

# Calculating Line Lengths and Statistics

QGIS Tutorials and Tips



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Translations by

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QGIS□ □, □□, □□ □ □□□□□ □□ □□ □□ □□ □ □□ □□ □□ □□□. □ □□□□ □ □□ □□ □□□ □□ □□ □□ □□□ **\*\*Field Calculator\*\***□ □□ □□□□ □□ □□□.

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- □□□□□ □□□ □□□(Projected Coordinate Reference System, CRS)□ □□□ □ □□.
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`Natural Earth  
<<http://www.naturalearthdata.com/downloads/10m-cultural-vectors/railroads/>>`\_□□  
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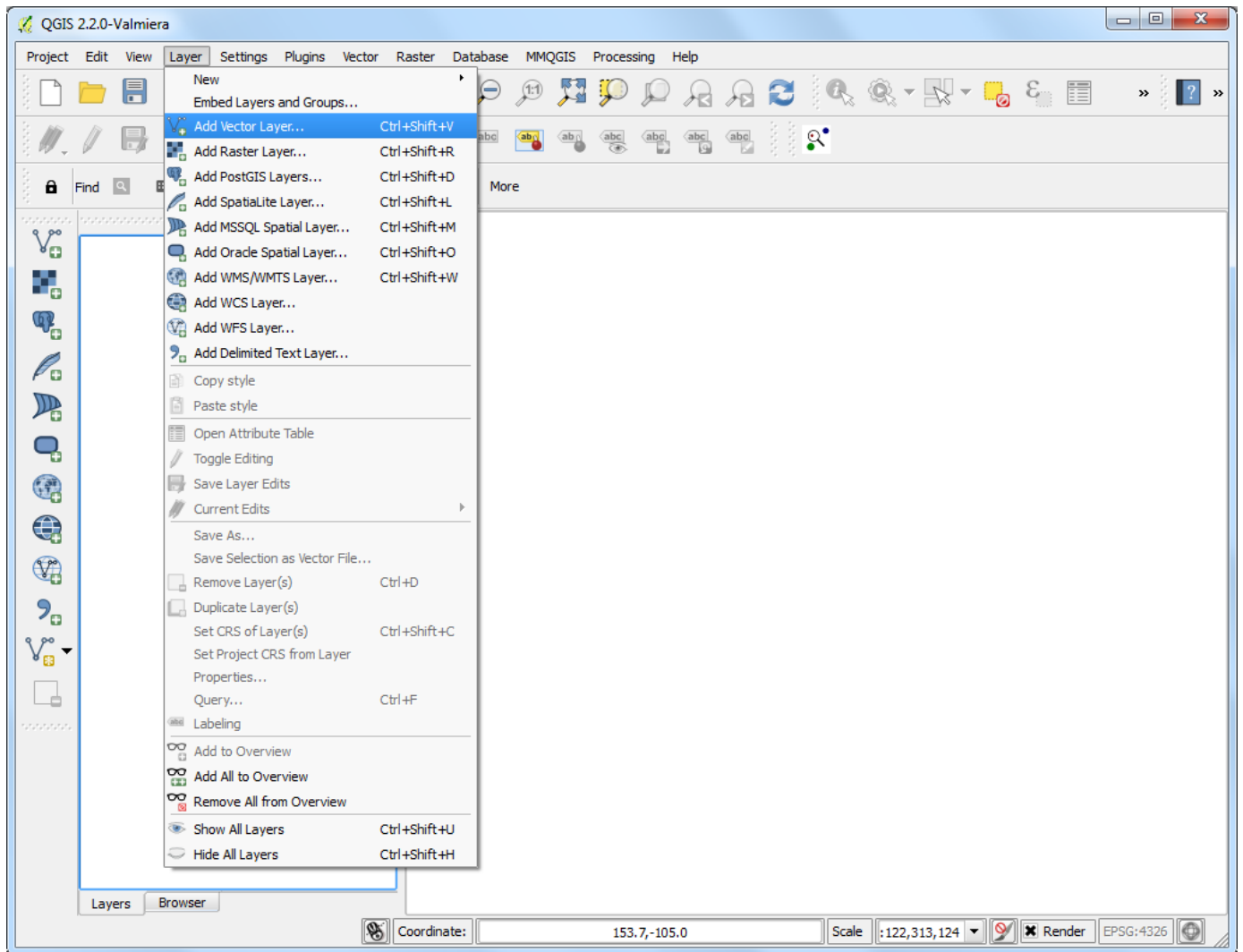
For convenience, you may directly download a copy of the dataset from the link below:

[ne\\_10m\\_railroads\\_north\\_america..zip](#)

□□□ □□ [NATURALEARTH]

