

# Calculating Line Lengths and Statistics

QGIS Tutorials and Tips



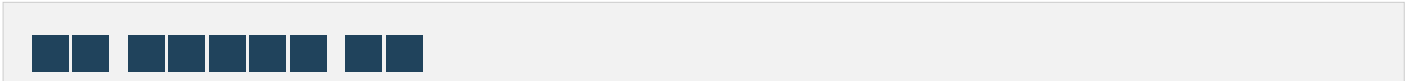
Author

Ujaval Gandhi

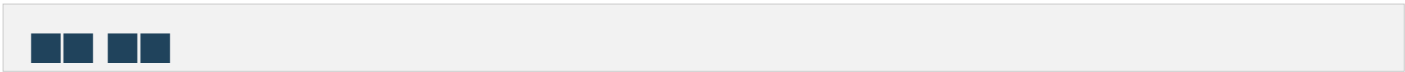
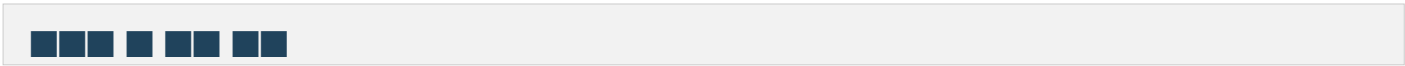
<http://google.com/+UjavalGandhi>

Translations by

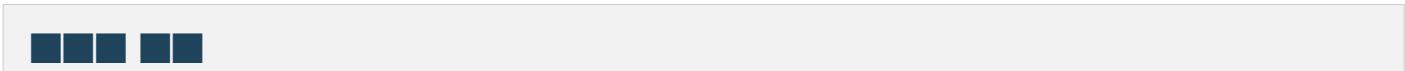
SongHyun Choi



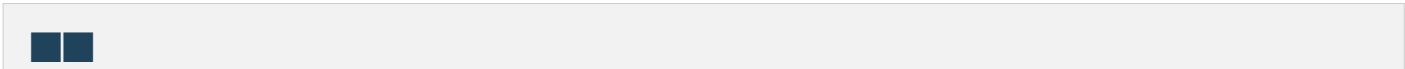
QGIS 3.0, 3.2, 3.6 e 3.8 oferecem ferramentas para criar novos campos