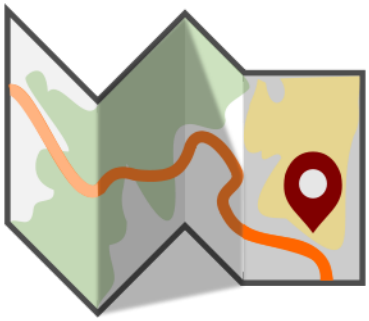
Calculating Line Lengths and Statistics

QGIS Tutorials and Tips



Author

Ujaval Gandhi

http://google.com/+UjavalGandhi

Translations by

SongHyun Choi

■■ ■■■■■■ ■■

QGIS■ ■, ■■, ■■ ■ ■■■ ■■■■■■ ■■■ ■■■ ■■■ ■■■ ■ ■■ ■■ ■■■ ■■■ ■■■■. ■ ■■■■■■ ■ ■■■ ■■■ ■■■■ ■■ ■■ ■■■ ■■■■ **Field Calculator**■ ■■■ ■■■■■ ■■■ ■■■■.

■■ ■■

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

■■■ ■ ■■ ■■

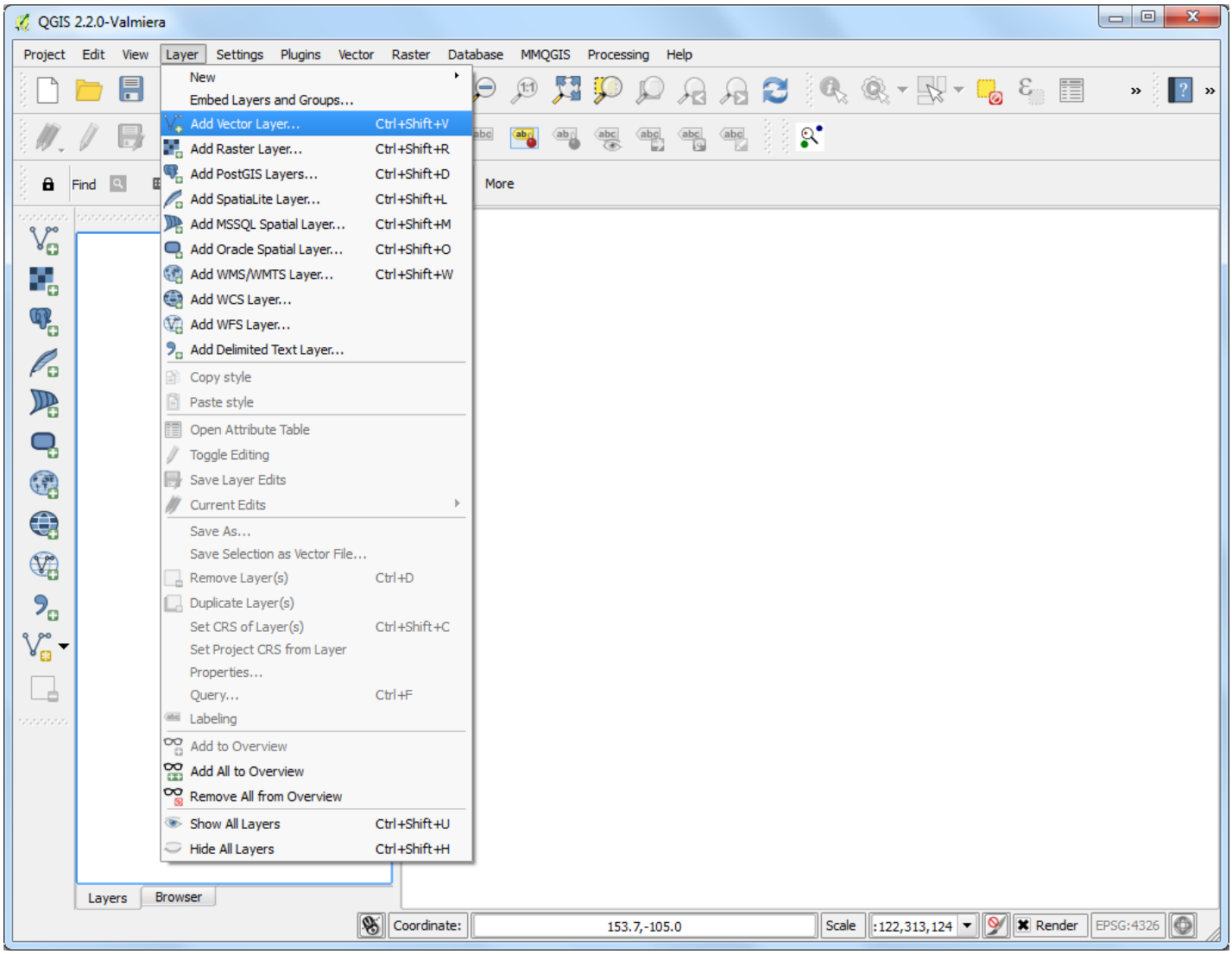
- ■■■ ■■■■ ■■■ ■■
- ■■■■■■ ■■■ ■■■(Projected Coordinate Reference System, CRS)■ ■■■ ■ ■■.
- ■■■■■ ■■■■ ■■ ■■

■■■ ■■

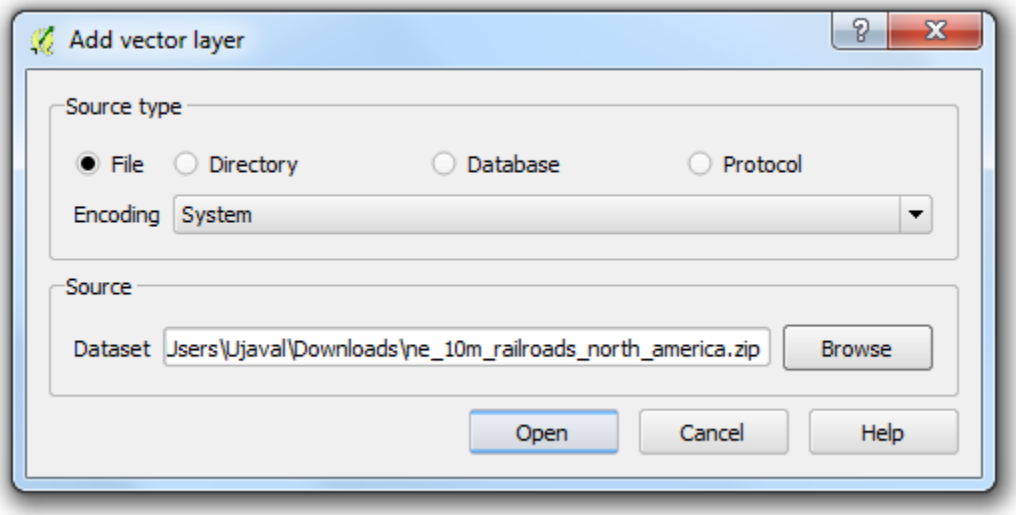
`Natural Earth <http://www.naturalearthdata.com/downloads/10m-cultural-vectors/railroads/>`_■■ ■■ ■■■ ■■ ■■■■■ ■■■■. ■■■■ `North America supplement <http://www.naturalearthdata.com/http//www.naturalearthdata.com/download/10m/cultural/ne_10m_railroads_north_america.zip>`_ ■■■■■ ■■■ ■■ [NATURALEARTH]

■■

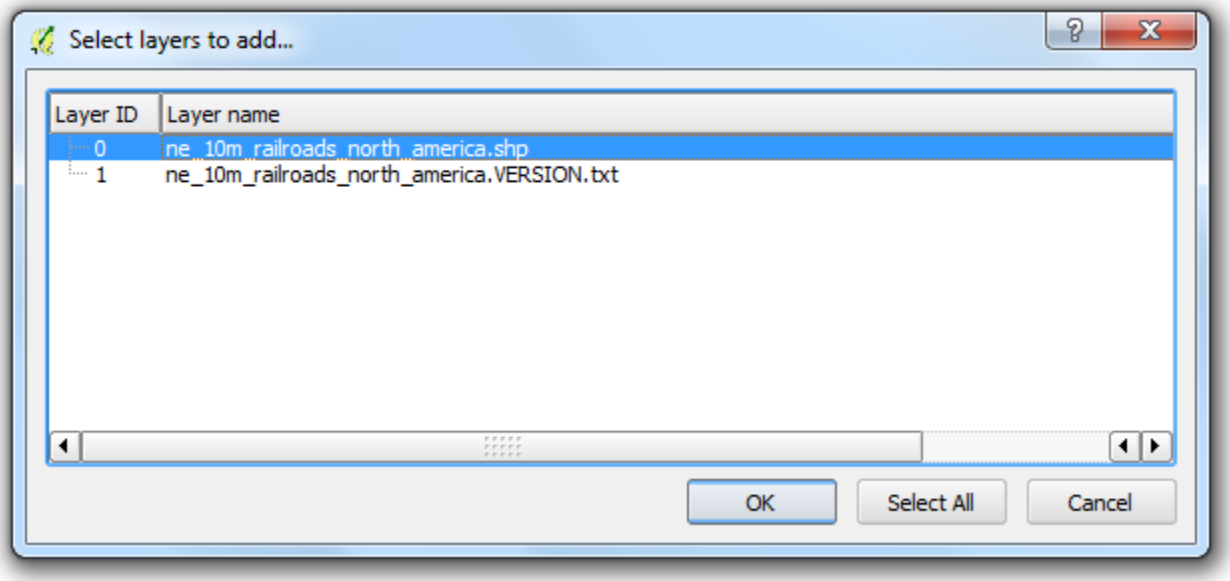
1. ■■■■ :menuselection:`Layer --> Add Vector Layer`■ ■■■■.



