

— QGIS 3D News —

Github Repo with freely available 3D-geodata



<https://github.com/wonder-sk/3d-spatial-data>

README.md

3D Spatial Data Resources

Curated list of links to freely available 3D spatial (GIS) data.

If you know about more interesting 3D data sources, please open issues with links or create pull requests updating this readme file!

Cities - Buildings

Austria

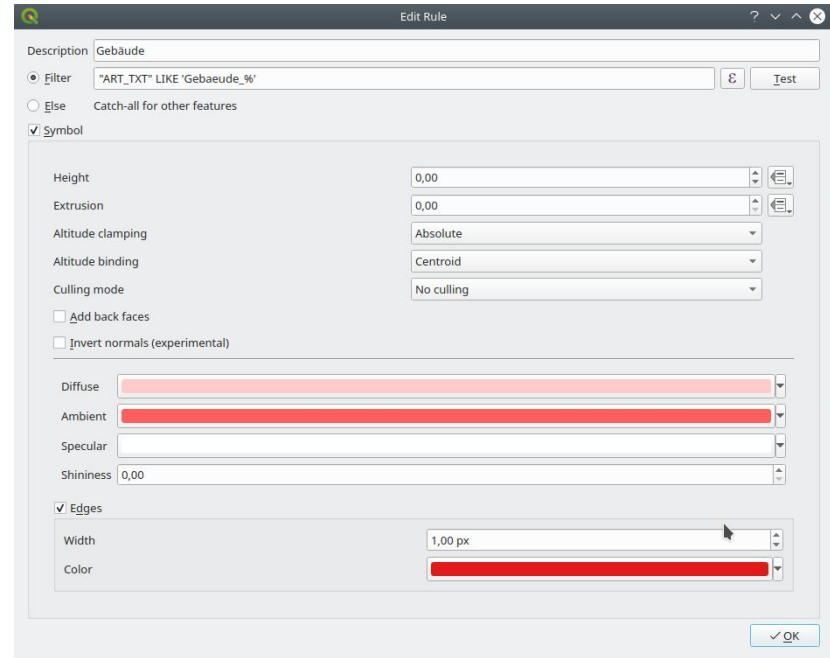
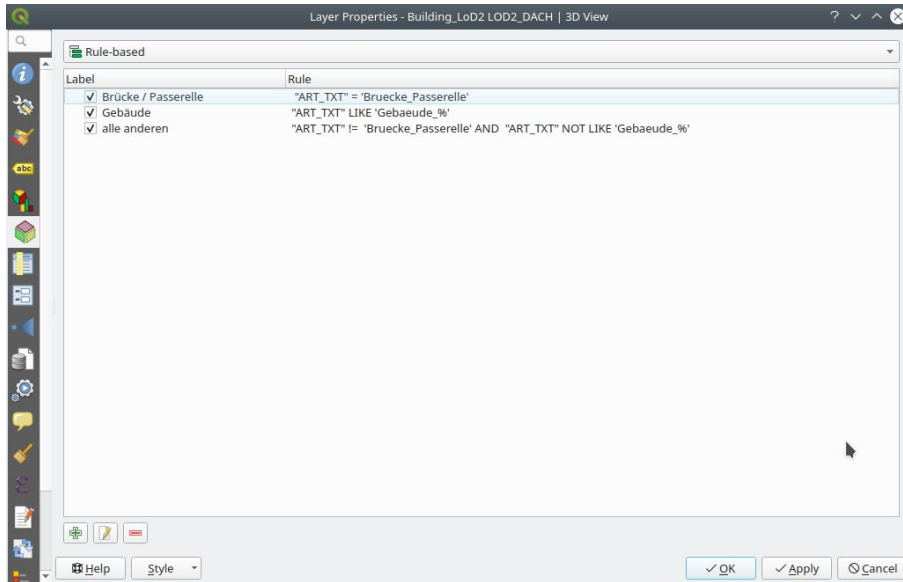
- Vienna (lod2) <https://www.wien.gv.at/stadtentwicklung/stadtvermessung/geodaten/dachmodell/daten-lod2.html> Download tiles from map viewer:
 - <https://www.wien.gv.at/ma41datenviewer/public/start.aspx>
 - e.g. https://www.wien.gv.at/ma41datenviewer/downloads/ma41/geodaten/lod2_dxt/105082_lod2_dxf.zip
- Linz (lod2 + no texture) http://geo.data.linz.gv.at/katalog/geodata/3d_geo_daten_lod2/