de texto no banco de dados. A ferramenta **\*Field Calculator\*** permite criar novos campos de texto no banco de dados.

[illegible]

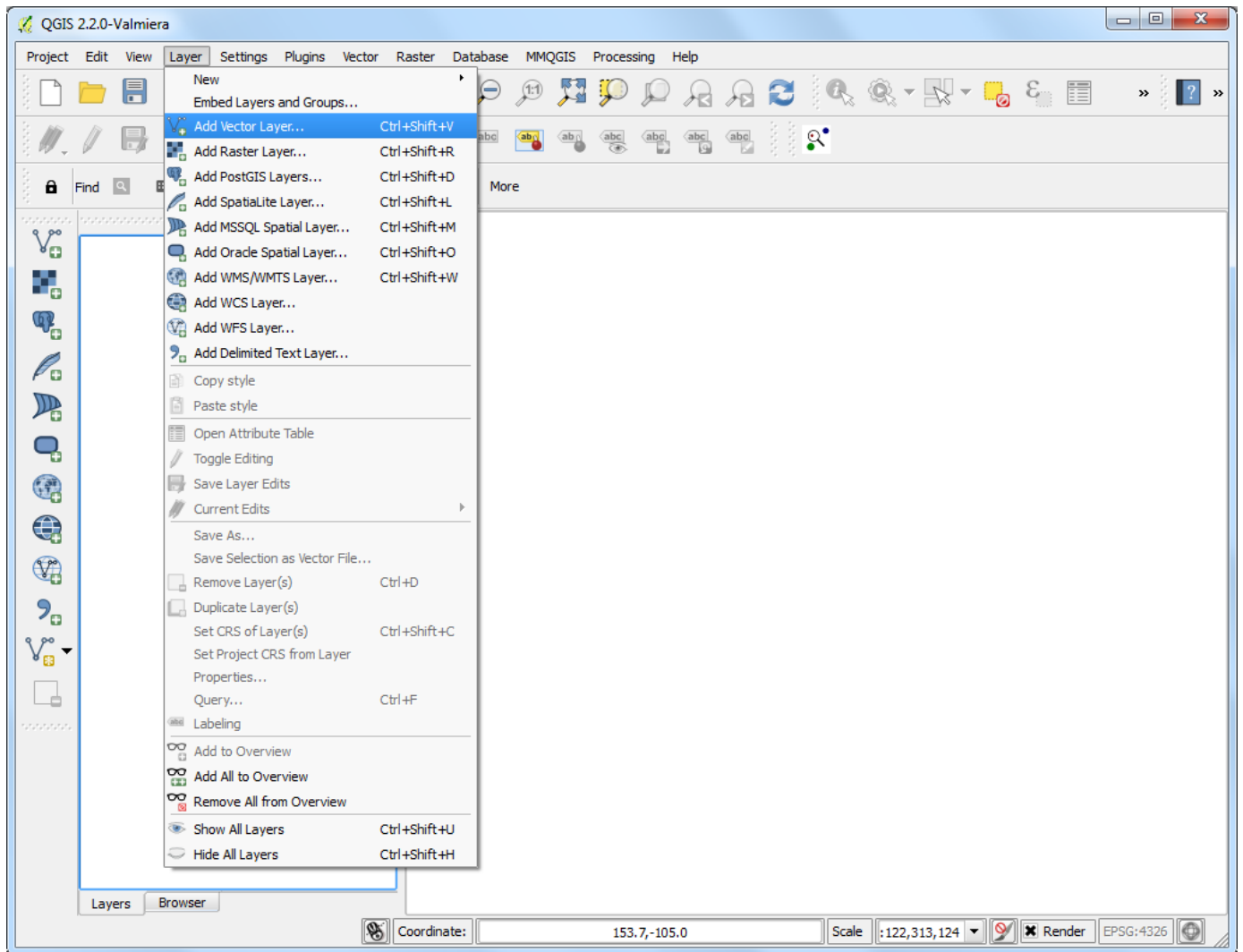
- **■■■■ ■■■■ ■■■■ ■■**
- **■■■■■■■ ■■■■ ■■■■(Projected Coordinate Reference System, CRS)■ ■■■■ ■ ■■.**
- **■■■■■■■ ■■■■ ■■ ■■**



```
`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` ■■■■.



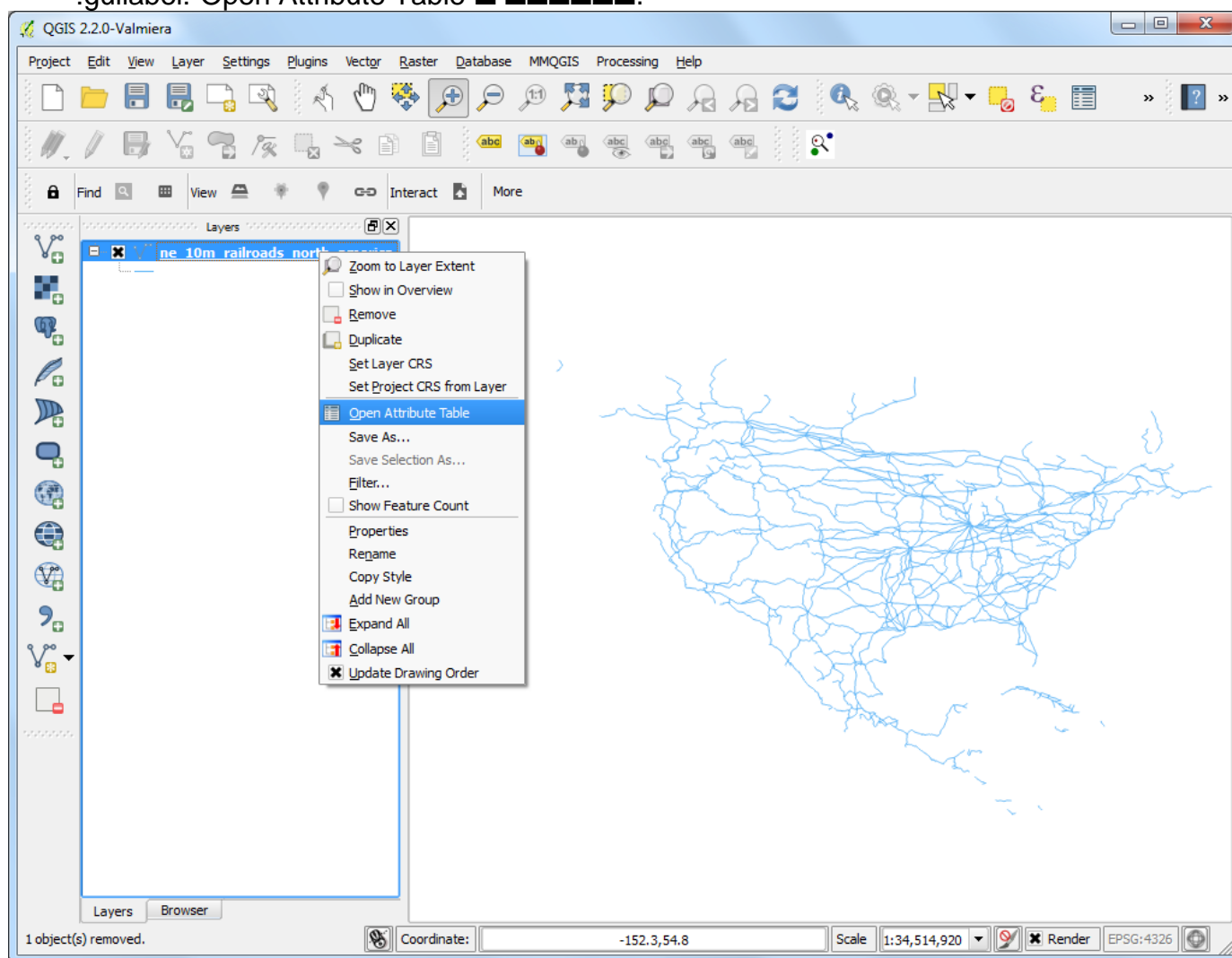
2. ``ne\_10m\_railroads\_north\_america.zip`` ■■■■ ■■■■ :guilabel: `OK` ■■■■ ■■■■.



3. In the *Select layers to add...* dialog, choose ne\_10m\_railroads\_north\_america.shp layer.



4. **Click on the 'Open Attribute Table' button in the layer context menu.**



5. **Click on the 'sov\_a3' layer in the 'Layers' panel.**


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■■■■ ■■■■ ■■■■ ■■■■ :guilabel:'Select features using an expression■■■■ ■■■■.