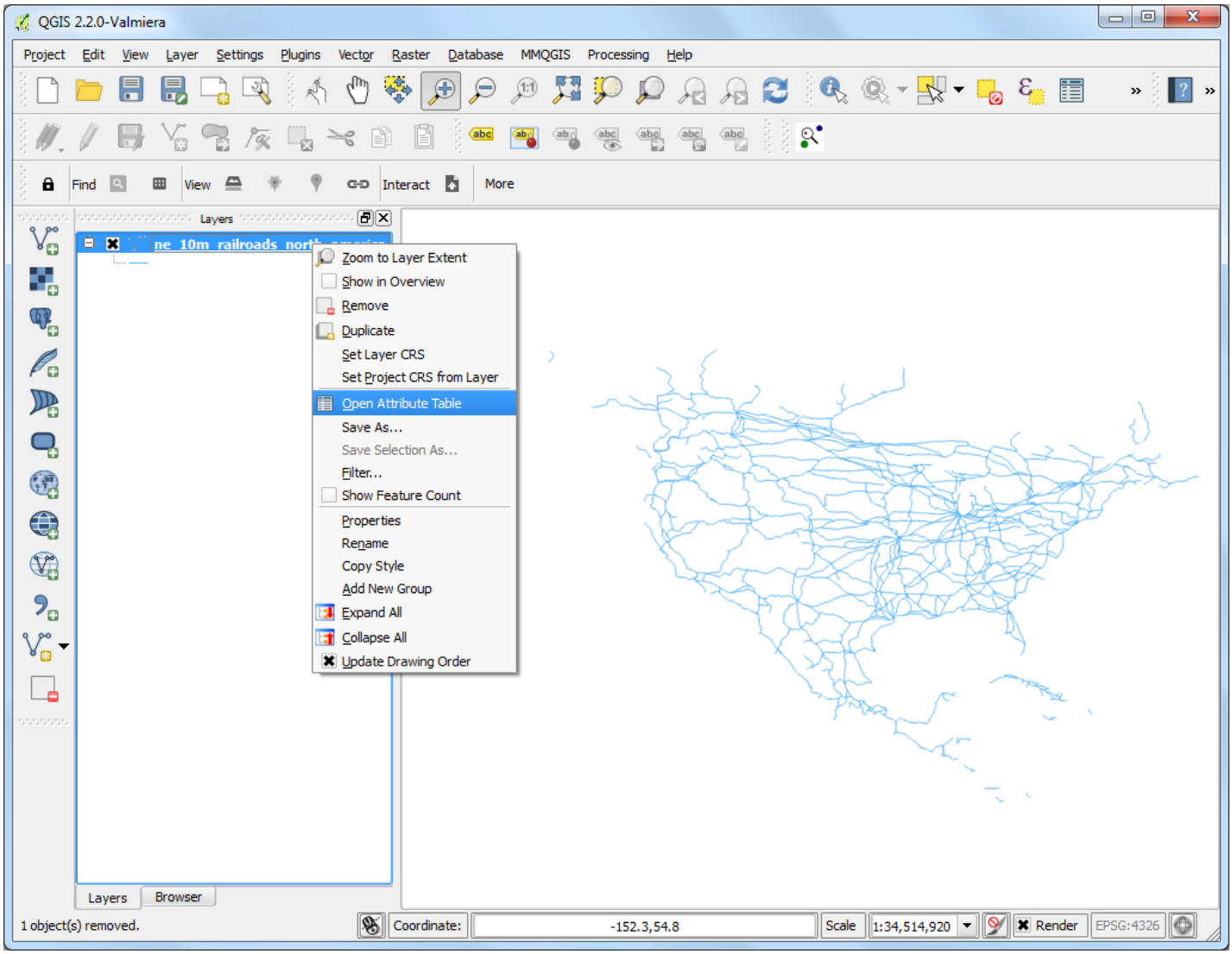
2. ``ne_10m_railroads_north_america.zip``■■■ ■■■ :guilabel:`OK`■ ■■■■■■.



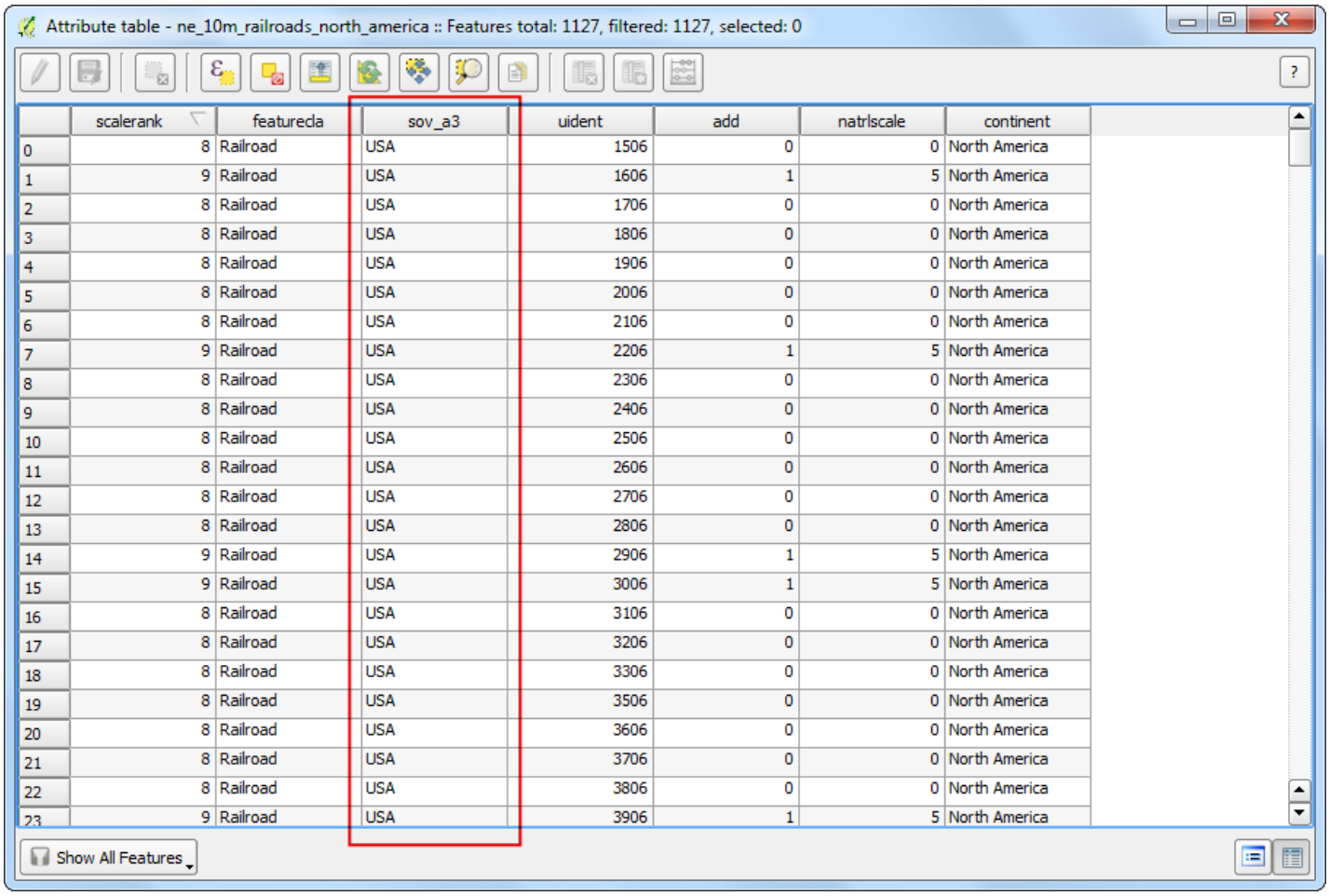
3. In the *Select layers to add...* dialog, choose `ne_10m_railroads_north_america.shp` layer.



4. ■■ ■■■■■ ■■■■■ ■■■■■■ ■■ ■■ ■■■■ ■■■■■ ■■ ■■ ■■■■ ■■■■■. ■ ■■■■■■ ■■■■ ■■ ■■■■ ■■■■ ■■■■■, ■■■■■■ ■■ ■■■■ ■■■■ ■■■■. ■■■■■■ ■■■■ ■■■■ ■■■■ ■■■■■ :guilabel:`Open Attribute Table`■ ■■■■■■■.

