

Calculating Line Lengths and Statistics

QGIS Tutorials and Tips



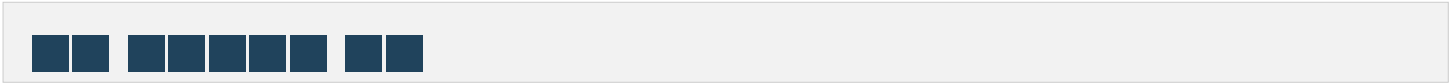
Author

Ujaval Gandhi

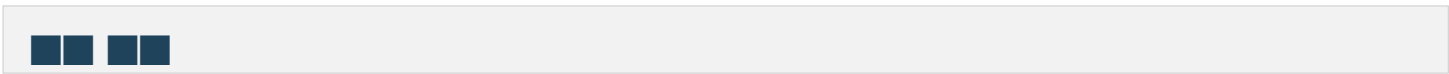
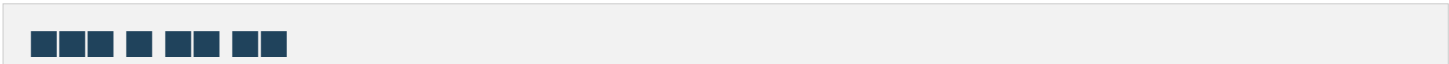
<http://google.com/+UjavalGandhi>

Translations by

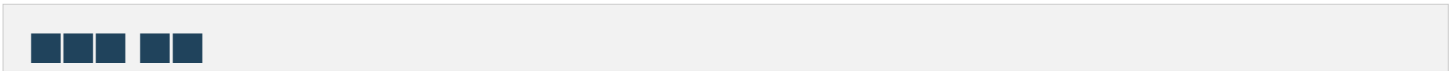
SongHyun Choi



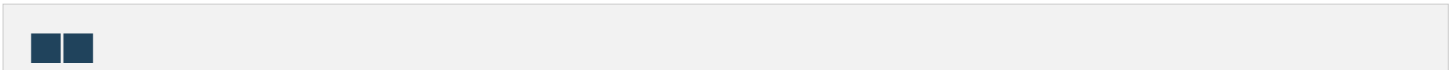
QGIS 3.16.0, 16.0, 16.0 is a free and open source GIS software. It is a desktop application that runs on Windows, Mac OS, and Linux. It is a powerful tool for creating, editing, and analyzing spatial data. It is a good choice for anyone who needs a GIS software. ****Field Calculator**** is a tool that allows you to calculate values for a field in a layer. It is a useful tool for many tasks, such as calculating the area of a polygon or the length of a line. It is a good choice for anyone who needs a GIS software.

[illegible]

- **Map Projection** (e.g., UTM, Mercator)
- **Coordinate System** (Projected Coordinate Reference System, CRS) **Map** **Projection**.
- **Map Scale** (e.g., 1:50,000)



```
`Natural Earth <http://www.naturalearthdata.com/downloads/10m-cultural-vectors/railroads/>`_
■■■■ ■■■■ ■■■ ■■■■■■ ■■■■■. ■■■■■ `North America supplement <http://www.naturalearthdata.com/http://www.naturalearthdata.com/download/10m/cultural/ne\_10m\_railroads\_north\_america.zip>`_
■■■■ ■■■ [NATURALEARTH]
```



1. ■■■■ :menuselection: `Layer --> Add Vector Layer` ■■■■.



2. ``ne_10m_railroads_north_america.zip``:guiabel:``OK``.



3. In the *Select layers to add...* dialog, choose ne_10m_railroads_north_america.shp layer.



4. The 'Open Attribute Table' button is located in the bottom right corner of the map canvas. Clicking this button will open the attribute table for the selected layer. The attribute table displays the data stored in the layer's attribute table, allowing you to view and edit the data. The attribute table is a table with columns representing the attributes of the features in the layer. The first column is the 'Layer ID' column, which contains the ID of the layer. The other columns represent the attributes of the features. The attribute table is a useful tool for viewing and editing data in QGIS.

