

RECAP SLIDES: INTRO. TO SKETCHUP & CITYENGINE

BY DIGITAL RESEARCH HUB, 2023

SketchUp



What we'll cover

- . Intro to the SketchUp U.I
- . Using SketchUp's main tools
- . Importing GIS data
- . Intro to the CityEngine U.I
- . Navigating in CityEngine
- . Getting Map Data

SketchUp





Opening SketchUp





Always remember the template you choose will affect the scale of your model and it's measurements!



SketchUp U.I



Workspace



Default Tray-Tags,styles and more.



Tools and their functions







Pen Tool and Push-Pull Tool

- Use the pen tool to create a building footprint.
- Select the entire drawing and right click on it. Select Make Group.
- Now double click on the face to go into isolation mode. Now use the push-pull tool to extrude the footprint.





- To specify a height, pull to a random height and simply type in the value.
- It should appear in the distance text box at the bottomconor of SketchUp.



Rectangle Tool





Rectangle Tool Draw rectangular face entities.

Tool Operation

- 1. Click to set first corner.
- 2. Move cursor diagonally.
- 3. Click to set second corner.

- Modifier Keys

 ctrl = Toggle drawing from cei Hold shift = Lock Rectangle to
- current drawing plane inferenc Arrow keys = Toggle lock draw
- plane inference (\rightarrow = Red, \leftarrow : Green, \uparrow = Blue, \downarrow = Parallel).

Tips

- Esc = Cancel operation.
- · When drawing rectangles, you





Move Tool, Tags (layers) & Rotate Tool

- Use the move tool to move models in any direction.
- Create a new tag by clicking on the plus icon
- The blue colour indicates the tag (layer) you are working on.





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- To move models into tags, click on them and change their tag in the entity info.
- Use the rotate tool to rotate models.

Importing a DWG into SketchUp

Placing the DWG from GeoMaps (extract with needed layers)

1) File

> Import > Choose the file you want to import, DWG or JPG

2). Select DWG >Import into Model. Remove contour (If needed) or hide it in tags>Right Click > Explode DWG >

Use line tool to draw over lines which will fill the shape. Group face first.

3. Select faces > Right Click> Pull/Push to the desired height











- Use the tags to turn off or on the layers you imported.
- Please note: Due to the nature of SketchUp, it is recommended:

To import DWGs, generally stay below 1:5000 for footprints, parcels etc. (also depends on P.C)

For contours, 1:1000 or below is recommended.



Exporting as PDF, JPEG, PNG or DWG

Exporting the Model: 1) File > Export > 2D Graphic 2). Save as a PDF / JPEG / PNG (2D images for editing on Photoshop and Illustrator) or save as a DWG (for modelling software)

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Exporting the Model (3D) 1) File > Export > 3D Model 2) Save to the desired file format you want, (OBJ, 3DS, DWG, DXF, etc)





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- Create a project Click File > New > CityEngine > **CityEngine Project** to open the Select a wizard dialog box. Click Next.
- 2.
- 3. In the **Project name** box, type

Your_Project_Name.

Click **Browse** to select a folder a.

location or Use default location

* make sure to remember where you saved

- Click Finish. 4.
- 5. The project is created in the *Navigator*.

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Name your new CityEngine project

Project name: Your_Project_Name

Use default location

Location: C:\Users\Default\Desktop

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Introduction to ArcGIS CityEngine



- Click File > New > CityEngine >
 CityEngine Project to open the Select a wizard dialog box.
- 2. Click **Next**.
- 3. In the **Project name** box, type

Your_Project_Name.

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- 4. Click **Finish**.
- 5. The project is created in the *Navigator*.

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Use default location

Location: C:\Users\Default\Desktop

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Introduction to ArcGIS CityEngine



- Click File > New > CityEngine >
 CityEngine Scene or right-click the Your_Project_Name folder and select New > CityEngine
 Scene to open the Select a wizard dialog box again.
- In the File name box, type
 Your_Scene_Name.cej. Keep the
 Coordinate System box empty.
- 3. Click **Finish**.
- The new scene is created under the project folder.







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- Select an existing scene
- 2. Click File > Get map data...
- 'Your ArcGIS organization's URL' > Type "uoa" and Click Continue 3.
- Sign in with your UPI Please email <u>drh022@aucklanduni.ac.nz</u> if you have any issue with sign in 4.







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- The Get map data dialog opens.
- Search for an area and then zoom in or out <u>OR</u>
- Pan with the left mouse
 button to navigate
 around the map.
- 2. Click **Set extent**.



More Information CityEngine Help: https://doc.arcgis.com/en/cityengine/2019.0/help/cityengine-help-get-map-data.htm



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Select the basemap resolution. . Note: Recommend to select Medium (2k) for smooth downloading.

- Tick **Get Terrain** to include 2. elevation data with your map.
- Add Open Street Map (OSM) data 3. to your scene.
- Select **Download networks** for street data
- **Download footprints** for building footprints data.
- Click **OK**. 4.



Navigate to the area of interest and set extent.





X



Get map data (con.)

We recommend to tick all the boxes highlighted.

- The map with terrain, streets, and building footprints aligned to the elevation data is added to your CityEngine scene.









Building Generation

- I. Select all shapes
 and objects in your
 scene. (Drag and select
 OR Control + A)
- 2. Click Generate
 - This will create
 buildings and street
 networks based on the
 ArcGIS data AND
 CityEngine own built in algorithm.

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Note:

- The heights and
   sizes of the building
   footprints are NOT
   100% accurate.
- This is designed to help you with generating quick,
   conceptual context
   and shadow studies
   for your works.

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For more realistic 1. buildings, select an appropriate style for the building footprints in the **Inspector**.

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✓ <u>Facade Textures</u>	Add new style		
- Facada Cabamatia	Preview & select styles		

### Visualization Options

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## Building Height

- I. Select a specific building
- 2. Change building height from

### **Building Settings**





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