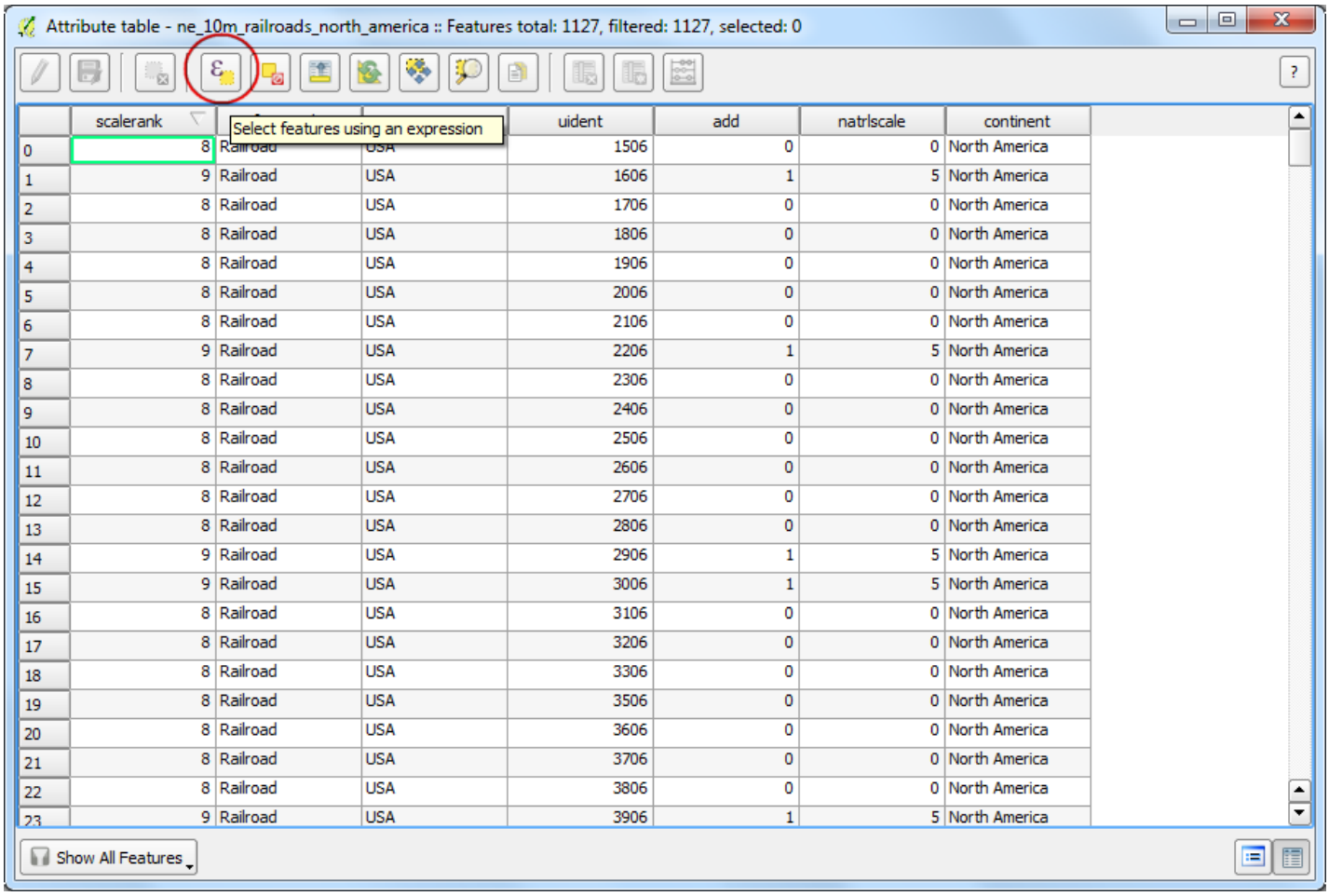


5. ██████ :guilabel:`sov_a3`██ ███ ████ ████. ███ ██ 3██ ███ ██ ███ ███ ██ ██████ ████ ██ ██████. ■ ████ ████ ██████ ███ ███ ■ ████.



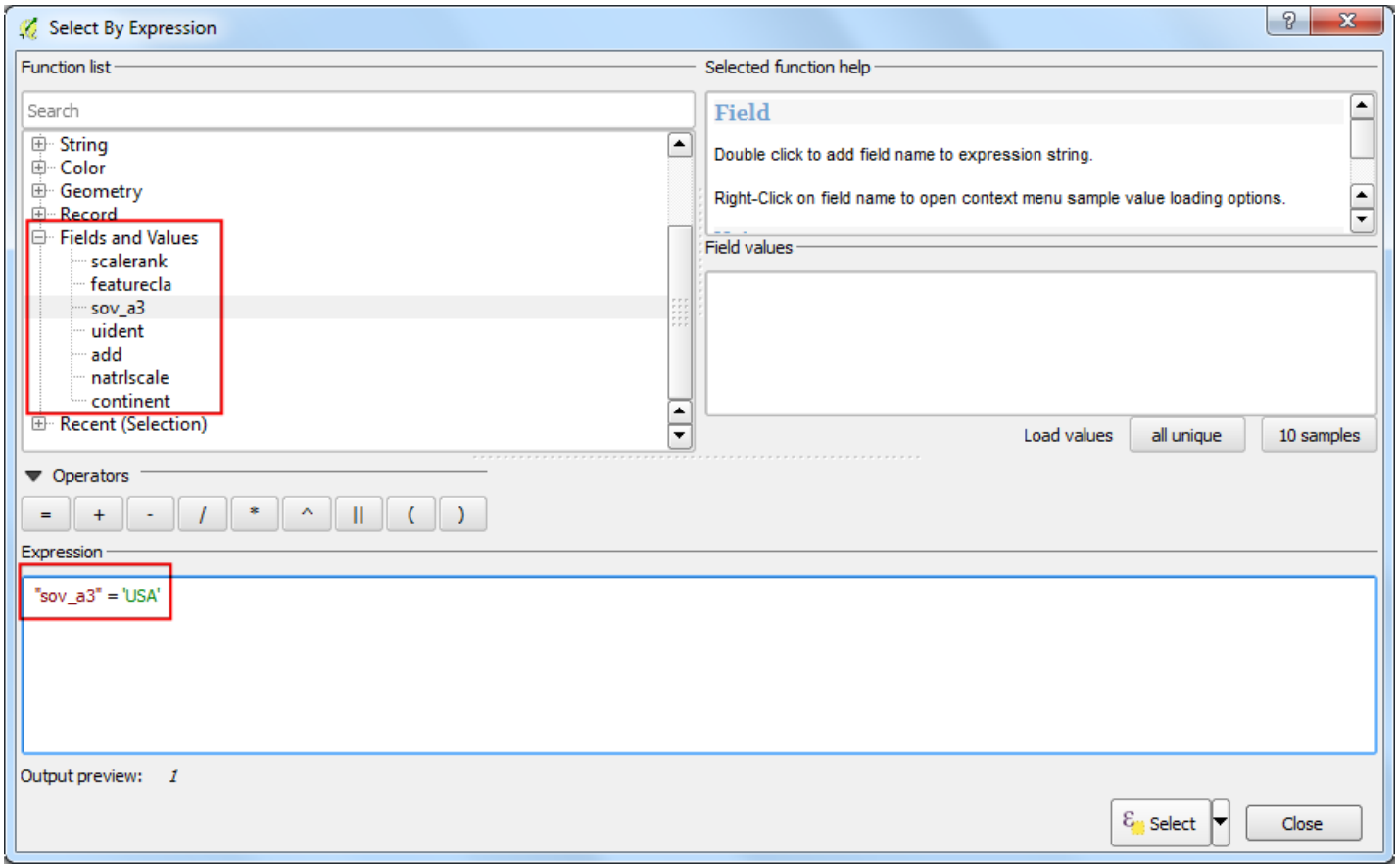
	scalerank	featurecla	sov_a3	uident	add	natrlscale	continent
0	8	Railroad	USA	1506	0	0	North America
1	9	Railroad	USA	1606	1	5	North America
2	8	Railroad	USA	1706	0	0	North America
3	8	Railroad	USA	1806	0	0	North America
4	8	Railroad	USA	1906	0	0	North America
5	8	Railroad	USA	2006	0	0	North America
6	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

6. ■■ ■■■ *Attribute Table`■■■ ■■■■ ■■■ ■■■■ :guilabel:`Select features using an expression* ■■■ ■■■■■.

