QGIS Practical 4: Your first map - administrative map

In this practical exercise you will put together the learning from the previous practicals and create your first map using the map document functionality in QGIS - called the **Print Layout.**

Print layouts include the main map, along with other cartographic elements such as a legend, scale, north arrow, inset map, and any other element and description that will end up on your printed document.

1.0 Getting Started

1. Start by opening the Administrative Map project **OR**

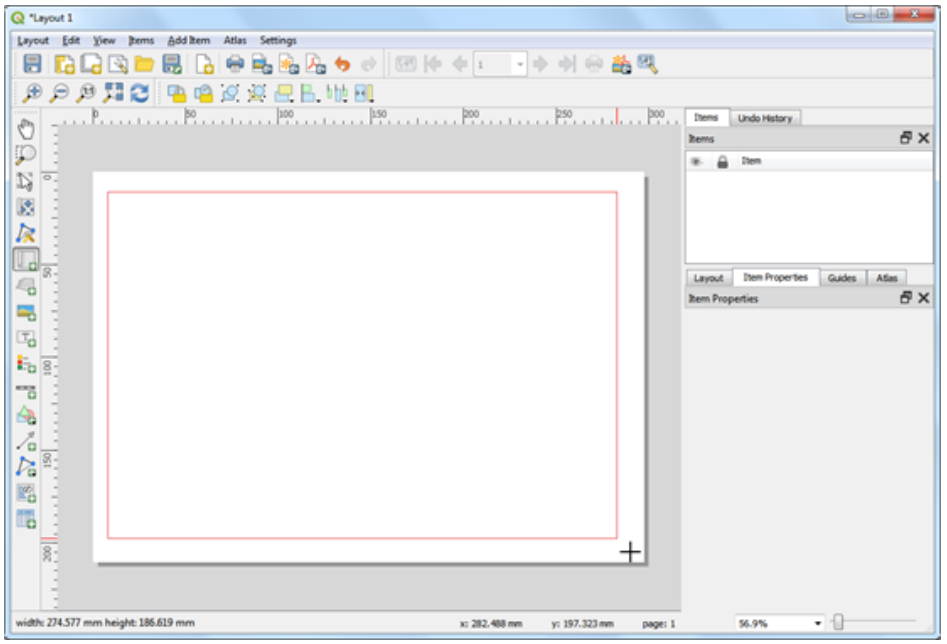
1. By starting a new project and adding the following datasets:
    - The Admin 1 layer: dma_admn_ad1_py_s0_unocha_pp_parish.shp in GIS\2_Active_Data\201_admn
    - The Settlements layer: dma_stle_stl_pt_s3_osm_pp_settlements.shp in GIS\2_Active_Data\213_stle
    - The Roads layer: dma_tran_rds_ln_s0_osm_pp_roads.shp in GIS\2_Active_Data\214_trans
    - If you are starting a new project, spend some time choosing the appropriate symbology for the various datasets you added. You can refer to Practical 2 for symbology methods for the roads and settlements data, and to Practical 1 for visualising Admin 1.

2. **Extra**: if you have some extra time, you could add other datasets that are helpful in an administrative map.
    - The Airports layer: dma_tran_air_pt_s0_ourairports_pp.shp in GIS\2_Active_Data\214_trans
    - Make sure you symbolise them appropriately. Choose a plane symbol for the airports, make sure the Admin 1 has clear filling and thick outlines, and that settlements have been filtered, symbolised, and labeled appropriately.
3. Take a final moment to look at all of your symbology.
    - Are you completely happy with how everything looks? Is the information clearly displayed? Can you differentiate between different items on the map?
    - Make your final adjustments now. Remember to check and adjust the order of the layers. Should a layer be on top of another?

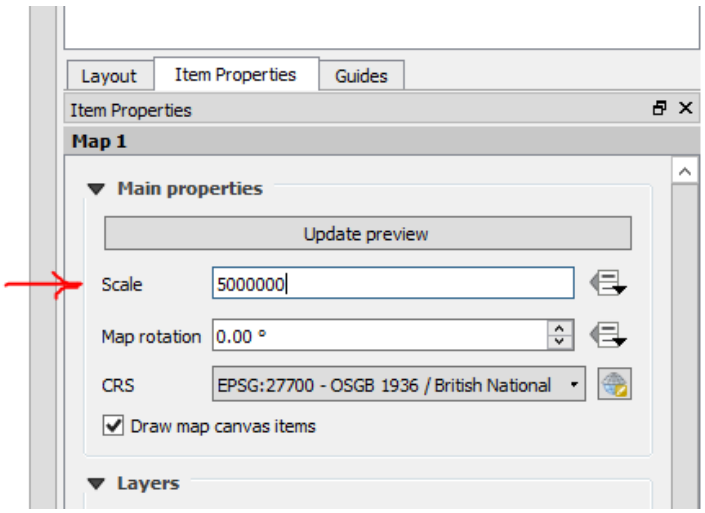
2.0 Adding a map to a print layout

QGIS has a different workspace, called **Print Layout**, in which you can design and finalise an actual map document.

