

Calculating Line Lengths and Statistics

QGIS Tutorials and Tips



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Translations by

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[illegible]

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- **Geographic Coordinate System (GCS)**
- **Projected Coordinate Reference System (CRS)**
- **Geographic Coordinate System (GCS)**

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`Natural
<http://www.naturalearthdata.com/downloads/10m-cultural-vectors/railroads/>`_
  00 0000 00 000000 00000. 00000 `North America supplement <http://www.naturalearthdata.com/http://www.naturalearthdata.com/download/10m/cultural/ne\_10m\_railroads\_north\_america.zip>`_
  000000 00000 00000.

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



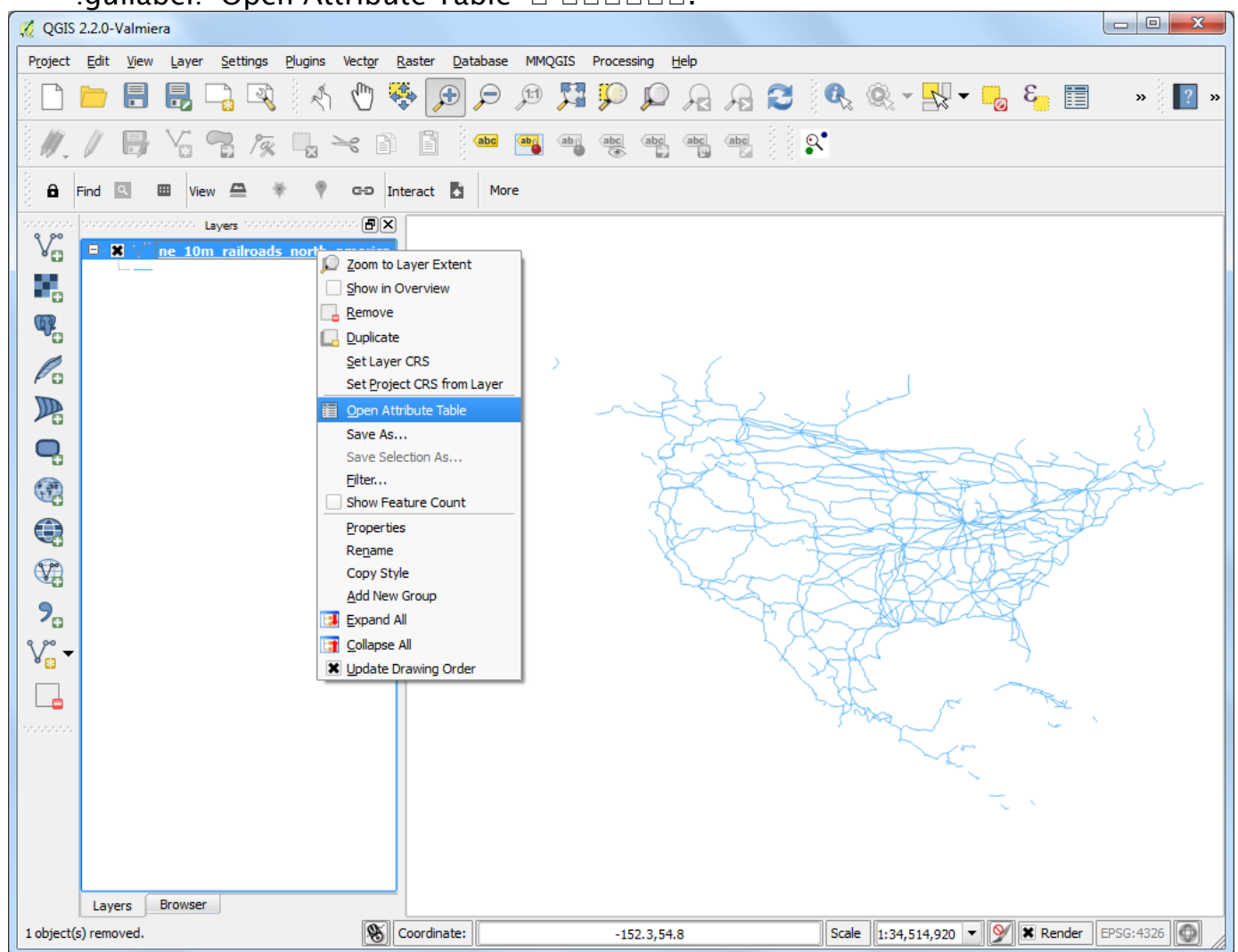
2. ``ne_10m_railroads_north_america.zip`` □□□ □□□ :guilabel: `OK` □ □□□□□.