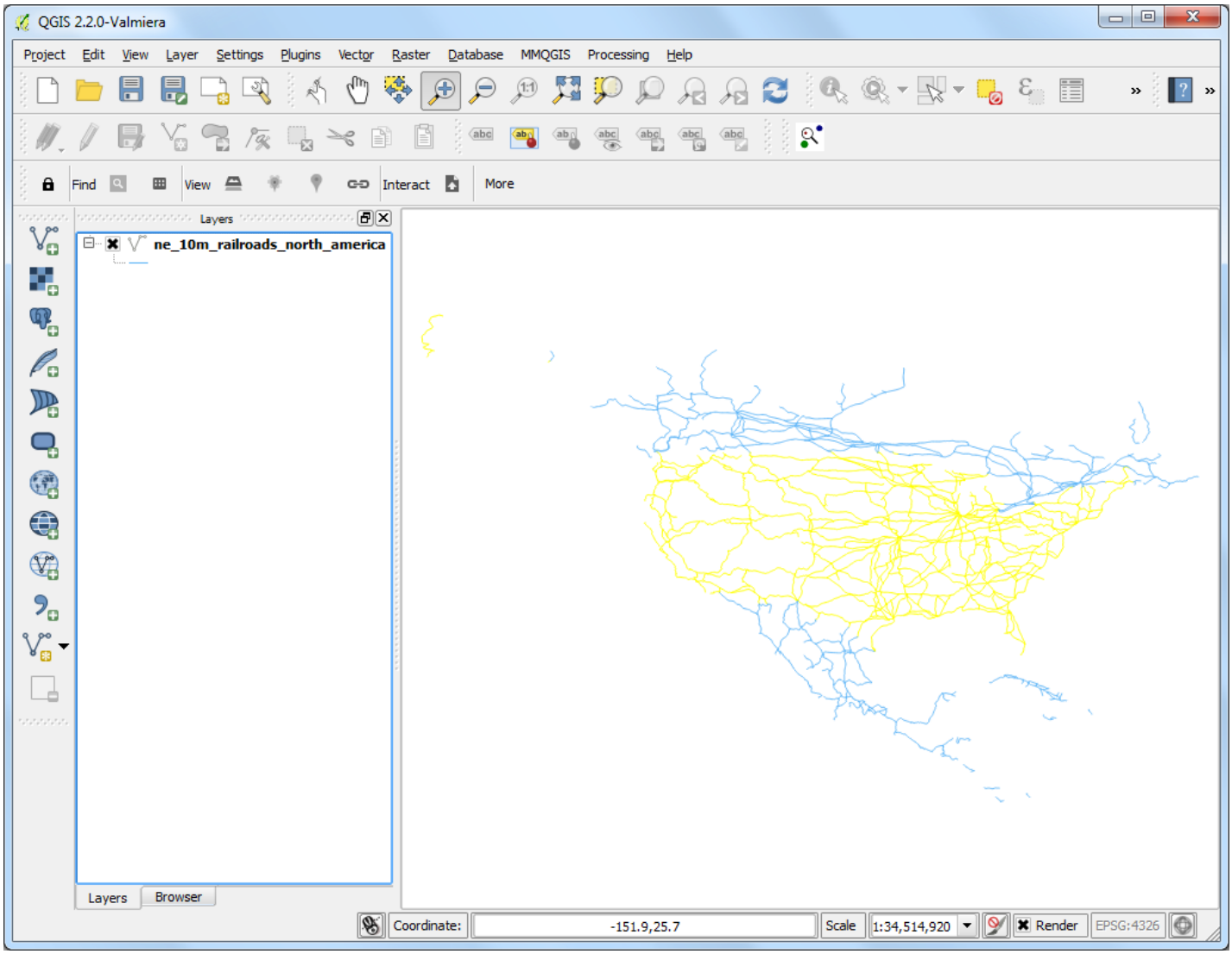


	scalerank			uident	add	natrlscale	continent
0	8	Railroad	USA	1506	0	0	North America
1	9	Railroad	USA	1606	1	5	North America
2	8	Railroad	USA	1706	0	0	North America
3	8	Railroad	USA	1806	0	0	North America
4	8	Railroad	USA	1906	0	0	North America
5	8	Railroad	USA	2006	0	0	North America
6	8	Railroad	USA	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

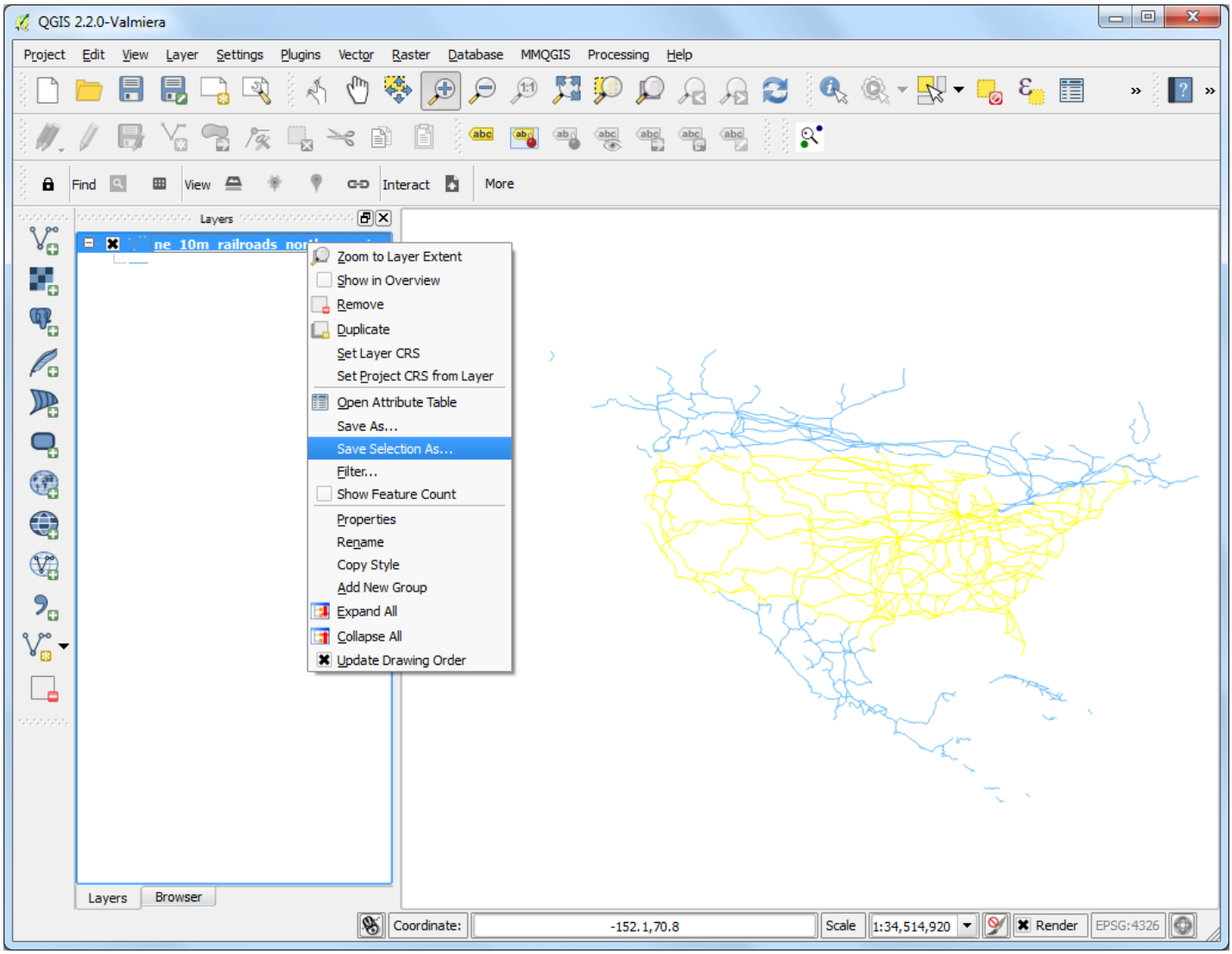
7. ■■ *Select By Expression* ■■■■■■ ■■ ■■■■■. ■■■■ *Functions list* ■■■■ ■■■ ■ *Fields and Values* ■ ■■■■ *sov_a3*`■■■ ■■■■■. ■■■ ■■■ ■■■■■■ ■■■ *:guilabel:`Expression*`■■■ ■■ ■■■ ■■■■■. `"sov_a3" = 'USA'``■■ ■■■■ ■■■■■■. ■■ :guilabel:`Select`■ ■■ ■■ :guilabel:`Close`■ ■■■■■.



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



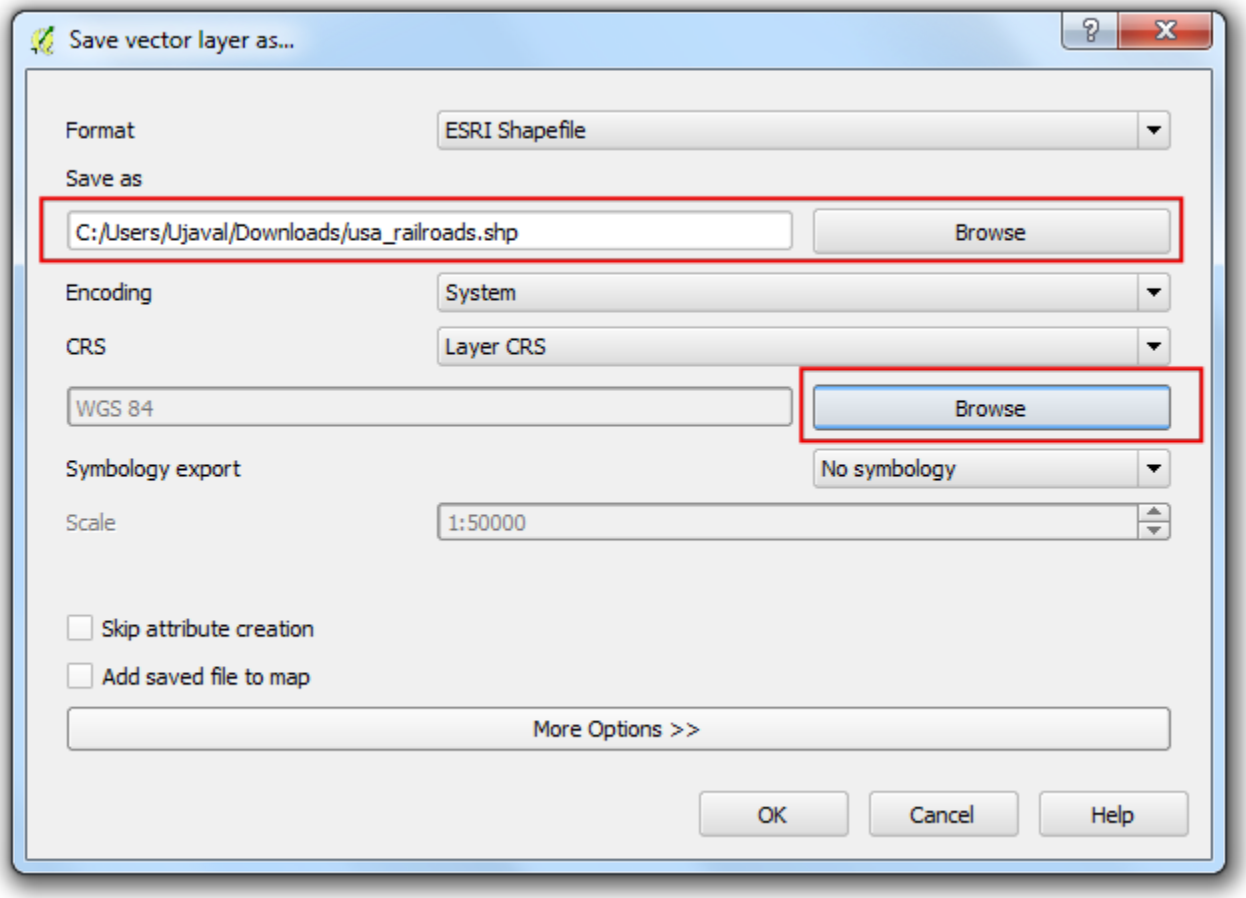
9. ■■ ■■■■ ■■ ■■■■ ■■■■■■ ■■■■■■ ■■■■■■. ``ne_10m_railroads_north_america``■■■■■ ■■■■ ■■■■■ ■■■■ ■■■■ ■■ :guilabel:`Save Selection As...`■ ■■■■■■. ■■ ■■■■■■ ■■ ■■■■■ ■■■■ ■■■■ ■ ■■ ■ ■■■■ ■■■■ ■■■■ ■■■■■ ■■■■.



