

Importing Spreadsheets or CSV files

QGIS Tutorials and Tips



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Importing Spreadsheets or CSV files

Many times the GIS data comes in a table or an Excel spreadsheet. Also, if you have a list lat/long coordinates, you can easily import this data in your GIS project.

Overview of the task

We will be importing a text file of earthquake data to QGIS.

Get the data

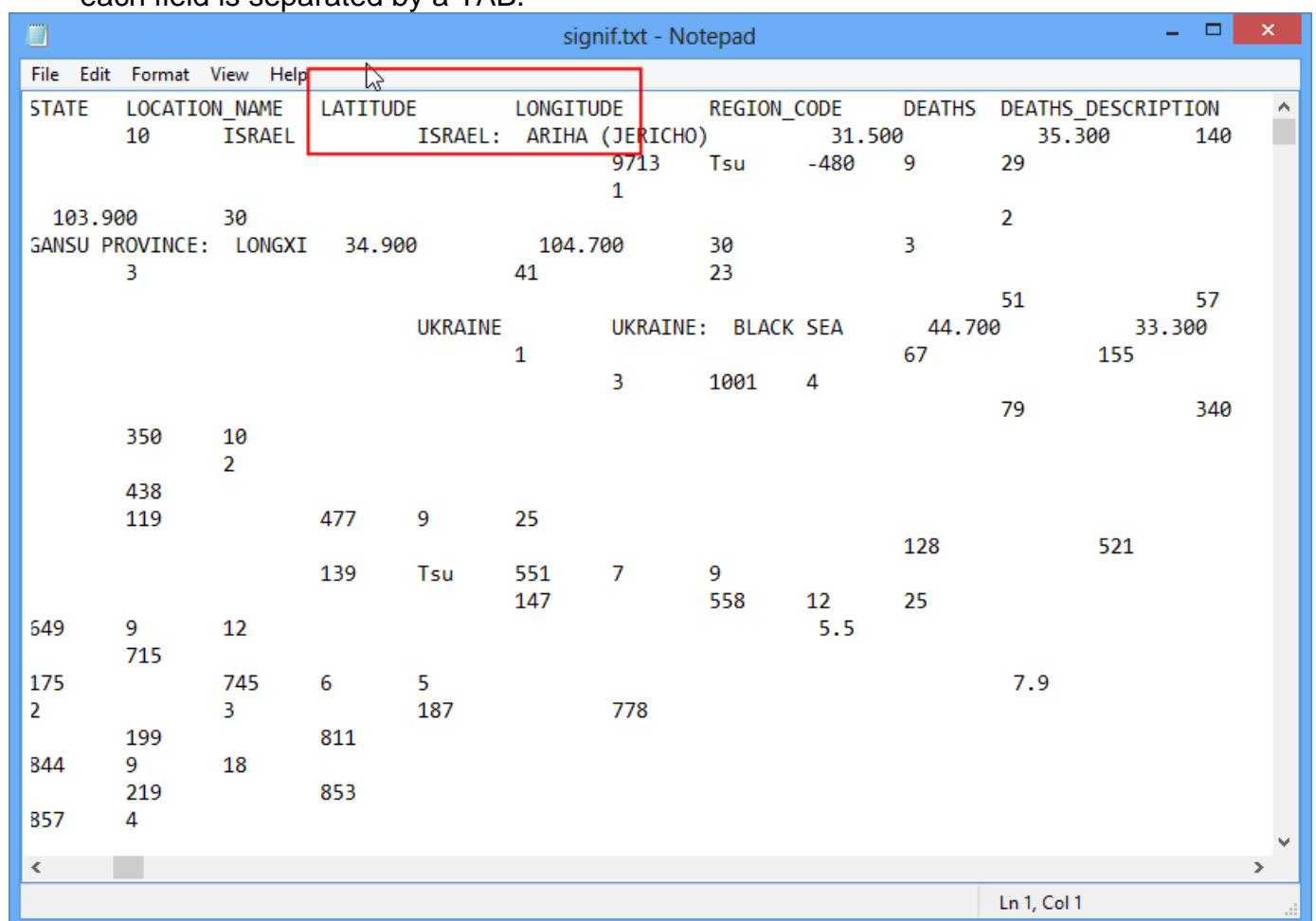
NOAA's National Geophysical Data Center produces a great dataset of all significant earthquakes since 2150 BC. [Learn more](#).

Download [Significant Earthquake Database](#) text file.

