How to import LandsD iB1000 building footprints and extrude them to 3D in QGIS

Downloading data from HKMS 2.0

1. Go to <u>https://geodata.gov.hk/gs/</u> and type "ib1000" in the search box.



2. Select Digital Topographic Map iB1000.

| HONG KONG GEODATA STORE | | Datasets | | 中文 |
|----------------------------|--|----------|--------|----|
| | | | SEARCH | |
| | ib1000 | | Q | |
| | Digital Topographic Map iB1000 數碼地形圖 iB1000 Lands Department Last Update: | | | |
| | Digital Topographic Map iB10000 數碼地形圖 IB10000 Lands Department Last Update: | | | |

3. Click the **Download URL** (second link). The download URL will redirect you to the Lands Department' s HKMS 2.0 website where you will be able to choose and download any tile. Notice that most of the criteria in the Search Panel have already been entered for you. Therefore, you will simply need to click **Search** to enable the tile layer.



| Product Category | |
|---|--------------------------|
| Aerial Photo And Image Product (1000+ | 90 |
| Spatial Data & Topographic Map (1000+ Series | 90 |
| Digital Topographic Map iB1000 (1000+) | |
| Select File | Chek Lap, Kok |
| Search List Template | Per |
| By Sheet Tile/No.: | Lantau Island Hei L |
| (e.g. 1-SE-*, 1-*-D) | Cheung Shek Kuyu Chau |
| Search | Tai A Chau |

4. Click a tile to choose the data of you study location and press the **View** button.

| Search Panel Product Lis t | Sheet No. / Title | ¥ | 114WW 80 | 11.NW 3C | 11 ANY 40 | | |
|-----------------------------------|-------------------|------|---------------|--------------------------------|---------------------|-------------------------------------|---|
| Preview Not Available | 2021-12-23 | | 8-0,11-NW-13B | vinawena Sham Shui Po | - 11-INV-14B Yau Ya | Kowloon Tone Tissee Transissa | 11 ME11A 11 6 1 Kow con City 7 |
| < « | 1 » | View | TI-MM-13D | | DUNDARV-STREET | | 9 * 11 NE 11 C 11 + 1 |
| | | | 11-MA-588 | Tai Kök. TSUI 11.NNI-194 | ti | 1180-200 | |

5. Select *GML* as **Product Format** and click **Add to download queue** before closing the window.

| Product Information | × |
|---------------------|--|
| | Digital Topographic Map |
| | T11-NW-14D |
| Browiew Net | Sheet No. / Title |
| Available | Revision Date 2021-12-23 |
| | Product Type Digital ~ |
| | Product Format GML V |
| | |
| | Terms and Conditions Add to download queue |
| | Your Rating |
| | Close |

6. Go to the header bar of the website and click the first icon to view download queue.



Once you're happy with your selection, press the **Download** button.
 Press download again when you get redirected to the Download Page.

| roduct Details | | Product Category | |
|----------------------|--------------------------------|--------------------------------|------------|
| Product Name: | Digital Topographic Map iB1000 | | |
| Sheet No./Photo No.: | T11-NW-14D | | |
| Format: | GML | Spatiai Data & Topographic Map | _ |
| Revision Date: | 2021-12-23 | • | ▶ 🛍 |

Downloading data from HKMS 2.0

8. Go to the folder location of your downloaded zip file and unzip it.

| Name | ٦ |
|------------------------|---|
| B1000_11-NW-14D_GML | |
| 🔢 iB1000_11-NW-14D_GML | |
| | |

- 9. Keep opening the folder to locate a GML file called **Building.gml**. This is the spatial file that contains the building footprint polygons.
- 10. Open *QGIS*. Add a basemap by clicking *XYZ Tiles* > *OpenStreetMap* under the **Browser Panel**.





11. Next, drag and drop the Building.gml to the map canvas of QGIS.

12. Now that we have the polygons imported, you can zoom to the layer's location which should look something like this in 2D.



13. Next, go to the menu bar and find **Plugins**, and then click **Manage and Install Plugins...**



14. Search for a plugin tool called "Qgis2threejs" . Click **Install Plugin**. Wait for a while until it finishes installing.

| Q Plugins All (1048) | | | × |
|---|--|--|--|
| All | Q. 3d | | • |
| Not installed Not installed Upgradeable | 3D City Builder Anaximandre CityJSON Loader CZML Generator Delft3D Flexible Mesh DEMto3D iMOD Pic2Map | Aggis2threejs 3D visualization power technology and three. This plugin visualizes DEM and You can build various kinds of | red by WebGL js JavaScript library d vector data in 3D on web browsers. f 3D objects with simple settings panels |
| 1nstall from ZIP | qLidar RasterTool ThToolBox TlugProcessing Video Uav Tracker | and generate files for web pu you can save the 3D model in 合合合合合合合合合合合合合合合合合合合合合合合合合合合合合合合合合合合合 | addition, a gITF format for 3DCG or 3D printing. b), 641064 downloads b), terrain, webgl, three.js, 3d, gltf, ar |
| | | More info | homepage bug tracker code repository |
| | | Author | Minoru Akagi |
| | | Available version (stable) | 2.6 updated at Thu Feb 11 22:45:33 2021 |
| | | Upgrade All | Install Plugin Close Help |

15. Go back to the menu bar and click **Web**. There you will find the newly installed plugin **Qgis2threejs**. Click to open the exporter.



16. In the pop-up, check the box next to **Building** layer to enable it.



- 17. To extrude the polygons, double click the **Building** layer to open its **Properties**.
- 18. Follow the below set-up for the **Layer Properties**. After you clicked **OK**, you should have the extruded buildings nicely displayed in the preview.

| Object type | Extruded | - |
|----------------------|--|----------|
| <u>Z</u> coordinat | e | |
| Mode | Absolute | • |
| Altitude | Expression O Z Value O M Value | |
| | 0 | 8 |
| <u>5</u> tyle | | |
| Color | Feature style | • |
| Orreita | Eachara at de | |
| Opacity | Feature style | <u> </u> |
| Height | Expression | • |
| | 1.2 ROOFLEVEL | ε |
| Edge color | (No Edge) | • |
| Features | | |
| 🔘 All featu | res | |
| Feature | s that intersect with base extent of the scene | |
| Clip | geometries | |
| <u>A</u> ttribute ar | nd label | |
| Export a | ttributes | |
| Label field | (No label) | - |
| Label height | Absolute | - |
| | | |



19. You can also add the basemap from your 2D QGIS by checking the **GSI Elevation Tile Layer** under **DEM**.



Useful links

How to create 3D BUILDING VIEW in QGIS using Qgis2threejs:

- https://www.youtube.com/watch?v=b-k0LEw3t7l
- https://www.youtube.com/watch?v=EmPTQnN1Pf0