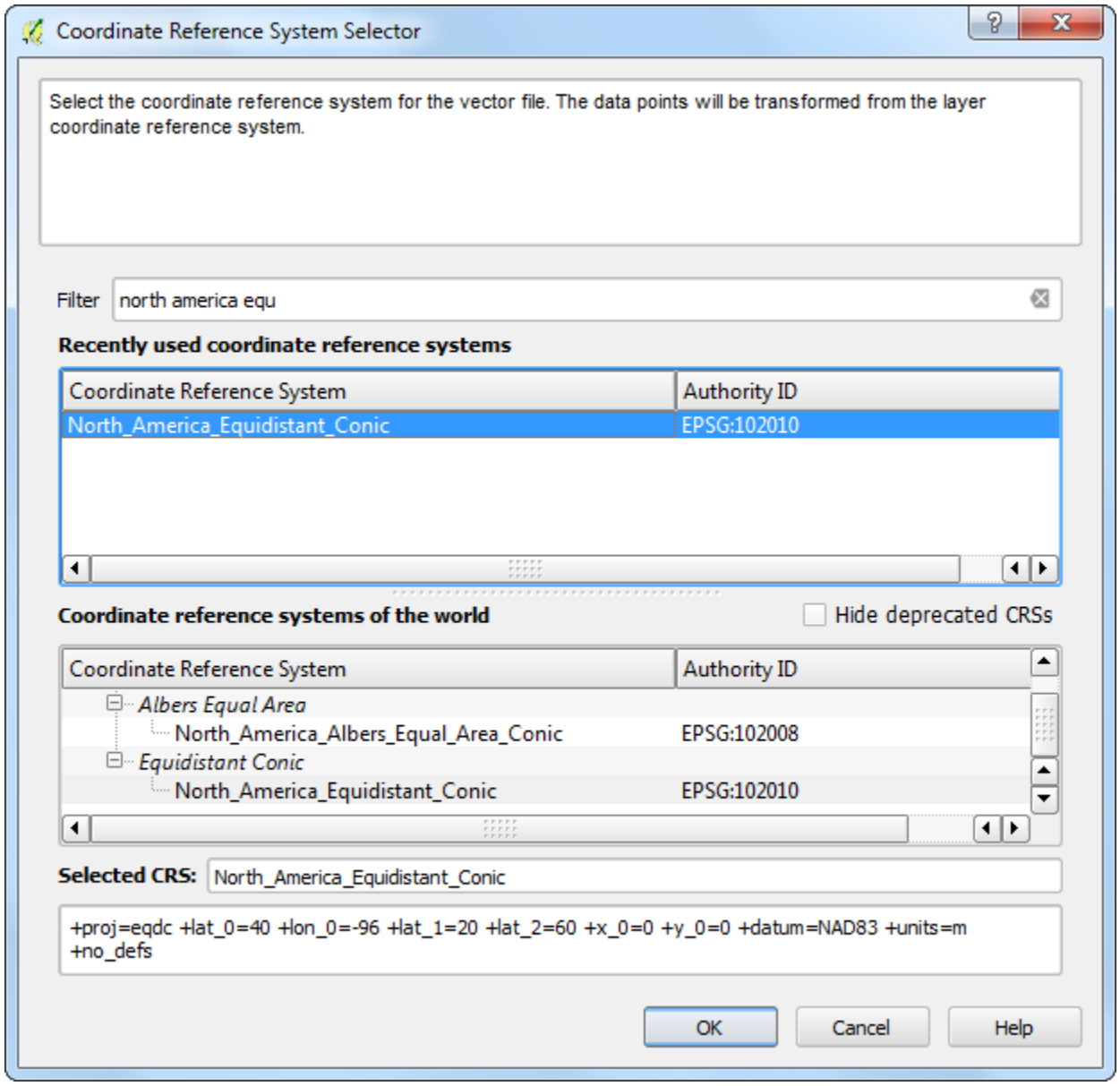
10. ■■ :guilabel:`Browse`■ ■■■■ ■■ ■■■■■ ``usa_railroads.shp``■ ■■■■■. ■■■■ CRS■ ■■■ ■■■. :guilabel:`CRS`■ ■■■ :guilabel:`Browse`■ ■■■■■.

Note

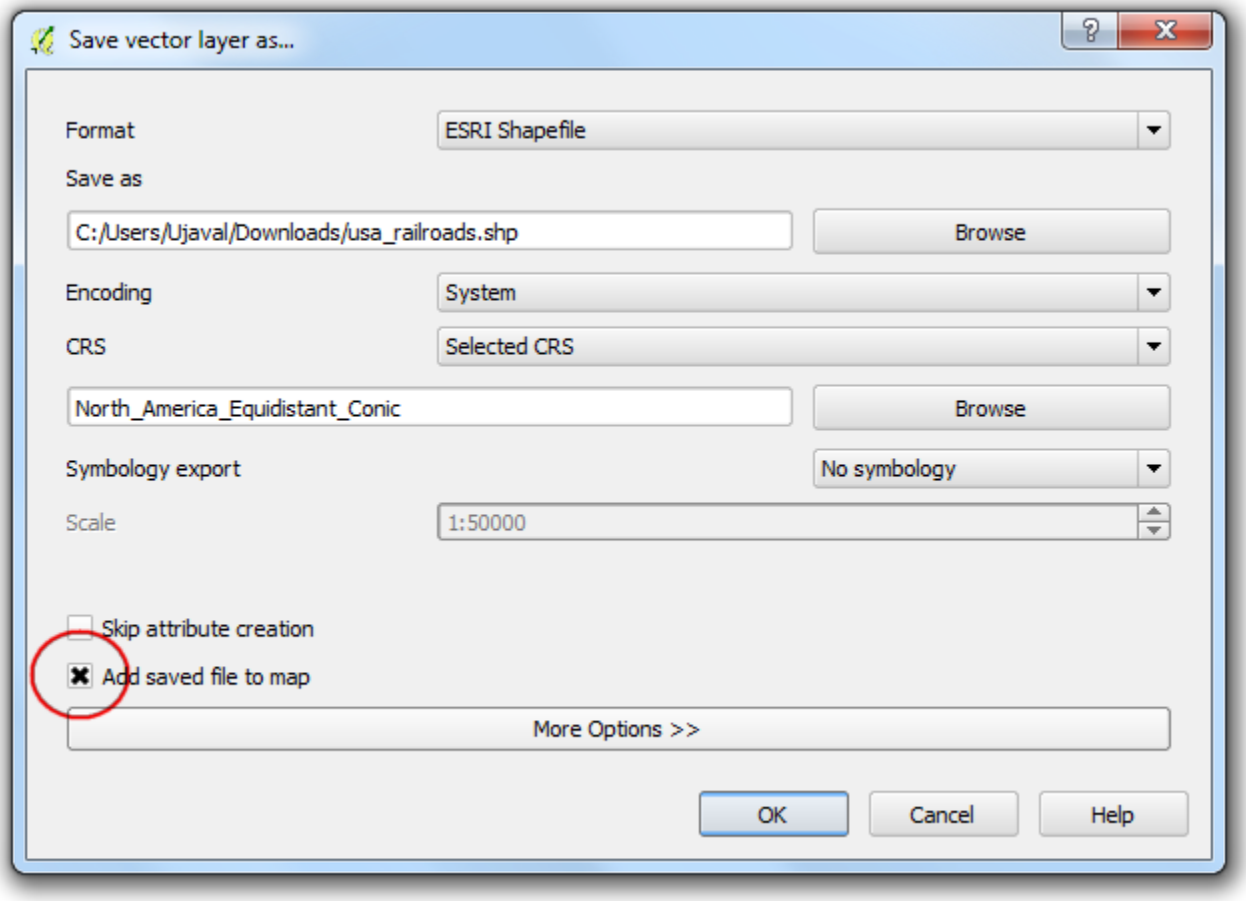
■■■ ■■ ■■■ ■■■■■■ ■■■■ ■■ ■■■ ■■■■ CRS■ ■■■ ■■■■■. *EPSG:4326*■ ■■ ■■■■■■*(CRS)*■ ■■■ ***degrees**■ ■■■■■. ■■■ ■■■ ■■■ ***degrees** ■■, ■■■ **square degrees**■■ ■■■ ■■■■. ■■■ ■■■ ■■ ■■■■ **meters ■■ **feet**■ ■■■ ■■ ■■■■■■■ ■■■ ■■■ ■■■■.