Attribute table - ne\_10m\_railroads\_north\_america :: Features total: 1127, filtered: 1127, selected: 0



	scalerank	Select features using an expression	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

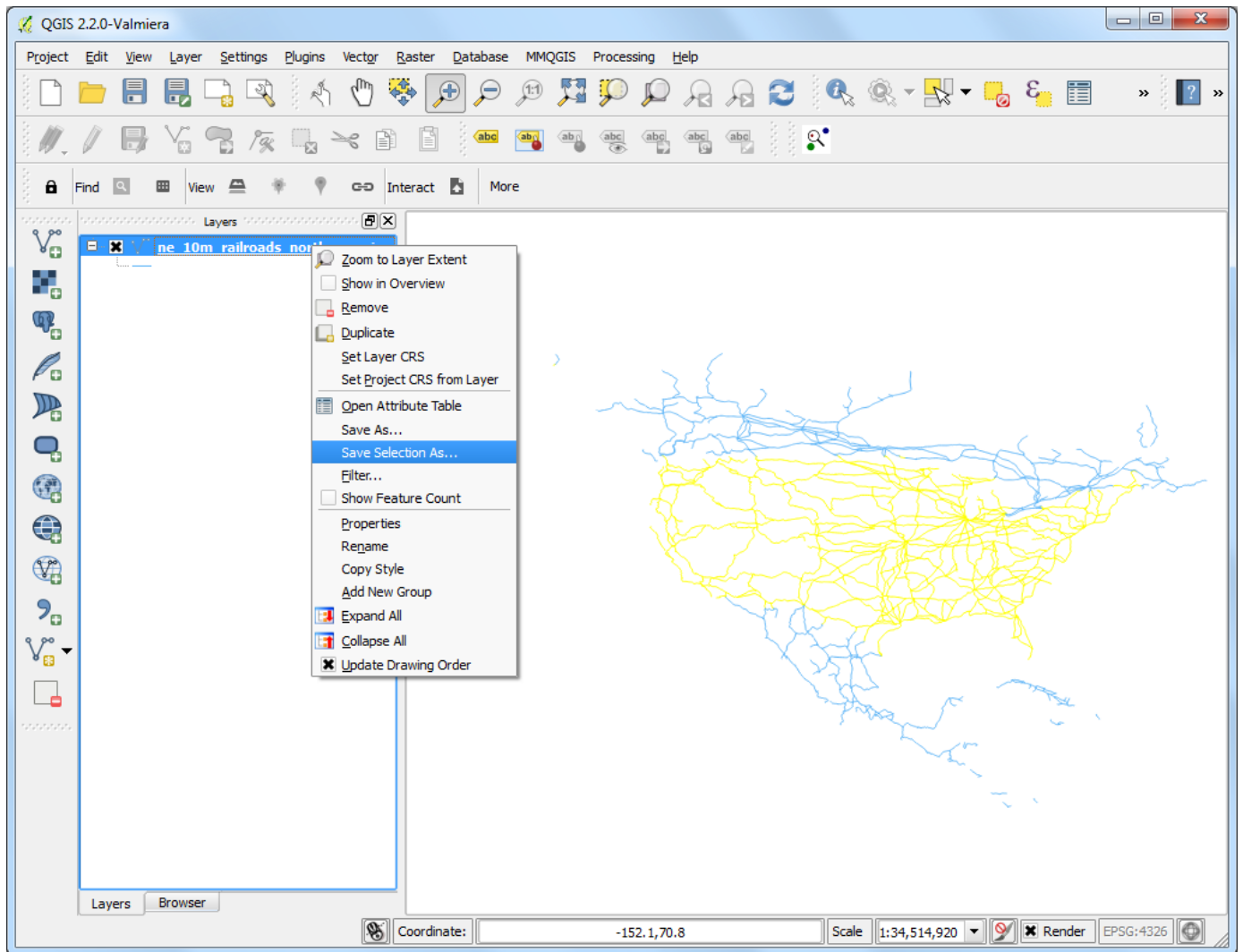
Show All Features

The screenshot shows the 'Select By Expression' dialog box. In the 'Function list' on the left, the 'Fields and Values' category is expanded, and 'sov\_a3' is selected. The 'Expression' field contains the text `"sov_a3" = 'USA'`. The 'Selected function help' panel on the right displays information for the 'Field' function, including instructions on how to add field names to the expression string and how to load values (all unique or 10 samples).

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`. ``ne\_10m\_railroads\_north\_america``  
:guilabel: Save Selection As...