Belgium

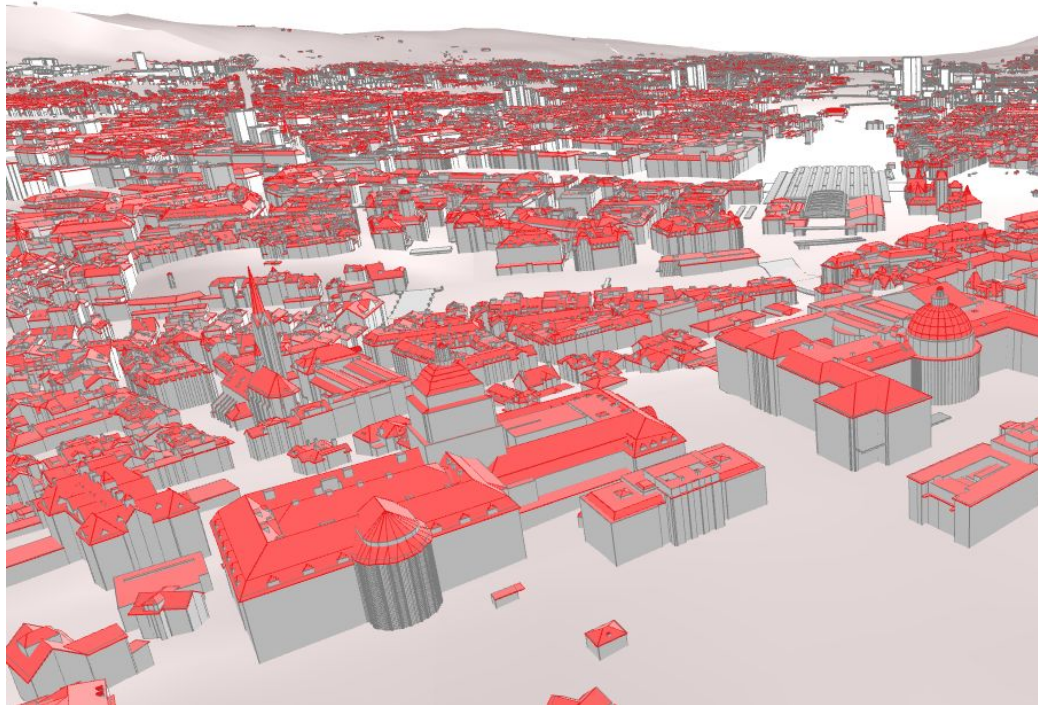
- Brussels <http://urbisdownload.gis.irisnet.be/en/temporality>

Canada

Rule based renderer for 3D styles



Edges for 3D polygons



Q Edit Rule

Description Gebäude

Filter "ART_TXT" LIKE 'Gebaeude_%'

Else Catch-all for other features

Symbol

Height 0,00

Extrusion 0,00

Altitude clamping Absolute

Altitude binding Centroid

Culling mode No culling

Add back faces

Invert normals (experimental)