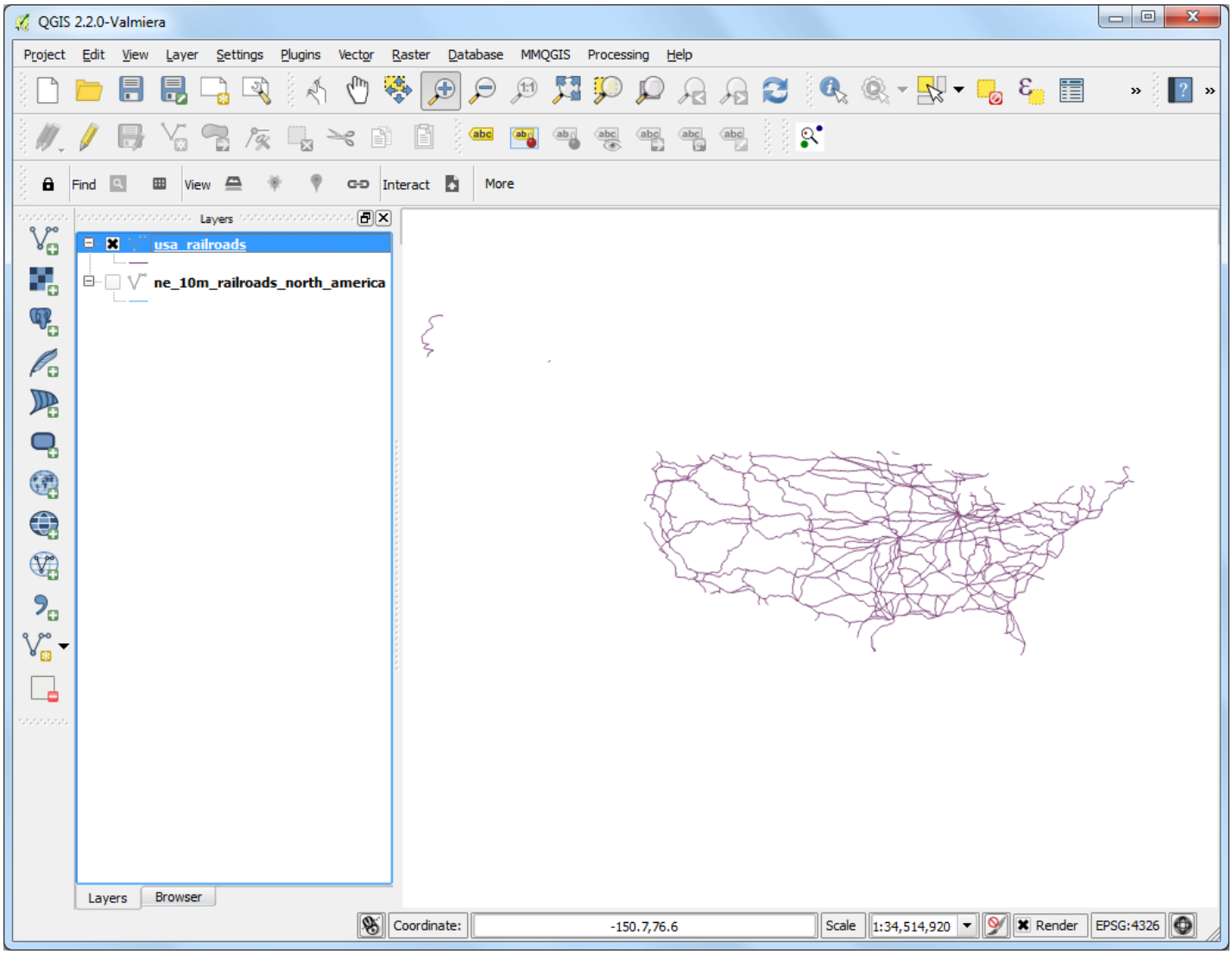
11. ■■■ ■■■■ ■■■ ■■■ ■■■ ■■■■■. ■■ :guilabel:`Filter`■ ■■ ■■■ :guilabel:`north america equ`■ ■■■■■. ■■■ ■■■■■ CRS■ :guilabel:`North_America_Equidistant_Conic EPSG:102010`■ ■■■■ :guilabel:`OK`■ ■■■■■.



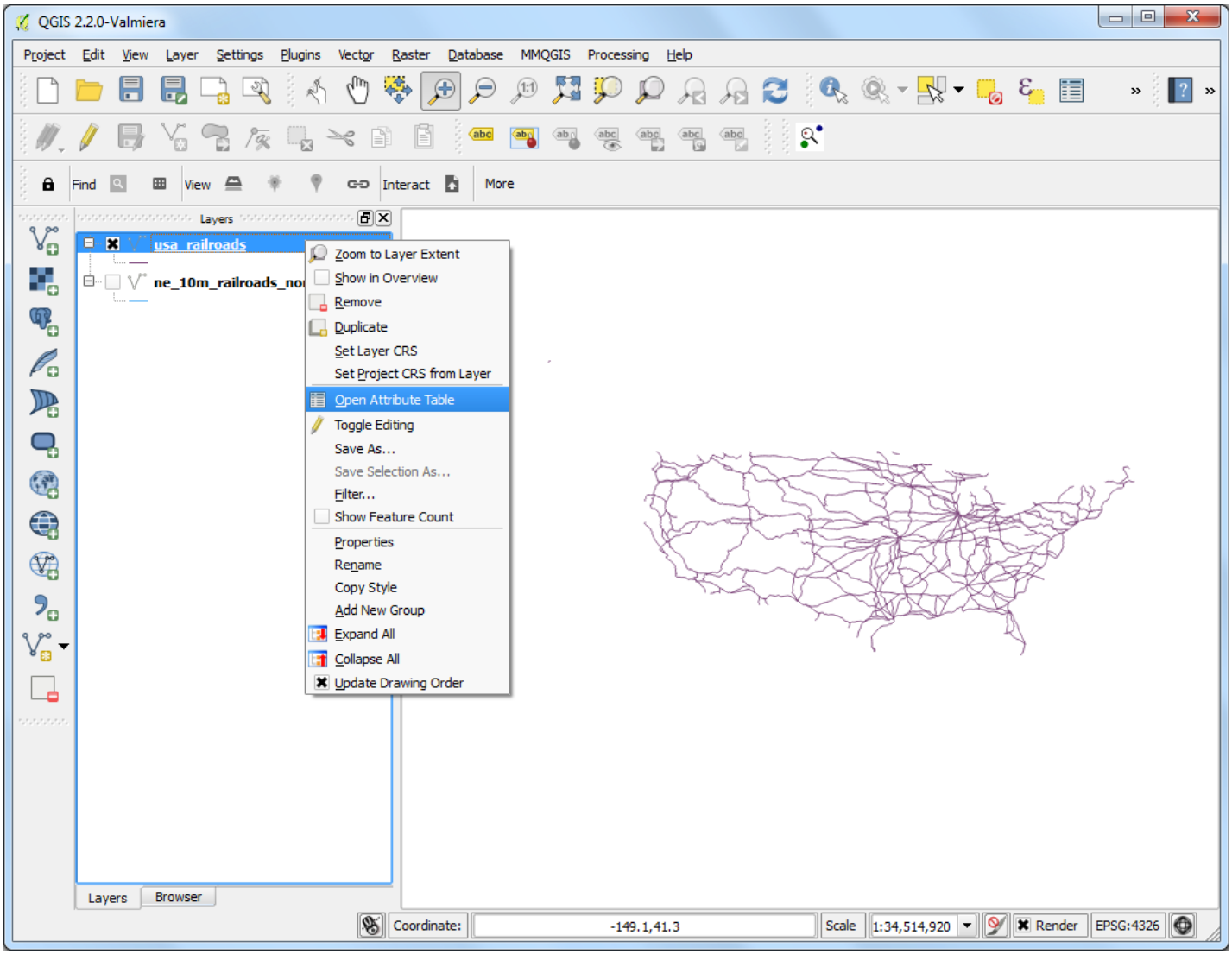
12. ■ ■■■■ ■■ ■■■ ■■■■ *Save vector layer as...* ■■■■■■■ ■■■ ■■■ ■■■ ■■ :guilabel:`Add saved file to map`■ ■■■■ :guilabel:`OK`■ ■■■■■.