Data Source [NGDC]

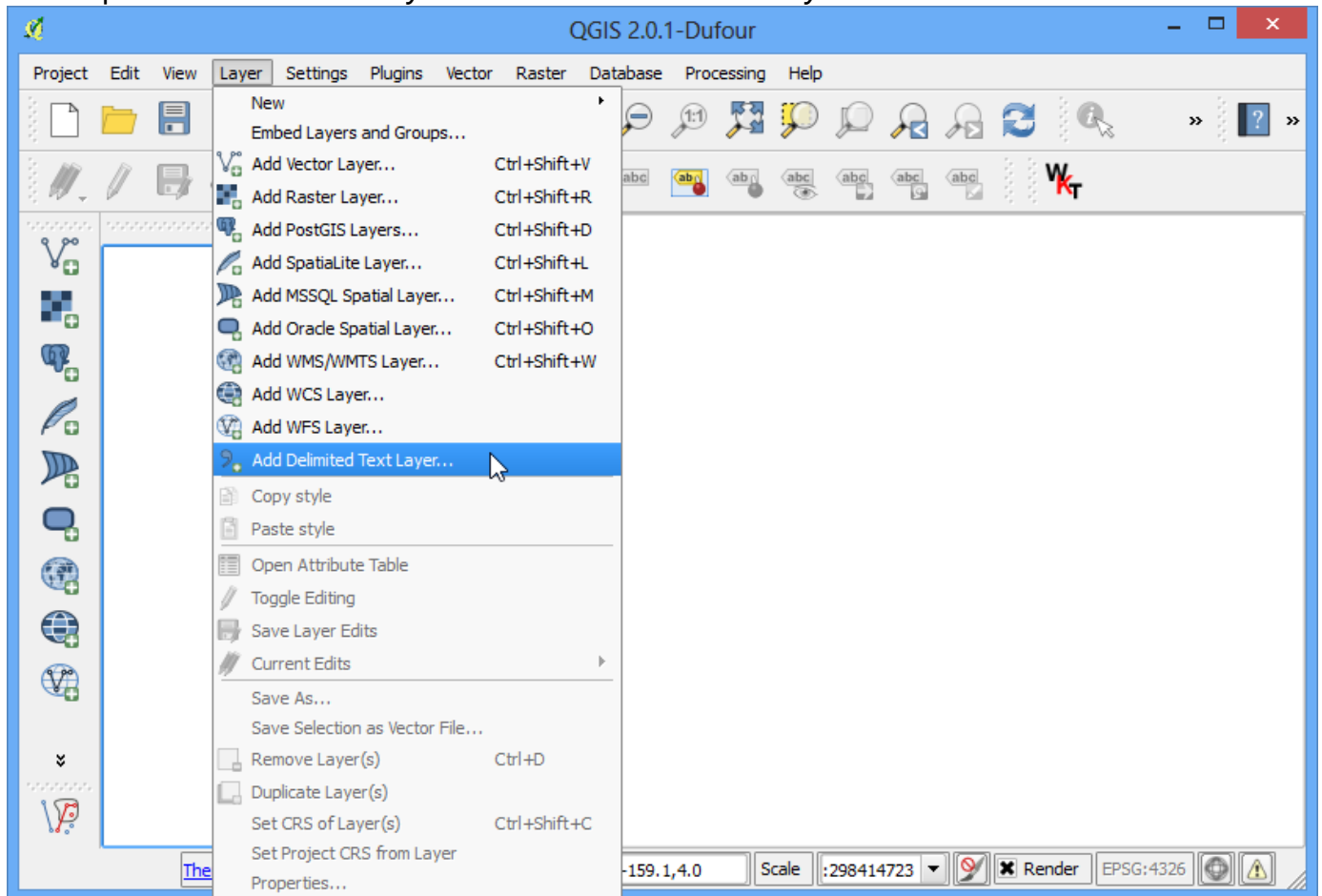
Procedure

1. Examine your tabular data source. To import this data to QGIS, you will have to save it as a text file and need at least 2 columns which contain the X and Y coordinates. If you have a spreadsheet, use *Save As* function in your program to save it as a *Tab Delimited File* or a *Comma Separated Values (CSV)* file. Once you have the data exported this way, you can open it in a text editor such as Notepad to view the contents. In case of the Significant Earthquake Database, the data already comes as a text file which contains latitude and longitude of the earthquake centers along with other related attributes. You will see that each field is separated by a TAB.



