



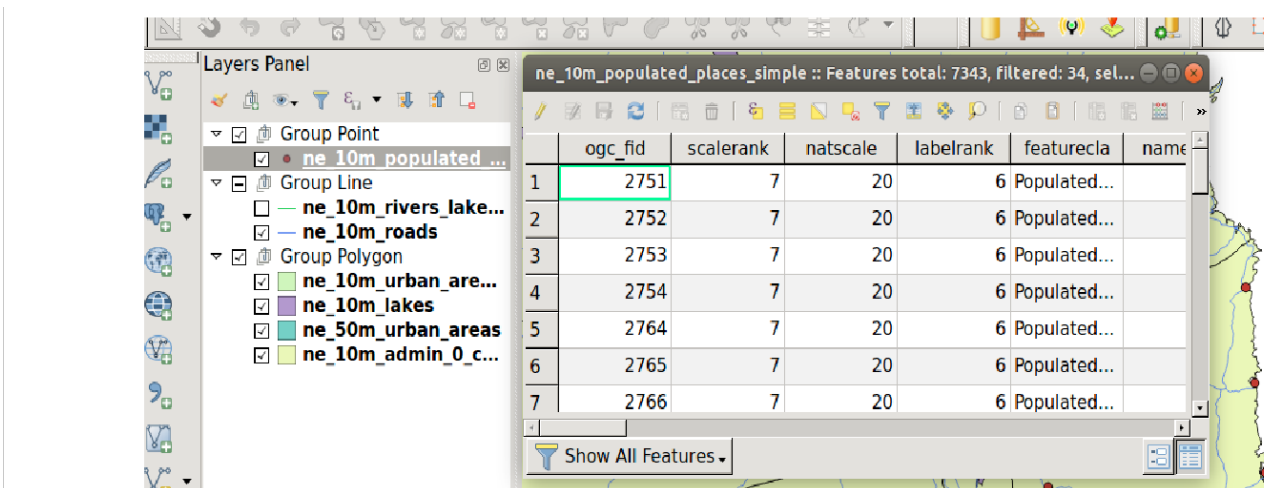
## Section : 8. Analysis

### Module : 8.1. Spatial Selections

#### Spatial selections in QGIS

*“Spatial selections allow you to select the features of one layer using the geometries of another layer..”*

Sometimes you want to use one layer to select features from another. For example, you could select roads that intersect with a flooded layer to find out which roads might be flooded. QGIS provides tools to do this kind of analysis which we will look at in more detail here.



#### **You try:**

**Goal: To review the Natural Earth Airports dataset and see if there is an airport in every country of the world.**

- Load the Countries and airports layers from Natural Earth (see specification table below).
- Set your project projection to World Mollweide (EPSG:54009)
- Use the Vector -> Research Tools -> Select by location tool to select all countries that contain an airport.
- Invert the feature selection
- Save the selected features to a new layer using the Layer -> Save as menu
- Make a composer layout
- Add a table to the layout with the properties as listed in the table below
- Generate a nice report of countries without airports as a PDF - if you are able to, add a little pizzazz to your report like the example above.

Name	Expectation
Countries layer	ne_10m_admin_0_countries in the ne.sqlite database
Airports layer	ne_10m_airports in the ne.sqlite database

Composer  
table settings

Attributes - remove all columns except 'admin' Attributes - column header set to 'Country' Show grid - disable Fonts and text styling - Alignment set to centre - Font set to bold

## More about

Does your report look something like the screen-shot above? Bear in mind that the report may simply be a product of an incomplete dataset, so the results in the above example may not reflect the real world situation.

### More about the select by location

- You can use the select by location tool to quickly create a subset of data for a particular region or area.
- A number of spatial predicates (within, contains, touches etc.) are available which provide fine-grained control over exactly which features will get selected.
- Depending on the complexity of the geometries being used in the analysis, spatial selection can be a time-consuming operation.
- There are many other spatial analysis operations you can perform - explore the vector menu in QGIS.
- All of the analysis tools in the QGIS vector menu can be chained in complex work flows by using the Processing Toolbox.

## Check your knowledge:

1. The select by location will find all features near to a specific location:
  - a. True
  - b. False
2. Indicate which statements are correct:
  - a. The select by location tool is also available in the processing toolbox.
  - b. Spatial selection is one of the fastest operations you can do in GIS
  - c. Spatial selection is one of the fastest operations you can do in GIS
  - d. The select by location tool will always create a new dataset

## Further reading:

- Selection: [https://docs.qgis.org/2.14/en/docs/training\\_manual/processing/selection.html](https://docs.qgis.org/2.14/en/docs/training_manual/processing/selection.html)

Download the sample data for the lesson from [http://staging.changelog.kartoza.com/media/images/lesson/worksheet/external\\_data/0075d25e237b27c68a8801e8c6aabf343eb5c832.zip](http://staging.changelog.kartoza.com/media/images/lesson/worksheet/external_data/0075d25e237b27c68a8801e8c6aabf343eb5c832.zip).