Diffuse

Ambient

Specular

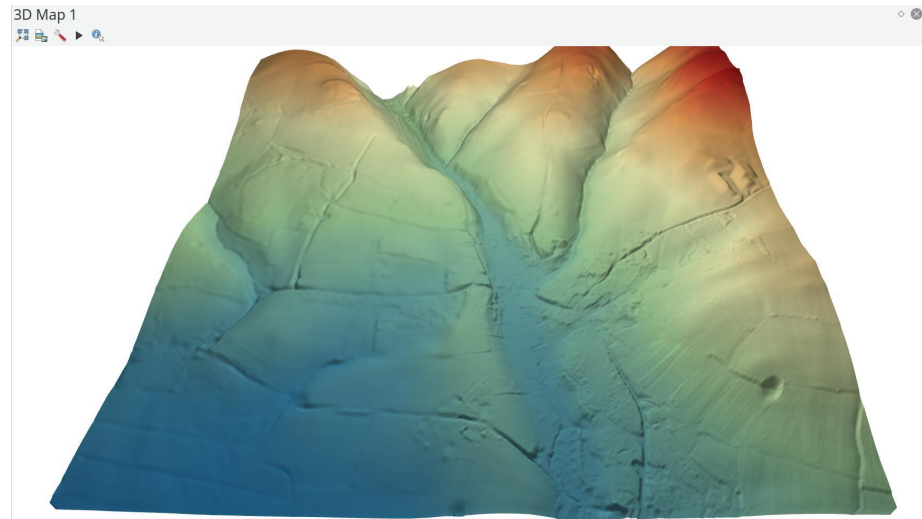
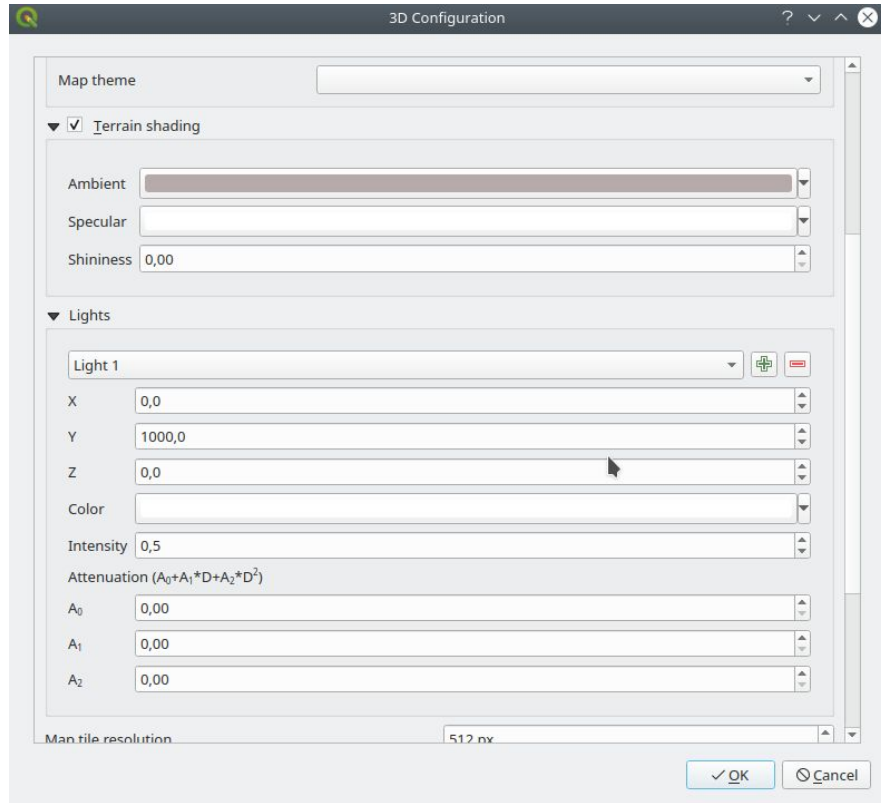
Shininess 0,00

Edges

Width 1,00 px

Color

Terrain shading and lights



Navigation improvements with keyboard

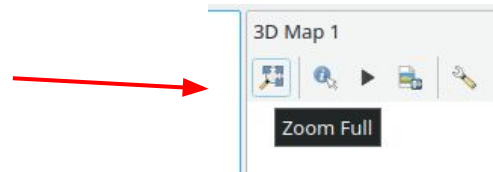


- Focus must be in 3D View!
- Arrow Keys:
 - ↑: move forward, ↓: move backward
 - ←: move left, →: move right
 - Shift + ← | →: rotate model
 - Ctrl + ← | →: change viewing angle to left or right
 - Shift + ↓ | ↑: tilt model
 - Ctrl + ↓ | ↑: change viewing angle up or down
- PgUp: elevator up
- PgDn: elevator down