| STATE | LOCATION_NAME | LATITUDE | LONGITUDE | REGION_CODE | DEATHS | DEATHS_DESCRIPTION |
|------------------------|---------------|-------------------------|--------------------|-------------|--------|--------------------|
| 10 | ISRAEL | ISRAEL: ARIHA (JERICHO) | 31.500 | 35.300 | 140 | |
| 9713 | | Tsu | -480 | 9 | 29 | |
| 1 | | | | | 2 | |
| 103.900 | 30 | | | | | |
| GANSU PROVINCE: LONGXI | 34.900 | 104.700 | 30 | 3 | | |
| 3 | | 41 | 23 | | | |
| | | UKRAINE | UKRAINE: BLACK SEA | 44.700 | 51 | 57 |
| | | 1 | 3 | 1001 | 4 | 33.300 |
| | | | | | 67 | 155 |
| | | | | | 79 | 340 |
| 350 | 10 | | | | | |
| 2 | | | | | | |
| 438 | | | | | | |
| 119 | | 477 | 9 | 25 | | |
| | | 139 | Tsu | 551 | 7 | 9 |
| | | | | 147 | | 128 |
| | | | | 558 | 12 | 521 |
| | | | | | 5.5 | |
| 549 | 9 | 12 | | | | |
| 715 | | | | | | |
| 175 | 745 | 6 | 5 | | | 7.9 |
| 2 | 3 | 187 | | 778 | | |
| | 199 | 811 | | | | |
| 344 | 9 | 18 | | | | |
| | 219 | 853 | | | | |
| 357 | 4 | | | | | |

2. Open QGIS. Click on *Layers* ■ *Add Delimited Text Layer*.



3. In the *Create a Layer from a Delimited Text File* dialog, click on *Browse* and specify the path to the text file you downloaded. In the *File format* section, select *Custom delimiters* and check *Tab*. The *Geometry definition* section will be auto-populated if it finds a suitable X and Y coordinate fields. In our case they are *LONGITUDE* and *LATITUDE*. You may change it if the import selects the wrong fields. Click *OK*.

Note

It is easy to confuse X and Y coordinates. Latitude specifies the north-south position of a point and hence it is a **Y** coordinate. Similarly Longitude specifies the east-west position of a point and it is a **X** coordinate.

Create a Layer from a Delimited Text File

File Name:

Layer name: Encoding:

File format: ☐ CSV (comma separated values) ☒ Custom delimiters ☐ Regular expression delimiter

☐ Comma ☒ Tab ☐ Space ☐ Colon ☐ Semicolon
 Other delimiters: Quote: Escape:

Record options: Number of header lines to discard: ☒ First record has field names

Field options: ☐ Trim fields ☐ Discard empty fields ☐ Decimal separator is comma

Geometry definition: ☒ Point coordinates ☐ Well known text (WKT) ☐ No geometry (attribute only table)

X field: Y field: ☐ DMS coordinates

Layer settings: ☒ Use spatial index ☐ Use subset index ☐ Watch file

| | I_D | FLAG_TSUNAMI | YEAR | MONTH | DAY | HOUR | MINUTE | SECOND | FOCAL_DEPTH | EQ_MAG_MW | EQ_MAG |
|---|-----|--------------|-------|-------|-----|------|--------|--------|-------------|-----------|--------|
| 1 | 1 | | -2150 | | | | | | | | |
| 2 | 3 | | -2000 | | | | | | 18 | | 7.1 |
| 3 | 2 | Tsu | -2000 | | | | | | | | |
| 4 | 8 | | -1566 | | | | | | | | |
| 5 | 11 | | -1450 | | | | | | | | |

4. You may see some errors displayed in the next dialog. The errors in this file are mainly due to missing X or Y fields. You may examine these errors and fix the problems in your source file. For this tutorial, you may ignore these errors.

Delimited text file errors

Errors in file C:/Users/ujaval/Downloads/signif.txt
 49 records discarded due to missing geometry definitions
 6 records discarded due to invalid geometry definitions
 The following lines were not loaded into QGIS due to errors:
 Invalid X or Y fields at line 306
 Invalid X or Y fields at line 2253
 Invalid X or Y fields at line 3239
 Invalid X or Y fields at line 3324
 Invalid X or Y fields at line 3365
 Invalid X or Y fields at line 3420

5. Next, a *Coordinate Reference System Selector* will ask you to select a coordinate reference system. Since the earthquake coordinates are in latitudes and longitudes, you should select *WGS 84*. Click *OK*.



6. You will now see that the data will be imported and displayed in the QGIS canvas.