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

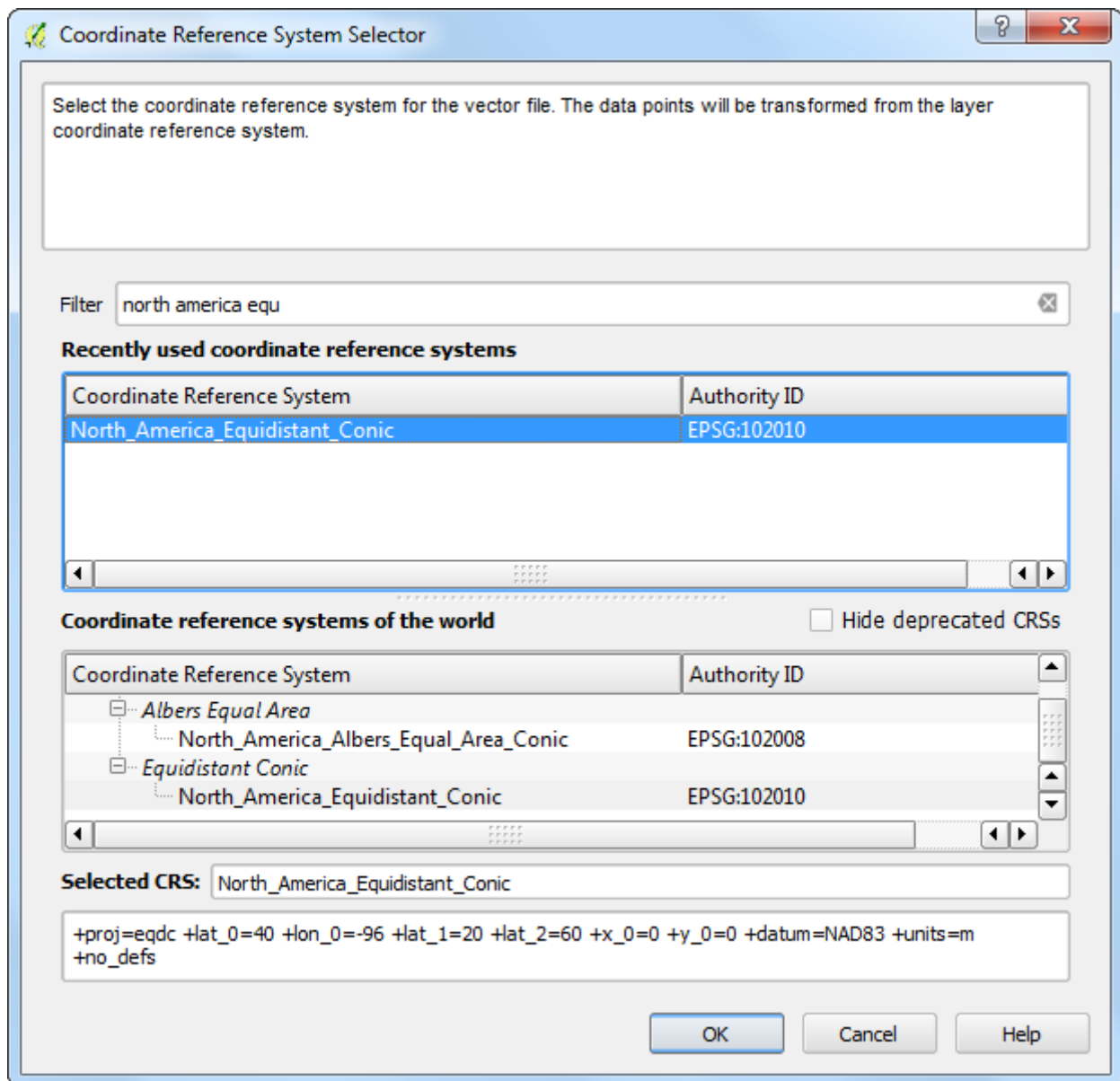
## Note

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





```
11. ■■■■ ■■■■ ■■■■ ■■■■ ■■■■ ■■■■. ■■■ :guilabel:`Filter` ■■■ ■■■■ :guilabel:`north`  
america equ` ■■■■ ■■■■. ■■■■ ■■■■ CRS■  
:guilabel:`North_America_Equidistant_Conic` EPSG:102010` ■■■■ :guilabel:`OK` ■■■  
■■■■.