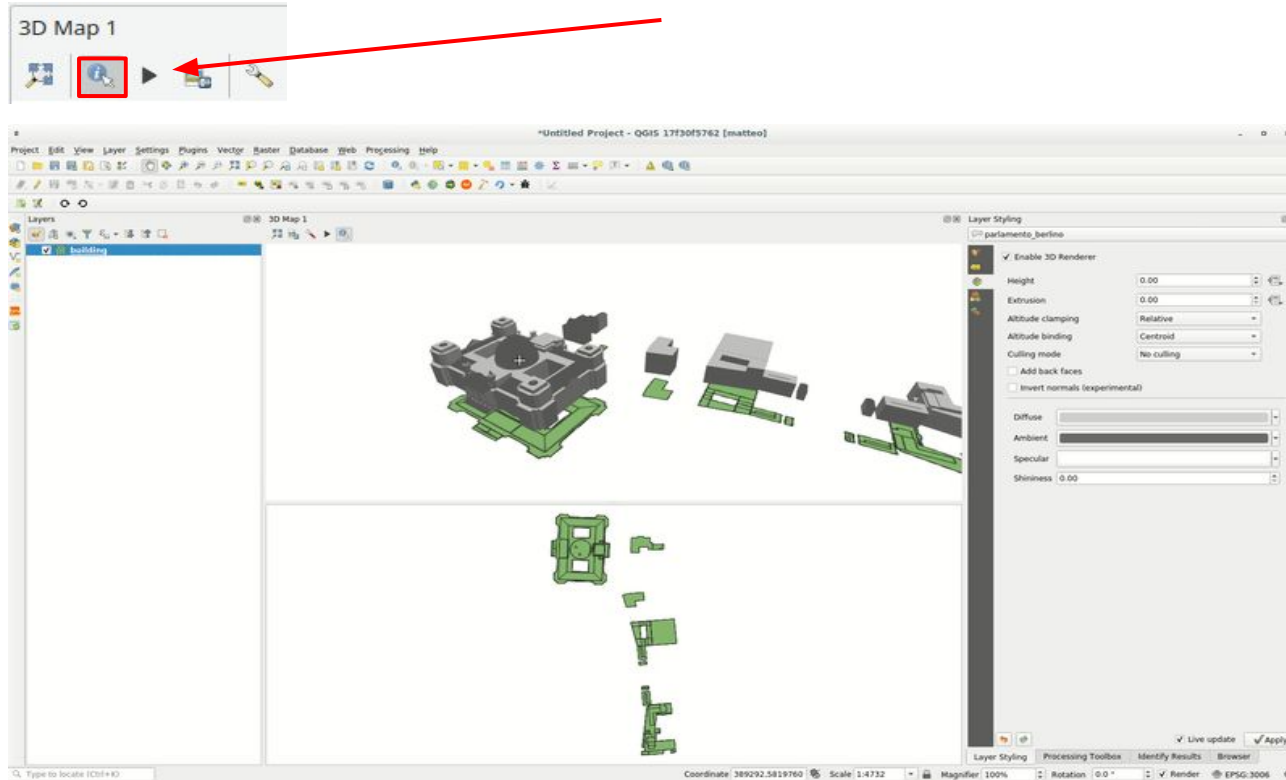
Navigation with mouse



- Left Button:
 - Change your own position
 - With Shift modifier: rotate and tilt model
 - With Ctrl modifier: rotate your viewing angle
- Middle Button:
 - Rotate and tilt the whole model
- Right Button:
 - Zoom in: move mouse down
 - Zoom out: move mouse up
- Zoom Full Button:
 - View of the whole model from above




Identify tool in 3D-View (without highlighting in 3D)



3D-Views in print layout



Coming in QGIS 3.4: 3D Maps in Print Layouts!



The image shows two side-by-side 3D map views of a landscape. The left view is a perspective view of a green, hilly landscape with a river valley. The right view is a similar perspective view, but the map is tilted and rotated, showing a different angle of the same terrain.

Item Properties
3D Map

Scene settings
Copy settings from a 3D view...

Camera pose

Center X	0,0	⊗ ⊞
Center Y	0,0	⊗ ⊞
Center Z	0,0	⊗ ⊞
Distance	3000,0	⊗ ⊞
Pitch	45,0 °	⊗ ⊞
Heading	30,0 °	⊗ ⊞