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` 的变量名。在代码中，`sov_a3` 是一个字符串，用于标识变量。`sov_a3` 的值是 `'sov_a3'`。

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

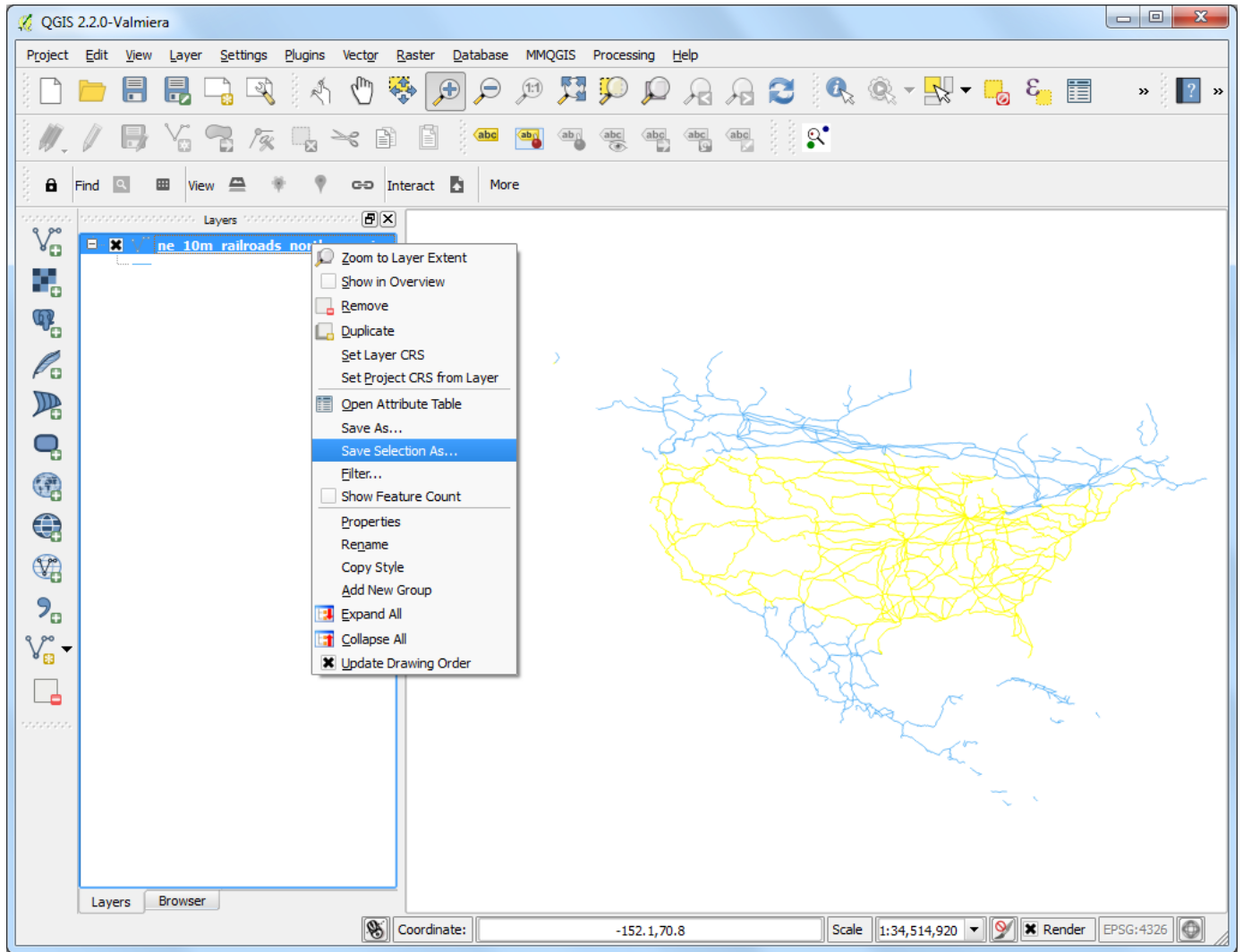
7. Select By Expression dialog box. Functions list Fields and Values sov_a3, Expression: "sov_a3" = 'USA', Select, Close.



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
 □□□□ □□□□ □□□□ □□□ □□□ □□□□ □□□ □□□ □□□.



14. `usa_railroads` : 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
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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 编辑 按钮 :guilabel:`length_km` 单击 编辑 按钮。
 单击 编辑 按钮 :guilabel:`Toggle editing` 单击 编辑 按钮 单击 编辑 按钮。

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