```



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



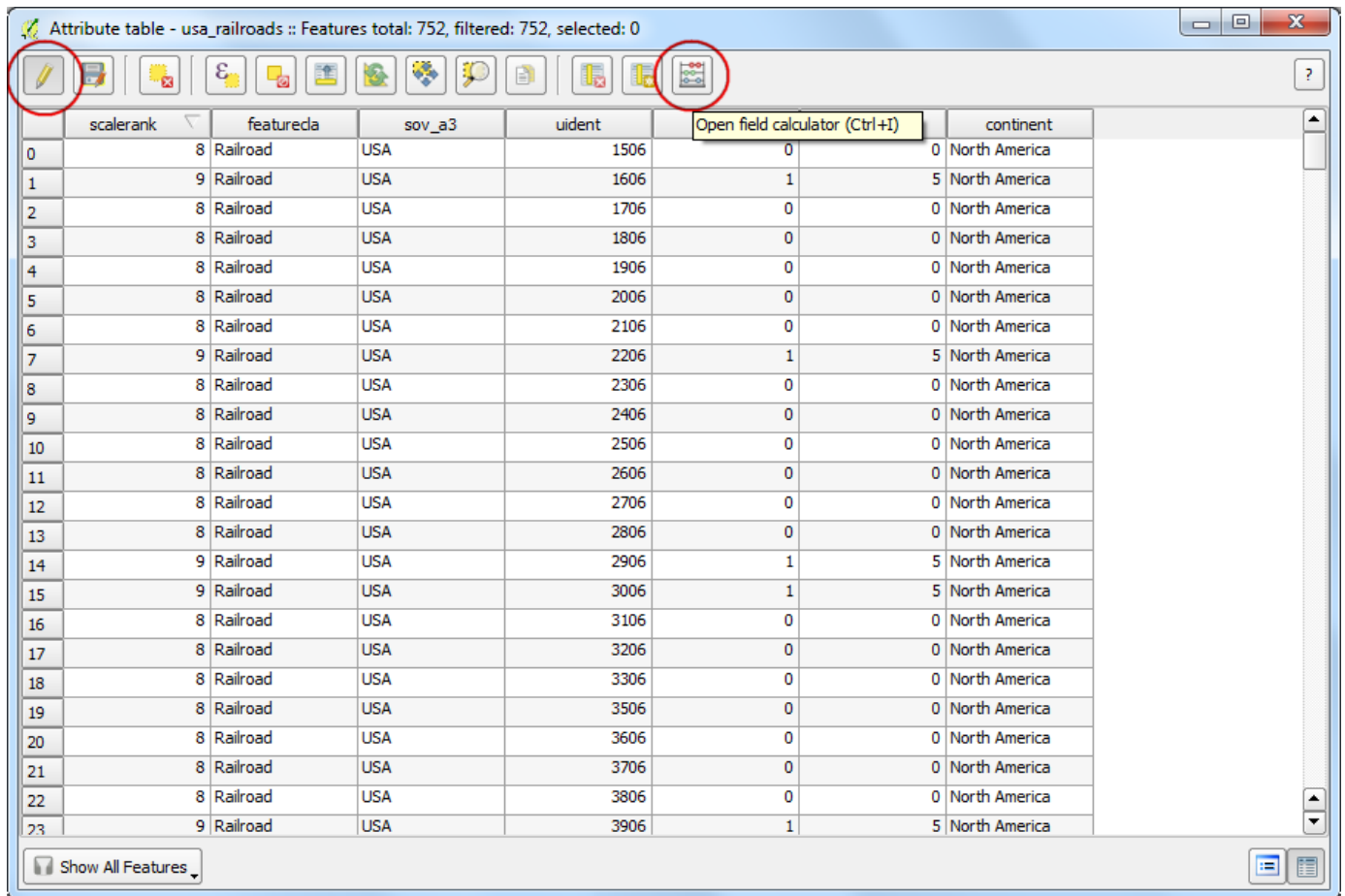
13. ■■■ ■■■■ ■■■■ ■■■■ ■■■■  
 usa\_railroads` `■■■■ QGIS ■■■■. ■■■■ ``ne\_10m\_railroads\_north\_america  
 ■■■■ ■■■■ ■■■■ ■■■■ ■■■■ ■■■■ ■■■■ ■■■■ ■■■■ ■■■■



14. ``usa\_railroads`` ■■■■ ■■■■ ■■■■ ■■■■ ■■ ■■■■ ■■ :guilabel: Open Attribute Table`■  
■■■■■.