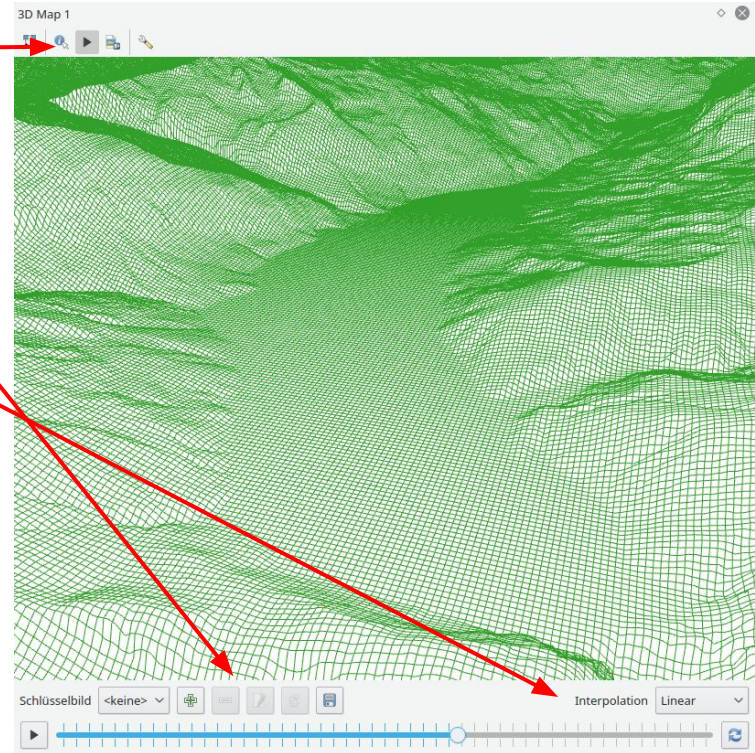
- ▶ Position and size
- ▶ Rotation
 - ▶ Frame
 - ▶ Background
- ▶ Item ID
- ▶ Rendering
- ▶ Variables

x: 0 mm y: -3 mm page: 1 66.7%

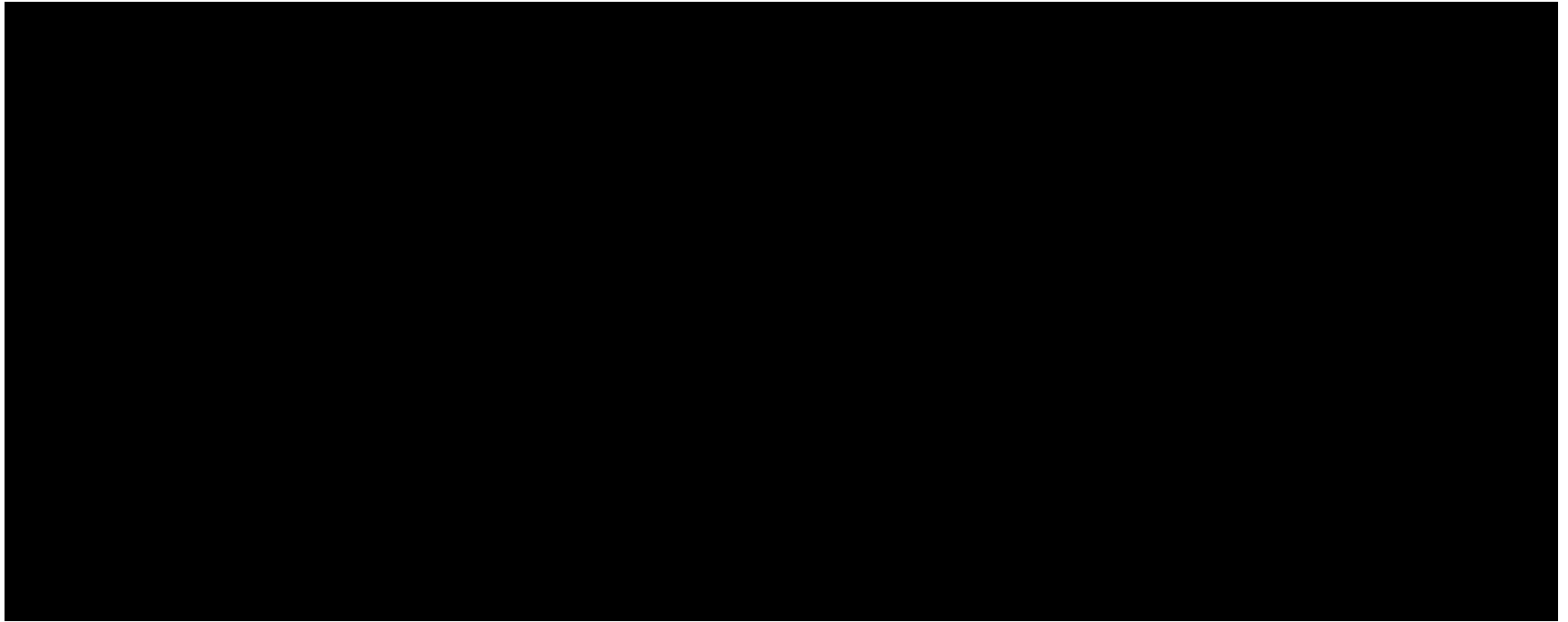
Animation (from version 3.6 on)