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



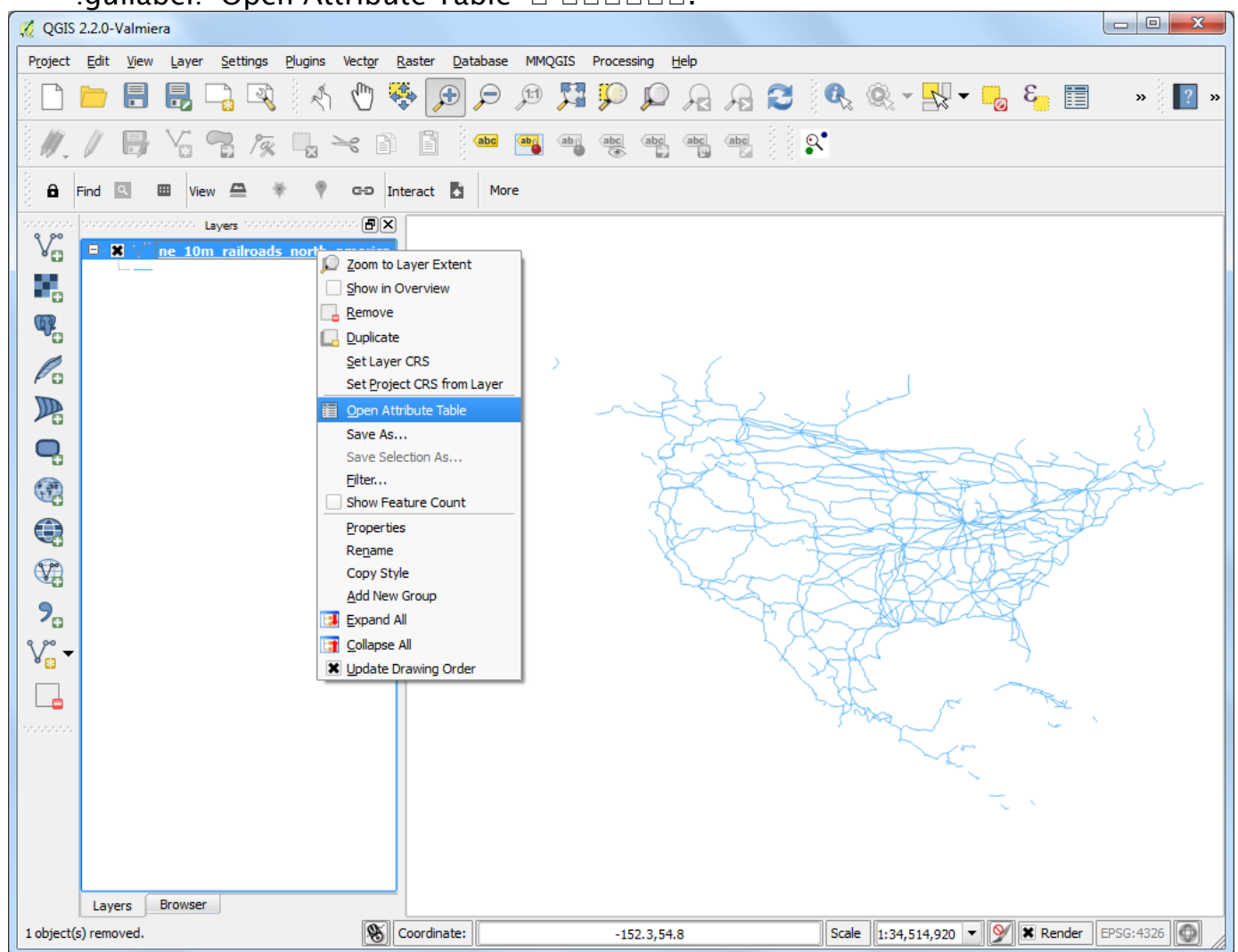
2. ``ne\_10m\_railroads\_north\_america.zip`` □□□ □□□ :guilabel: `OK` □ □□□□□.



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



4. 00 0000 0000 000000 00 00 0000 0000 00 00 0000 0000. 0 000000 0000 00 0000 0000 0000, 000000 00 0000 0000 0000. 000000 0000 0000 0000 0000 :guilabel: `Open Attribute Table` 0 0000000.



5. □□□□ :guilabel: `sov\_a3` □□ □□ □□□ □□□□. □□□ □□ 3□ □□ □□ □□ □□  
□□ □□□□ □□□□ □□ □□□□□. □ □□□ □□□□ □□□□ □□ □□ □ □□□□.

