

# Calculating Line Lengths and Statistics

QGIS Tutorials and Tips



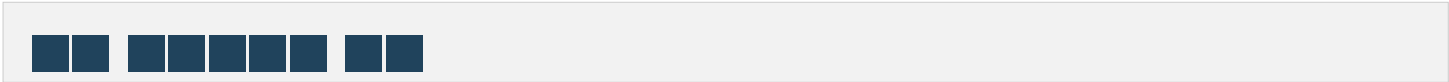
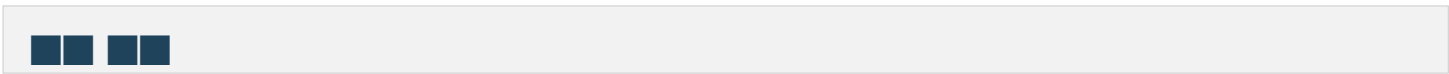
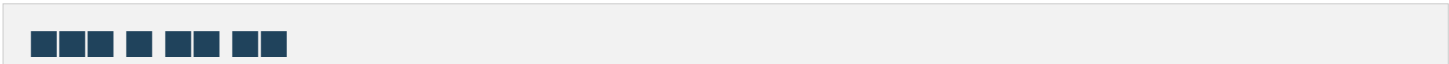
Author

Ujaval Gandhi

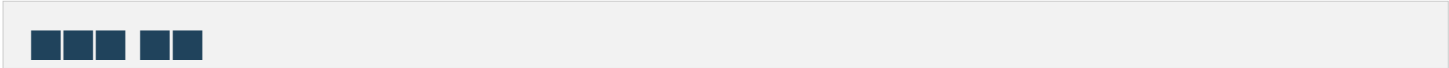
<http://google.com/+UjavalGandhi>

Translations by

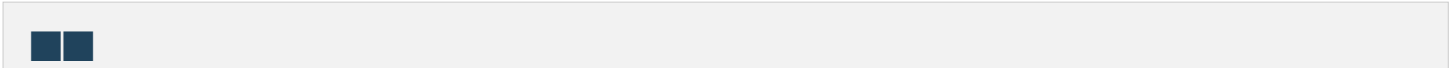
SongHyun Choi

[illegible][illegible]

- **Map Projection:** The map uses a **Projected Coordinate Reference System (CRS)**.
- **Units:** The map uses **meters** as the unit of measurement.



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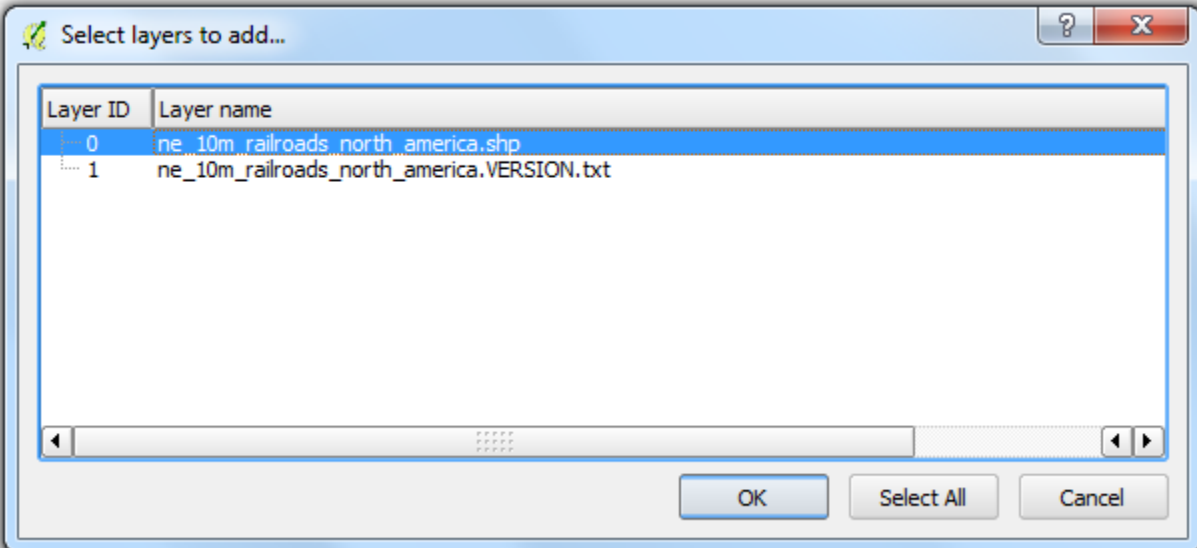
1. ■■■■ :menuselection: Layer --> Add Vector Layer` ■ ■■■■.