1. From the **Project** menu select **New Print Layout**. You will be prompted to enter a title. You can leave it empty and click **OK.** You will see that it looks like a sheet of paper.
2. Go to **Layout > Page Setup** to choose your preferred paper size, and horizontal or vertical.
3. Use this button  to add a map. (Or use **Add Item > Add Map**).
4. Draw a rectangle where you want to insert a map



5. Use this button  to move the rectangle within the print layout. (Or use the menu **Edit > Select/Move item**)
6. Use this button  to pan the view of the map within the rectangle. (Or use the menu **Edit > Move Content**)
7. Now adjust the zoom level for the map. Click on the **Item Properties** tab on the right and enter an appropriate number. This should be close to the current scale, but rounding the values to something easier to interpret e.g. round 987969 to 1000000



3.0 Adding component parts

A good map needs more elements to aid accurate interpretation of the map. In this section, we will explore the most important map elements that you need to include.

3.1 Title

A title helps the reader to easily identify what the map is designed to show.

1. Click  (or Add Item > Add Label)
2. Draw a rectangle where you want the title.
3. Change the text by going to **Item Properties** and typing a relevant title, for example, "*Administrative Divisions of Grenada*" under **Main Properties**
4. Change the size of the font under **Item Properties > Appearance > Font**

3.2 Description

A description adds more information on the detail of what is included on the map

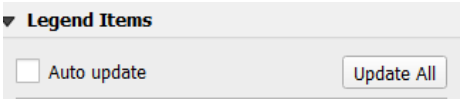
1. Repeat the steps for adding a title.
2. Instead of a title, add text for the description of the map. What is the map showing? What should people know about this map? Here you should add information about data sources. Also, add the map author.
3. Make this text smaller – to change the size of the font click on the drop-down list for Font (listed in the Item Properties under Appearance)

3.3 Legend

A legend is important for ensuring that the symbology on the map can be accurately interpreted

1. Click  (or Add Item > Add Legend)
2. In the **Item Properties** under Legend Items tick the box for **Only show items inside linked map.**

Within the Item Properties you can also scroll down to change other things like the font, number of columns etc.
In the **Legend Items** box, uncheck the **Auto update** box to be able to edit the layers shown in the Legend.

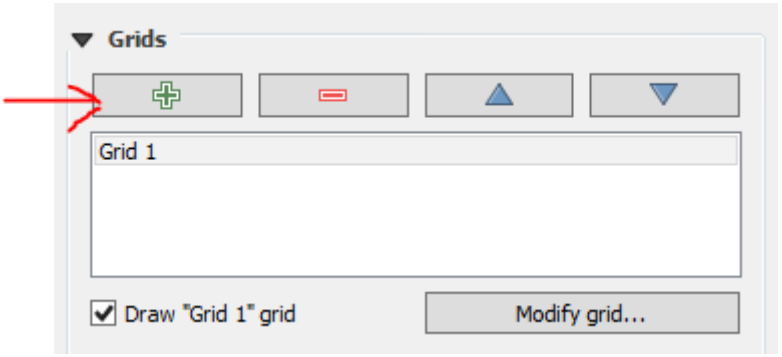


You can also double-click on the layers in the **Legend Items** box to change the name in which they will be displayed - for example from kna_tran_rds_ln_s0_osm_pp_roads.shp to *Main Roads*. This is very important to make sure the legend is understandable to anyone, and also it helps with making sure the legend itself doesn't occupy too much space.
You can use the arrows underneath the box to move the layers up or down in the legend.

3.4 Scale

It is important for a map to include information about scale. This means that the size of the area and distance between features can be accurately interpreted. In this example, we will show scale using a grid, but you may also wish to use a scale bar instead.

1. Click  and double-click your map so that the rectangle is selected.
2. Go to **Item Properties**
3. Under **Grids** click the green plus button



4. Select the grid you just created, then select **Modify grid...**
5. Under **Appearance > Interval** add appropriate numbers for **X & Y**.

The appropriate number will depend on:

- Whether the map is using a projected coordinate system or a geographic coordinate system
- The scale of the map

If you are working with a geographic coordinate system, start by trying intervals of **1** then make this number bigger or smaller as you think appropriate. If working with a projected coordinate system start with 100000 (which is 100km) then make the numbers larger or smaller as appropriate.

6. Add labels to your grid under **Draw coordinates**

3.5 North arrow

A north arrow helps to correctly orientate the map

1. Click  *(or **Add item > Add Image**)*
2. Draw a rectangle where you want the North arrow
3. In **Item Properties**, in the list of SVG Groups click on **arrows** within the App Symbols list, then choose an appropriate north arrow

4. **Save** your project before continuing

4.0 Output a map

You can export maps from QGIS in several ways: as a PDF, image, or SVG. Let's export our map as an image.

1. Go to **Layout > Export as Image**
2. Choose a destination for the file
3. Keep the options on the next dialogue box, and click **save**.
4. Open this file and make sure it looks as it is supposed to look.

5.0 Create a map template

We can create a template to reuse with other maps, and so save time next time. In this, we can standardise the layout of title, description, grid-scale or scale bar, organisation logo, and so on.

1. Look at your map and your elements, and adjust their size and location if necessary.
2. Once you are happy go to **Layout > Save as Template**
3. Name the template and click **Save**

6.0 Summary

Carefully designed print layouts including required cartographic elements ensure that your map looks good, but more importantly that the information presented on the map is correctly interpreted. At the end of this tutorial, you should have a PDF or PNG/JPG document with an administrative map. You should also have a saved Print Layout Template, ready for use during your next map project.