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

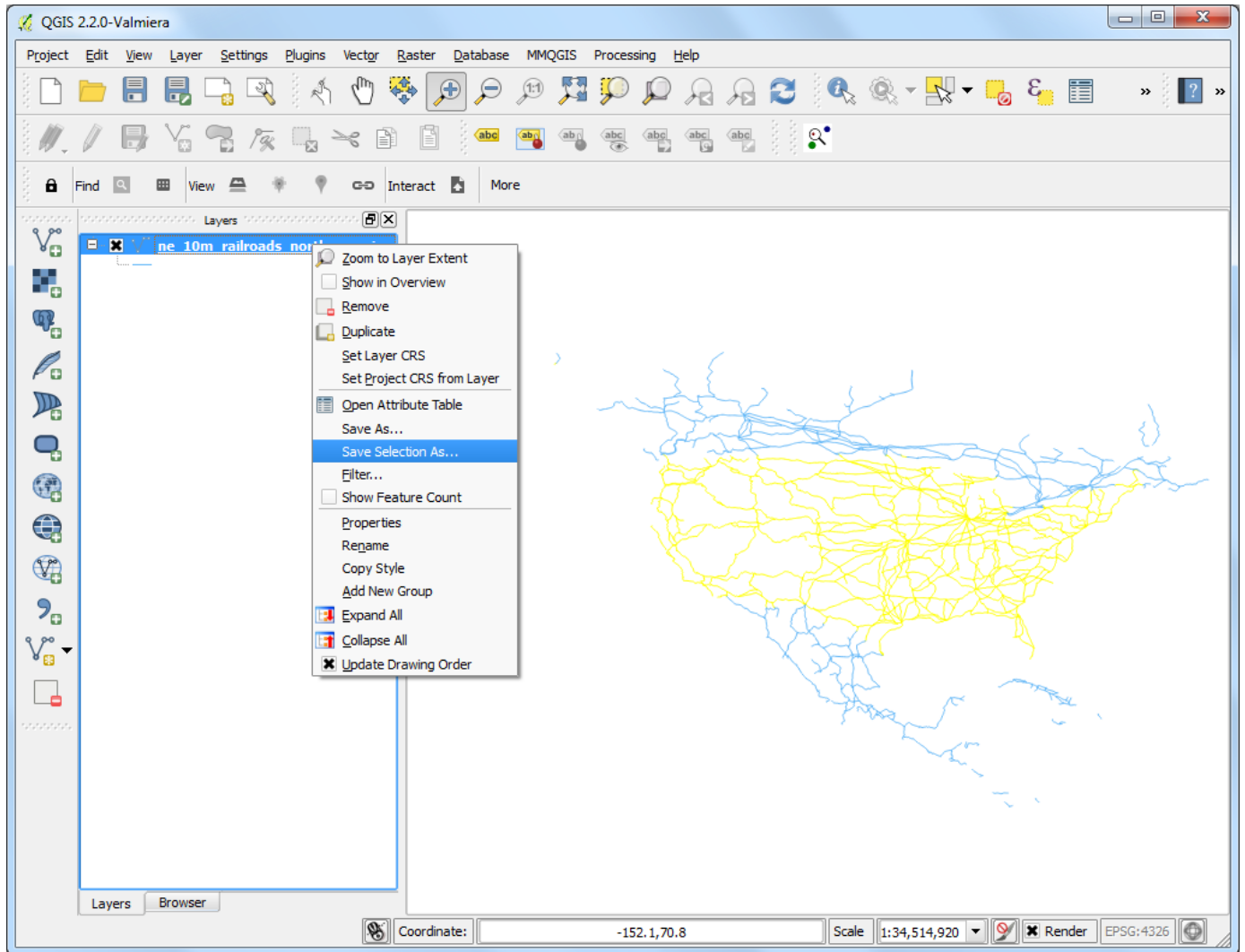
7. Select By Expression dialog box. Functions list Fields and Values sov\_a3, Expression: "sov\_a3" = 'USA', Select, Close.



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: `Browse``

## Note

CRS `EPSG:4326` `**degrees**`, `square degrees**` `**meters` `**feet**`





11. :guilabel: Filter`  
:guilabel: north america equ`  
: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  
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14. ``usa\_railroads`` :guilabel: ``Open Attribute Table``.



15. `Toggle editing` `Open field calculator`

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

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

Show All Features

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**` `OK`



17. 在 Attribute Table 中，单击 `length_km` 列，单击 `Toggle editing` 按钮。

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. 在 QGIS 中打开 'usa\_railroads' 属性表。在 'length\_km' 列上右键单击，选择 'Statistics'。在弹出的对话框中，选择 'Basic Statistics'。在 'Statistics for' 下拉菜单中，选择 'length\_km'。单击 'OK'。在弹出的窗口中，查看 'Summary Statistics' 部分，找到 'Total' 值。该值应显示为 143.94。





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