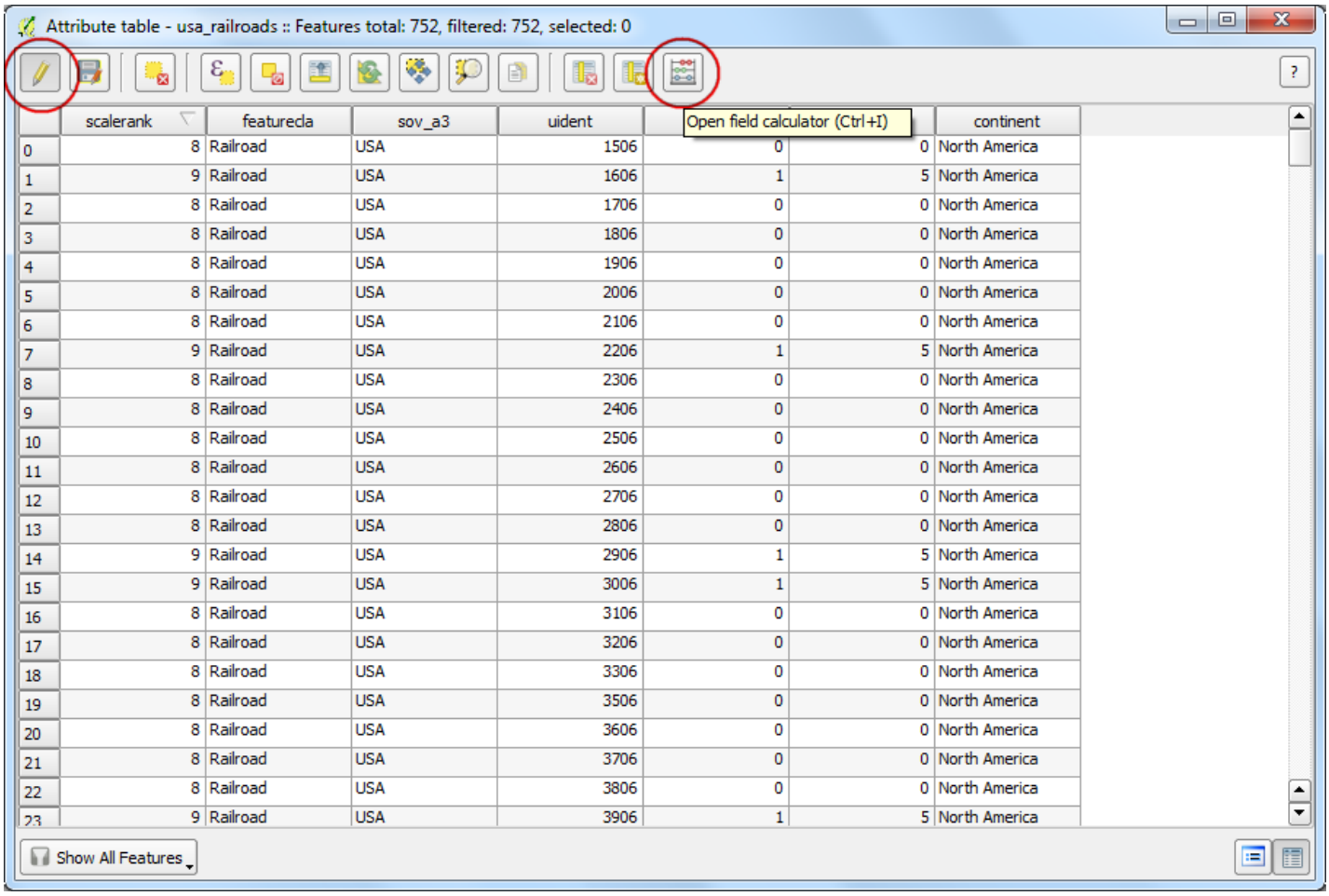
13. ■■ ■■■■ ■■■ ■■■■ ■■■ usa_railroads``■■■■ QGIS■ ■■■■. ■■■ ``ne_10m_railroads_north_america ■■■■ ■■■■ ■■■■ ■■■ ■■■ ■■■ ■■■■ ■■■ ■■■ ■■■.



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

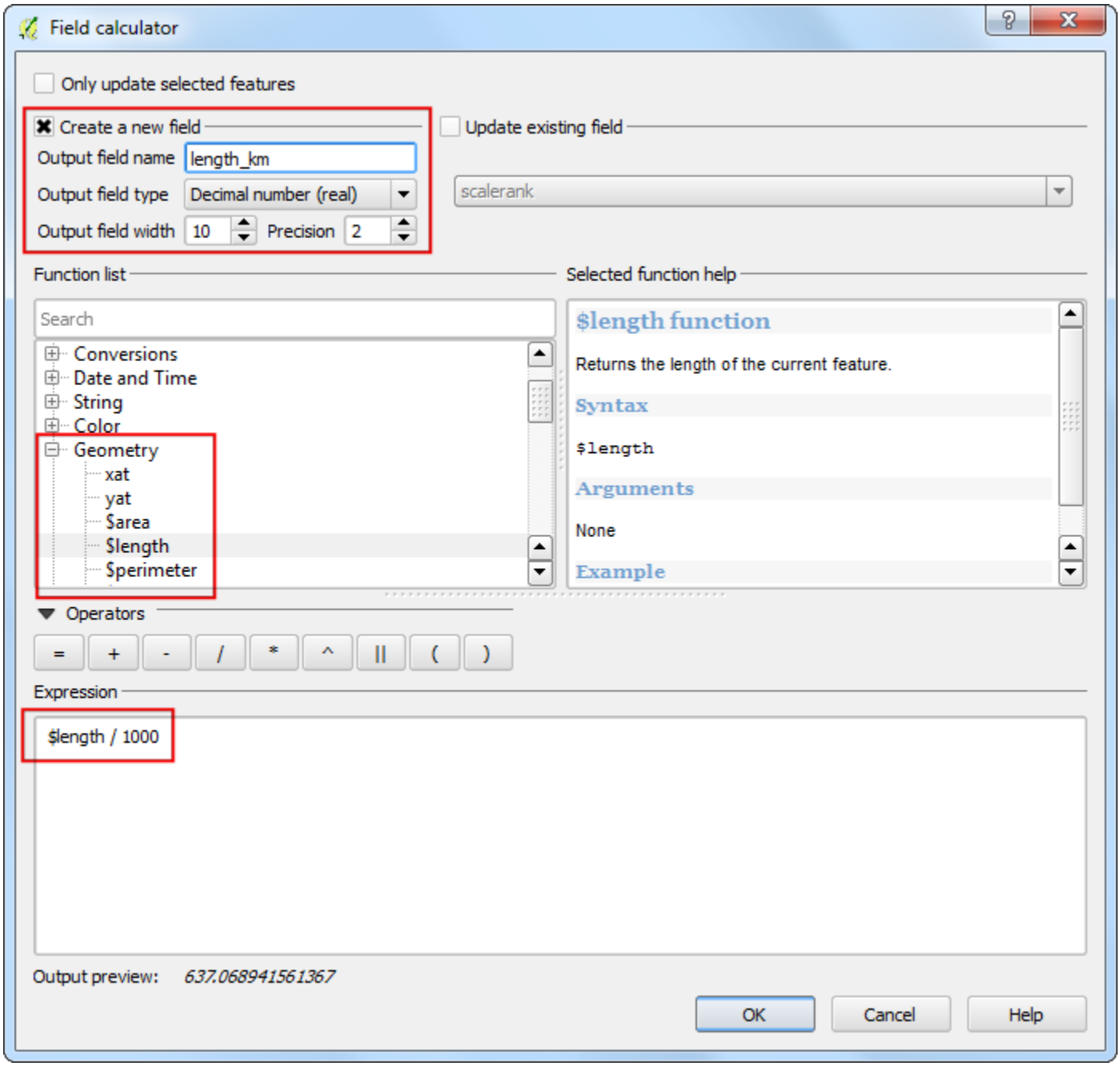


15. ■■ ■ ■■■■ ■■ ■■ ■■■■ ■■■■■■. ■■■■■■■ :guilabel:`Toggle editing`■■■■ ■■■■■ ■■■■■ ■■■■■■ ■■■■■. ■■ ■■■■■■■ ■■■■■■■■ :guilabel:`Open field calculator' ■■■■ ■■■■■■.