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. **GUI Label:** Open Attribute Table



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... ■ ■■■■■■. ■■ ■■■■■■ ■■  
 ■■■■ ■■■■ ■■■■ ■ ■■ ■ ■■■■ ■■■■ ■■■■ ■■■■.

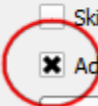




11. `filter = 'Filter'` `crs = 'north america equidistant conic'` `crs = 'North_America_Equidistant_Conic'` `crs = 'EPSG:102010'` `crs = 'OK'`



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



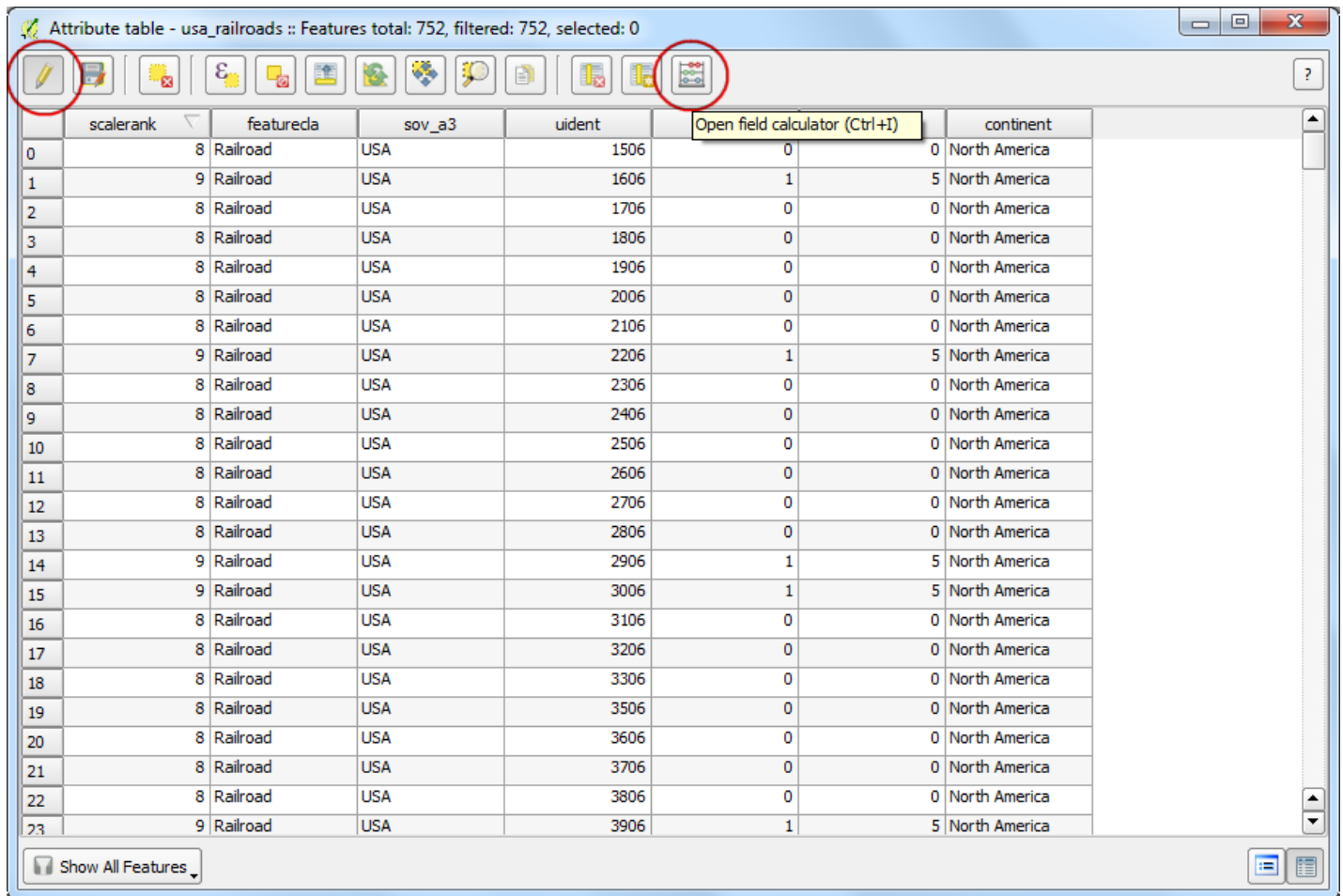
```
usa_railroads`██████ QGIS ██████. █████ `ne_10m_railroads_north_america
```



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::BasicStatistics`  
 :guilabel: Target field `length_km`  
 :guilabel: Sum `length_km`

## Note

The Basic Statistics tool calculates the sum, mean, and standard deviation of the values in the selected field. It also calculates the number of features in the layer. The results are displayed in a table.

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