Attribute table - ne_10m_railroads_north_america :: Features total: 1127, filtered: 1127, selected: 0

	scalerank	featurecla	sov_a3	uident	add	natrscale	continent
0	8	Railroad	USA	1506	0	0	North America
1	9	Railroad	USA	1606	1	5	North America
2	8	Railroad	USA	1706	0	0	North America
3	8	Railroad	USA	1806	0	0	North America
4	8	Railroad	USA	1906	0	0	North America
5	8	Railroad	USA	2006	0	0	North America
6	8	Railroad	USA	2106	0	0	North America
7	9	Railroad	USA	2206	1	5	North America
8	8	Railroad	USA	2306	0	0	North America
9	8	Railroad	USA	2406	0	0	North America
10	8	Railroad	USA	2506	0	0	North America
11	8	Railroad	USA	2606	0	0	North America
12	8	Railroad	USA	2706	0	0	North America
13	8	Railroad	USA	2806	0	0	North America
14	9	Railroad	USA	2906	1	5	North America
15	9	Railroad	USA	3006	1	5	North America
16	8	Railroad	USA	3106	0	0	North America
17	8	Railroad	USA	3206	0	0	North America
18	8	Railroad	USA	3306	0	0	North America
19	8	Railroad	USA	3506	0	0	North America
20	8	Railroad	USA	3606	0	0	North America
21	8	Railroad	USA	3706	0	0	North America
22	8	Railroad	USA	3806	0	0	North America
23	9	Railroad	USA	3906	1	5	North America

Show All Features

6. **Attribute Table** : *guiabel:* 'Select features using an expression'.



8. Back in the main QGIS window, you will see that all lines that fall in USA are selected and appear in yellow.



9. ■■■ ■■■■ ■■ ■■■ ■■■■■■ ■■■■■■ ■■■■■■. ``ne_10m_railroads_north_america`` ■■■■
 ■■■■ ■■■■ ■■■■ ■■■■ ■■ :guilabel: Save Selection As... ■ ■■■■■■. ■■ ■■■■■■ ■■
 ■■■■ ■■■■ ■■■■ ■ ■■ ■ ■■■■ ■■■■ ■■■■ ■■■■.



10. `guiabel:Browse`` `usa_railroads.shp`` `CRS`` `guiabel:CRS`` `guiabel:Browse``

Note

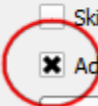
`CRS`` `EPSG:4326`` `(CRS)`` `**degrees**` `**degrees*` `square degrees**` `**meters` `**feet**`



11. `filter = 'Filter'` `crs = 'north america equidistant conic'` `crs = 'North_America_Equidistant_Conic'` `crs = 'EPSG:102010'` `crs = 'OK'`



12. ■ ■■■■■ ■■ ■■■■ ■■■■■ Save vector layer as... ■■■■■■■■ ■■■■ ■■■■ ■■■■ ■■■
 :guilabel:`Add saved file to map` ■ ■■■■■ :guilabel:`OK` ■ ■■■■■■.