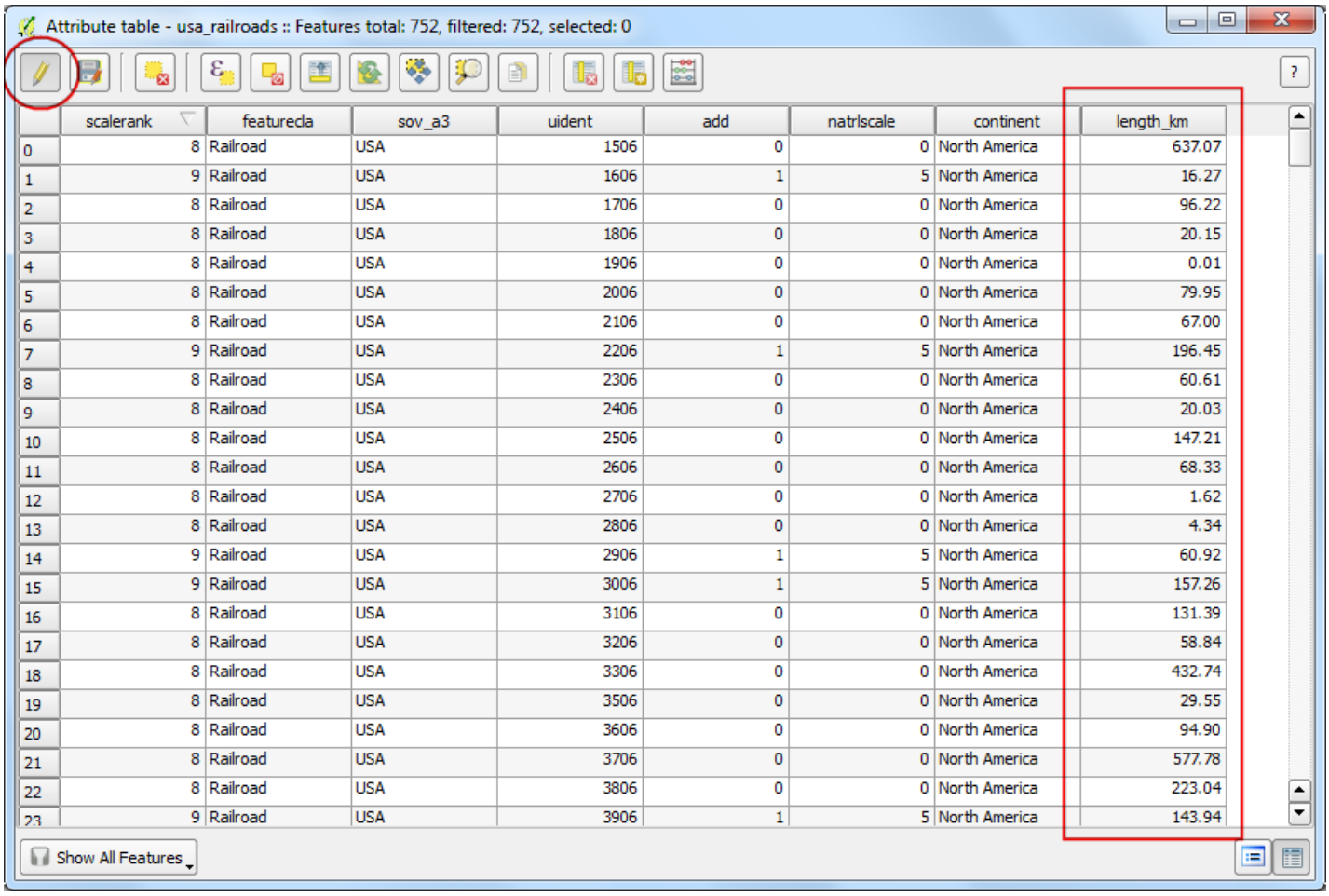


	scalerank	featurecla	sov_a3	uident			continent
0	8	Railroad	USA	1506	0	0	North America
1	9	Railroad	USA	1606	1	5	North America
2	8	Railroad	USA	1706	0	0	North America
3	8	Railroad	USA	1806	0	0	North America
4	8	Railroad	USA	1906	0	0	North America
5	8	Railroad	USA	2006	0	0	North America
6	8	Railroad	USA	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

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

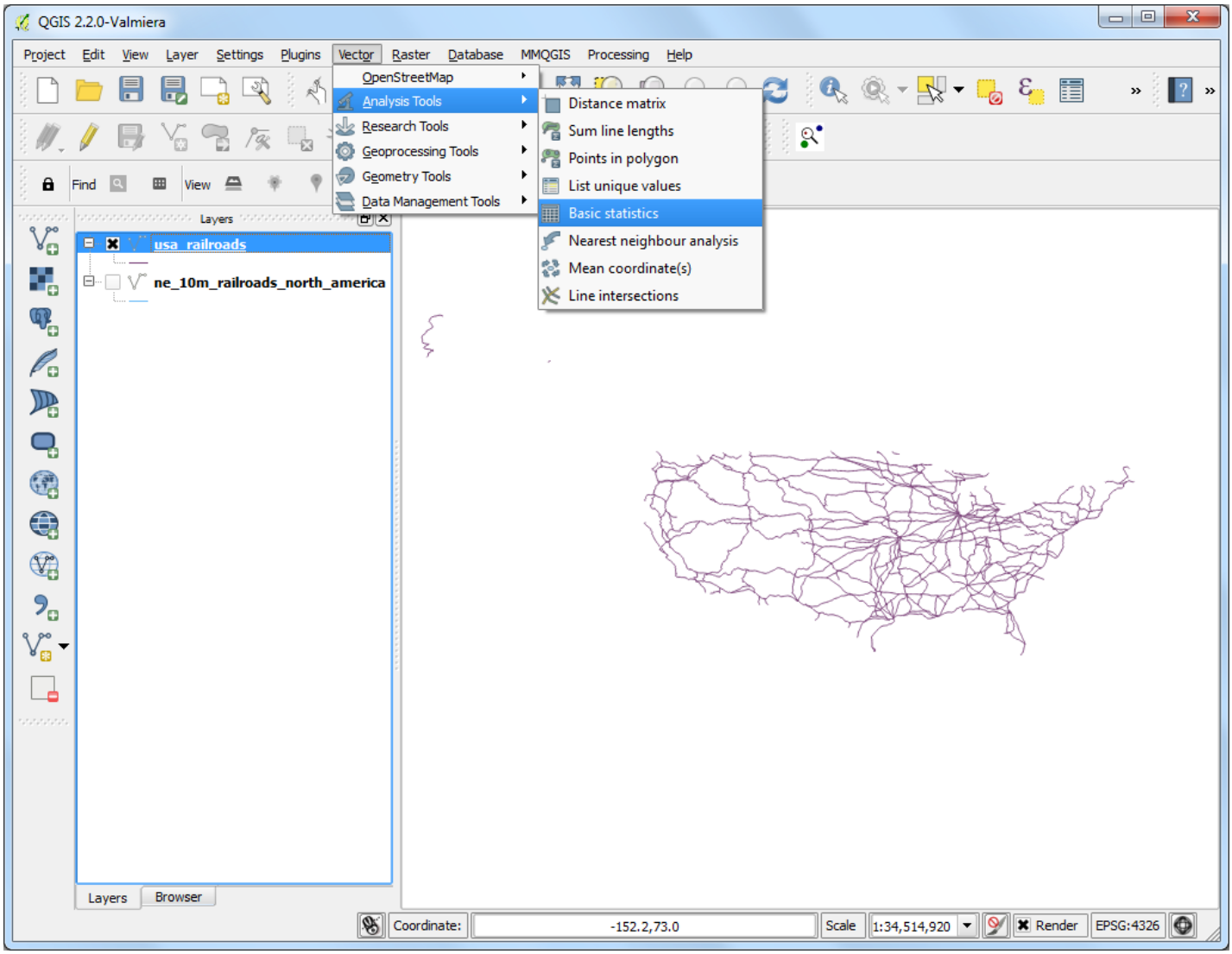


17. ■■■■■ *Attribute Table*`■ ■■■■ ■■■ ■■ *:guilabel:`length_km`*■ ■■■■ ■■■. ■■■■■■ *:guilabel:`Toggle editing* ■■■ ■■■■ ■■■ ■■■ ■■■■■.



	scalerank	featurecla	sov_a3	uident	add	natrlscale	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

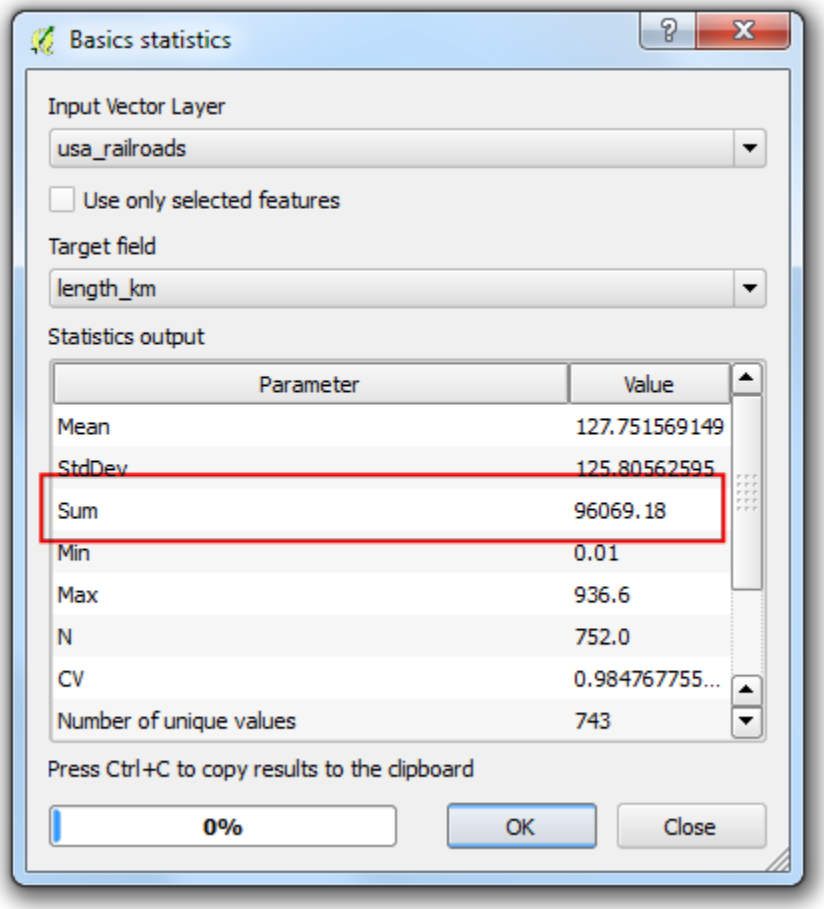
18. ■■ ■■■■■ ■ ■■ ■■■ ■■■■ ■■■■■■■. ■ ■■ ■■ ■■■ ■■■ **Total** ■■■■ ■■■■■. ■■■■ ■■ --> ■■■■ --> ■■■■ :menuselection:`Vector --> Analysis Tools --> Basic Statistics`■ ■■■.



19. ■■■■■■■■ :guilabel:`Input Vector layer`■ ``usa_railroads``■ ■■■■■■. ■■■■■ :guilabel:`Target field`■ ``length_km``■ ■■■■■ :guilabel:`OK`■ ■■■■■■. ■■ :guilabel:`Sum`■■ ■■■■■ ■■■■ ■■ ■■■■■■.

Note

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


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