

Importing Spreadsheets or CSV files

QGIS Tutorials and Tips



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CSV-Files

CSV (Comma Separated Values) is a plain text file format that stores tabular data (like a spreadsheet) in a simple, flat-file format. It is a standard way to exchange data between different applications. Excel, for example, can save files in CSV format. CSV files are often used to import data into GIS software like QGIS.

QGIS

QGIS is a free and open-source geospatial software package. It can read and write various data formats, including CSV files.

Significant Earthquake Database

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.

Significant Earthquake Database: [NGDC]

Exercise 1

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.

signif.txt - Notepad

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		67	155	
		3	1001	4		
					79	340
350	10					
438	2					
119		477	9	25		
		139	Tsu	551	7	9
				147	558	12
549	9	12			25	5.5
715						
175	745	6	5			7.9
2	3	187		778		
	199	811				
844	9	18				
	219	853				
857	4					

Ln 1, Col 1

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.