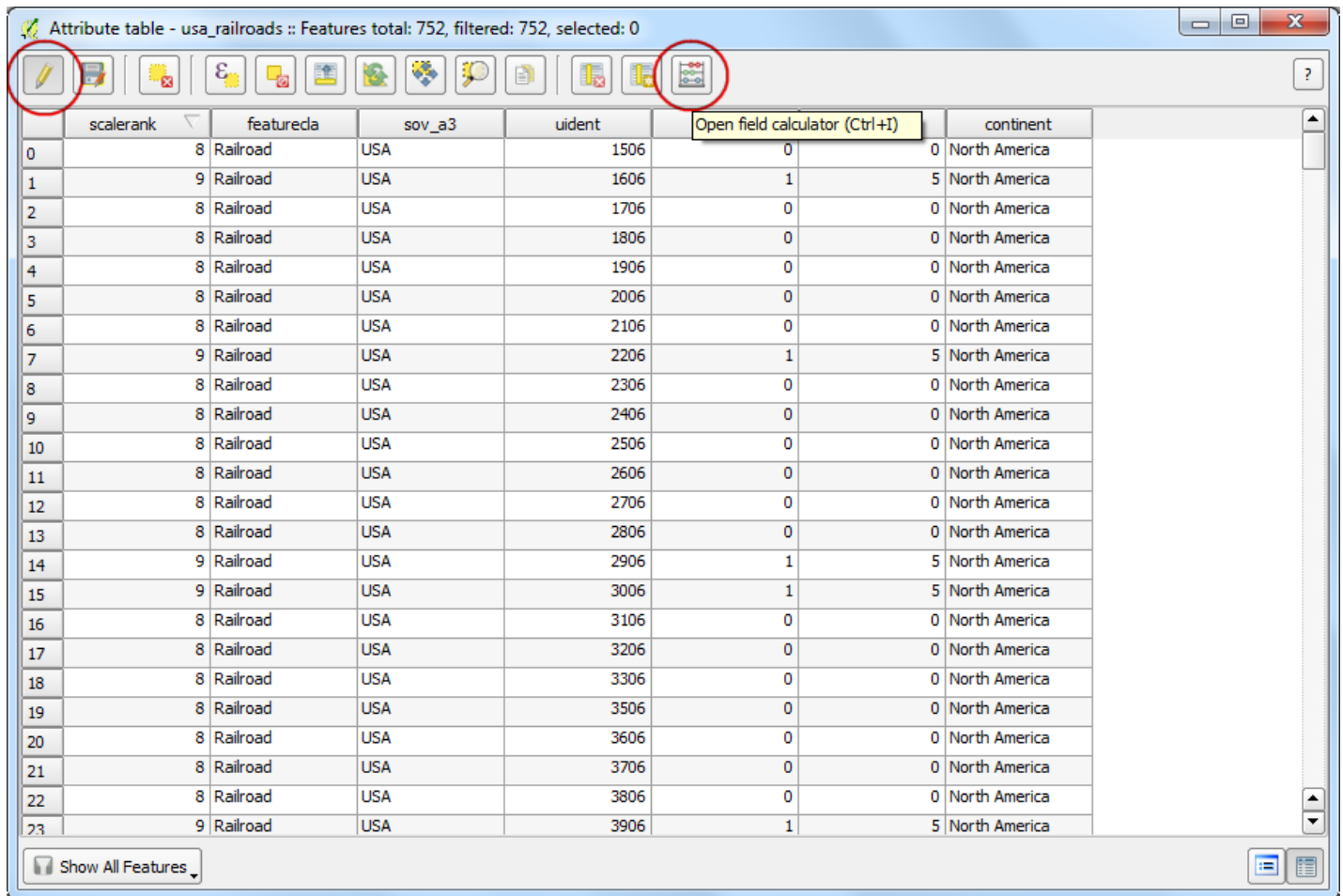
```
usa_railroads` QGIS. `ne_10m_railroads_north_america
```



14. ``usa_railroads`` ■■■■ ■■■ ■■■ ■■■■ ■■ ■■■ ■■ :guilabel: `Open Attribute Table` ■
 ■■■■.



15. `self.toggle_editing_button = QPushButton('Toggle editing')`
`self.open_field_calculator_button = QPushButton('Open field calculator')`



16. `Field Calculator` `guiabel: 'Create a new field'` `guiabel: 'Output field name'` `**length_km**` `guiabel: 'Output field type'` `**Decimal number (real)**` `guiabel: 'Precision'` `**2**` `guiabel: 'Function list'`, `guiabel: 'Geometry'` `guiabel: '$length'` `guiabel: 'Expression'` `CRS meters` `**km**` ``$length / 1000`` `OK` `guiabel: 'OK'`



17. ■■■■■ Attribute Table ■■■■■ :guilabel:`length_km` ■■■■■. ■■■■■
 :guilabel:`Toggle editing` ■■■■■.



19. `QGIS::VectorLayer::BasicStatisticsDialog`:
 :guilabel: "Input Vector layer" `self.parent().layer`
 :guilabel: "Target field" `self.parent().target_field`
 :guilabel: "Sum" `self.parent().sum`
 :guilabel: "OK" `self.parent().ok`

Note

The `BasicStatisticsDialog` class is a subclass of `QDialog`. It is used to display a dialog box for basic statistics. The dialog box contains a list of fields and a table of statistics. The `BasicStatisticsDialog` class is defined in the `BasicStatisticsDialog.h` and `BasicStatisticsDialog.cpp` files.

Basics statistics

Input Vector Layer
usa_railroads

☐ Use only selected features

Target field
length_km

Statistics output

Parameter	Value
Mean	127.751569149
StdDev	125.80562595
Sum	96069.18
Min	0.01
Max	936.6
N	752.0
CV	0.984767755...
Number of unique values	743

Press Ctrl+C to copy results to the clipboard

0% OK Close