributes associated with features on the map is to use the **Identify Features** tool.

7. Click on the **Identify Features** tool, then click on one of the features to find its name - the **Identify Results** window should appear at the right of the QGIS window

8. Before continuing click **Deselect Features from All Layers** to clear any selections you have made.

3.0 Symbology

In this section, we will explore some of the options for setting the symbol style for point, line, and polygon data.

There are three types of vector data:

● Polygon: like the administrative layer we just worked with, and that can be used to show any zone/area
● Point: which can be used to represent point features like cities, or school locations
● Line: which can be used to represent line features such as roads or rivers.

3.1 Polygon Symbology

1. Right-click on the admin 1 layer in the Layers list and click on **Properties**, then **Symbology**
2. Click on the **Simple Fill** box, then change the settings:
   - o Change the stroke width for the polygon boundaries to be thicker, and change the stroke style to a Dot Line
   - o Set the fill colour to light grey
   - o Click **OK**

We will look at point and line data now!

3.2 Point Symbology

1. From the folder ..\GIS\2_Active\213_stle add the settlements layer (grd_stle_stl_pt_s3_osm_pp_settlements) to the map. This layer contains settlements.
2. Familiarize yourself with it by looking at the layer's **Properties,** and its attributes by clicking on **Open Attribute Table**
3. Open the **Symbology** dialogue for the places layer
4. Change the **Simple marker** to a different size and shape

3.3 Line Symbology

1. From the folder **..\GIS\2_Active\214_tran** add the roads layer (grd_tran_rds_ln_s0_osm_pp_roads shp) to the map. This layer contains roads.
2. Familiarize yourself with it by looking at the layer's **Properties,** and its attributes by clicking on **Open Attribute Table**
3. Open the **Symbology** dialogue for the roads layer
4. In the lower part of the dialogue, you will see a set of ready-made symbols - you can use these instead of making your own
   *(Hint: You need to have clicked on **Line**, not **Simple Line** at the top of the **Symbology** options in order to see the ready-made symbols*
5. Scroll down the list and find the **topo main road** symbol and click on it to select it
6. Click **Apply** to see the results on the map
7. Change some of the settings (e.g. to make the lines thinner), then click **Apply** to see the results. Once you are happy with your changes, click **OK**

4.0 Labels

You can add labels to features in any layer, using attribute data.

1. Open the **Layer Properties** window for the admin 1 layer, then click on **Labels**
2. In the dropdown at the top, select **Single labels**
3. In the dropdown list for **Value**, select the attribute you want to use for the label - in this case, we will use the name that is contained within the field **NAME_1**

4. Click **Apply** to see the labels on the map
5. Change the font size in the dialogue below to make the labels bigger - for example, 12 point
6. In the list in the middle, select **Buffer** then click **Draw text buffer** to make the labels easier to see against a dark background. Click **Apply** to see the changes, then **OK** when you have finished making changes.

5.0 Saving a project

Saving a project allows you to return to it later and continue working on it.

1. From the project menu select **Save**

Save the project within the folder **..\GIS\3_Mapping\33_Map_Projects** and call it **Administrative_Map**.