- Show animation toolbar
- Add/remove/edit key frames
- Change interpolation type



Sample animation with key frames

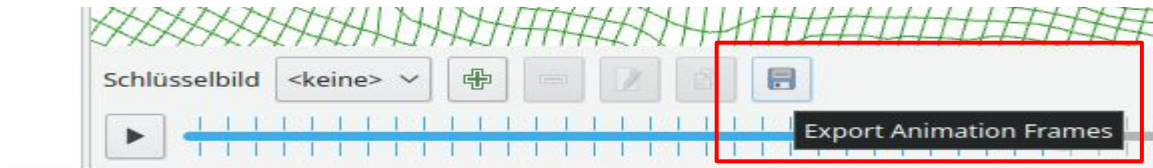


How to create a video from animation frames?

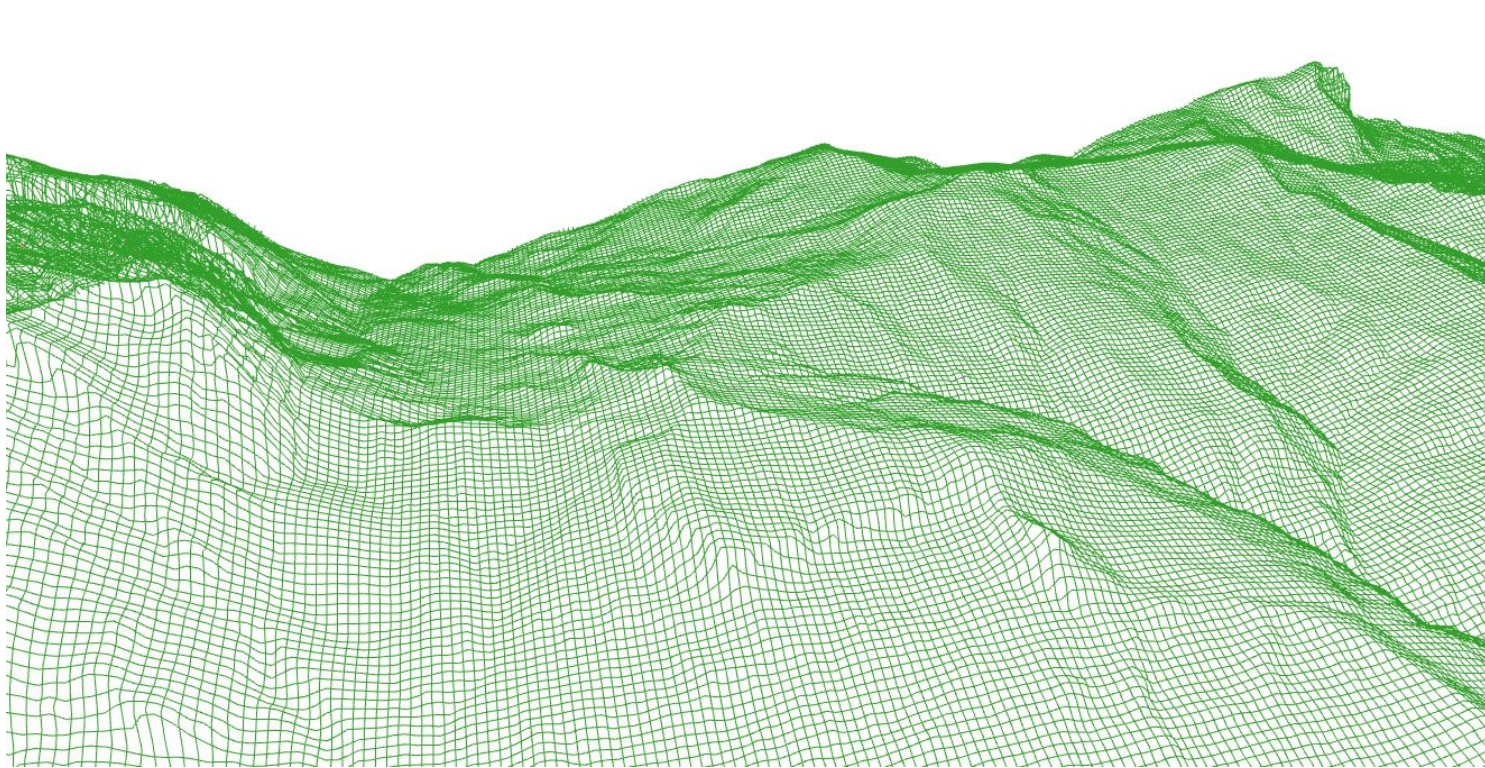


- Calculate individual frames and store them in dedicated folder
→ go and drink coffee or have dinner
- Merge individual frames with “ffmpeg” into a video:

```
ffmpeg -i path-to-frames/frame_3d%04d.jpg \  Source images  
-c:v libx264 \  Video codec  
-vf "fps=30" \  frames per second  
video_qgis3d.mp4  output video file
```



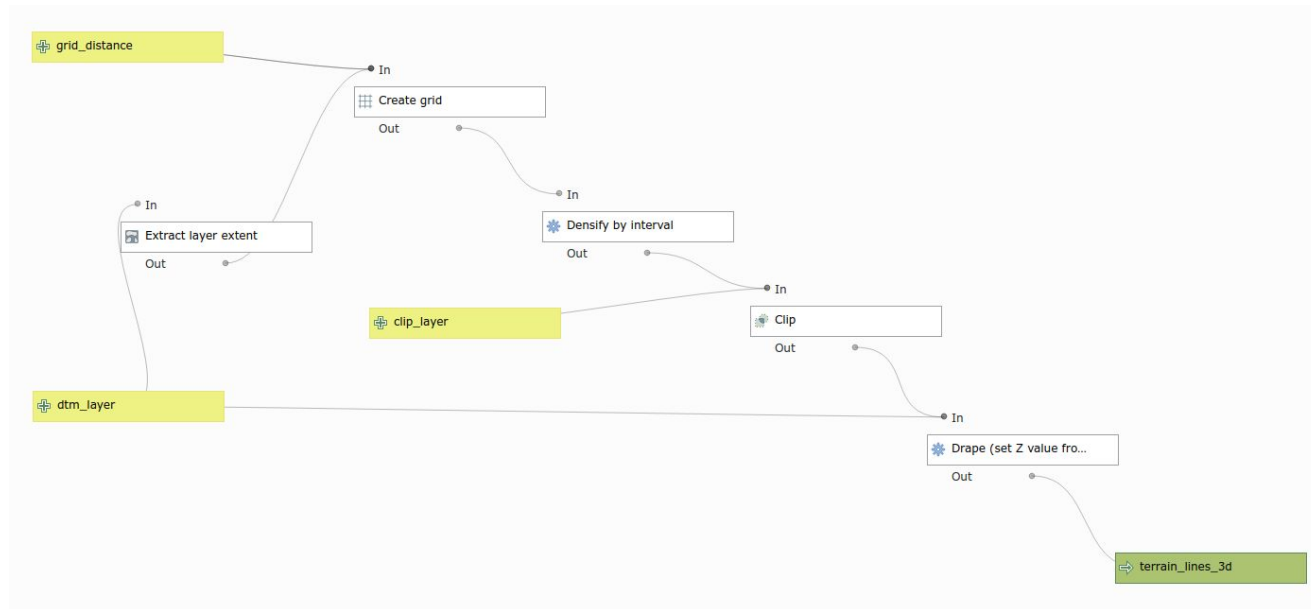
How to create a wireframe terrain model?



How to create a wireframe terrain model?



Model with combination of layer extent (DTM) → create grid with lines → densify → drape (DTM raster file) → create geopackage



What doesn't work yet?



- No caching of triangulations of DTM models
- No parallel loading and triangulation of 3D data in multiple CPU cores
- Large 3D scenes load very long or crash
- No object highlighting when identifying objects in 3d scene
- No brushing: identification in 2D doesn't also highlight the same object in 3D.

Wishlist for future versions



- Improvements for loading, viewing and examination of larger scenes
- Viewing of lidar data
- Examining lidar data
- Texture support for 3D polygons (e.g. walls/roofs of buildings)
- Support for transparency of 3d polygons or raster surfaces
- Rendering points as billboards with labels
- Integration of animation toolbar with time manager