15. ■■■ ■ ■■■ ■■■ ■■■ ■■■ ■■■■■. ■■■■■■ :guilabel: 'Toggle editing' ■■■ ■■■■  
 ■■■■ ■■■■■ ■■■■. ■■ ■■■■■■ ■■■■■■■■ :guilabel: 'Open field calculator' ■■■  
 ■■■■■■.



16. **Field Calculator** **Create a new field**. **Output field name** **length\_km**. **Output field type** **Decimal number (real)**. **Precision** **2**. **Function list**, **Geometry** **length**. **Expression** **length / 1000**. **CRS** **meters** **km** **length / 1000**. **OK**.



17. ■■■■■ Attribute Table ■■■■■ ■■■■ ■■■■ ■■■■ :guilabel:`length\_km` ■■■■ ■■■■. ■■■■■■ :guilabel:`Toggle editing` ■■■■ ■■■■ ■■■■ ■■■■ ■■■■.

Attribute table - usa\_railroads :: Features total: 752, filtered: 752, selected: 0



	scalerank	featuredata	sov_a3	uident	add	natrscale	continent	length_km
0	8	Railroad	USA	1506	0	0	North America	637.07
1	9	Railroad	USA	1606	1	5	North America	16.27
2	8	Railroad	USA	1706	0	0	North America	96.22
3	8	Railroad	USA	1806	0	0	North America	20.15
4	8	Railroad	USA	1906	0	0	North America	0.01
5	8	Railroad	USA	2006	0	0	North America	79.95
6	8	Railroad	USA	2106	0	0	North America	67.00
7	9	Railroad	USA	2206	1	5	North America	196.45
8	8	Railroad	USA	2306	0	0	North America	60.61
9	8	Railroad	USA	2406	0	0	North America	20.03
10	8	Railroad	USA	2506	0	0	North America	147.21
11	8	Railroad	USA	2606	0	0	North America	68.33
12	8	Railroad	USA	2706	0	0	North America	1.62
13	8	Railroad	USA	2806	0	0	North America	4.34
14	9	Railroad	USA	2906	1	5	North America	60.92
15	9	Railroad	USA	3006	1	5	North America	157.26
16	8	Railroad	USA	3106	0	0	North America	131.39
17	8	Railroad	USA	3206	0	0	North America	58.84
18	8	Railroad	USA	3306	0	0	North America	432.74
19	8	Railroad	USA	3506	0	0	North America	29.55
20	8	Railroad	USA	3606	0	0	North America	94.90
21	8	Railroad	USA	3706	0	0	North America	577.78
22	8	Railroad	USA	3806	0	0	North America	223.04
23	9	Railroad	USA	3906	1	5	North America	143.94

Show All Features

18. **Menu Selection:** Vector --> Analysis Tools --> Basic Statistics --> Summary Statistics. **Total** **Statistics**.





19. `guiabel:'Input Vector layer'` ```usa_railroads```. `guiabel:'Target field'` ```length_km``` `guiabel:'OK'`. `guiabel:'Sum'`

## Note

19. `guiabel:'Input Vector layer'` ```usa_railroads```. `guiabel:'Target field'` ```length_km``` `guiabel:'OK'`. `guiabel:'Sum'`

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