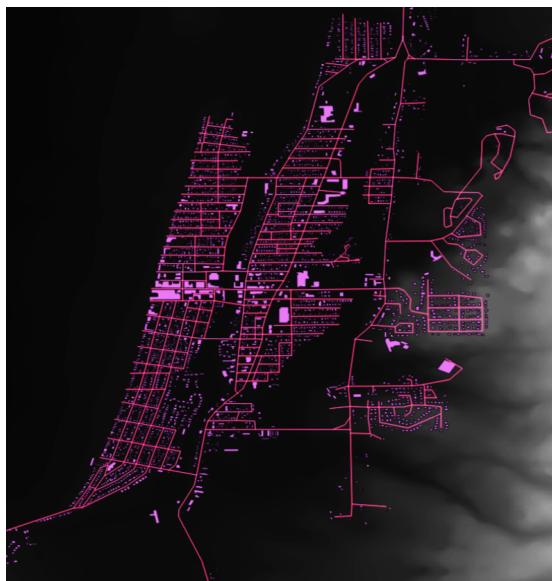


Integrate CityEngine and Unreal Engine

City Generation Workflow:



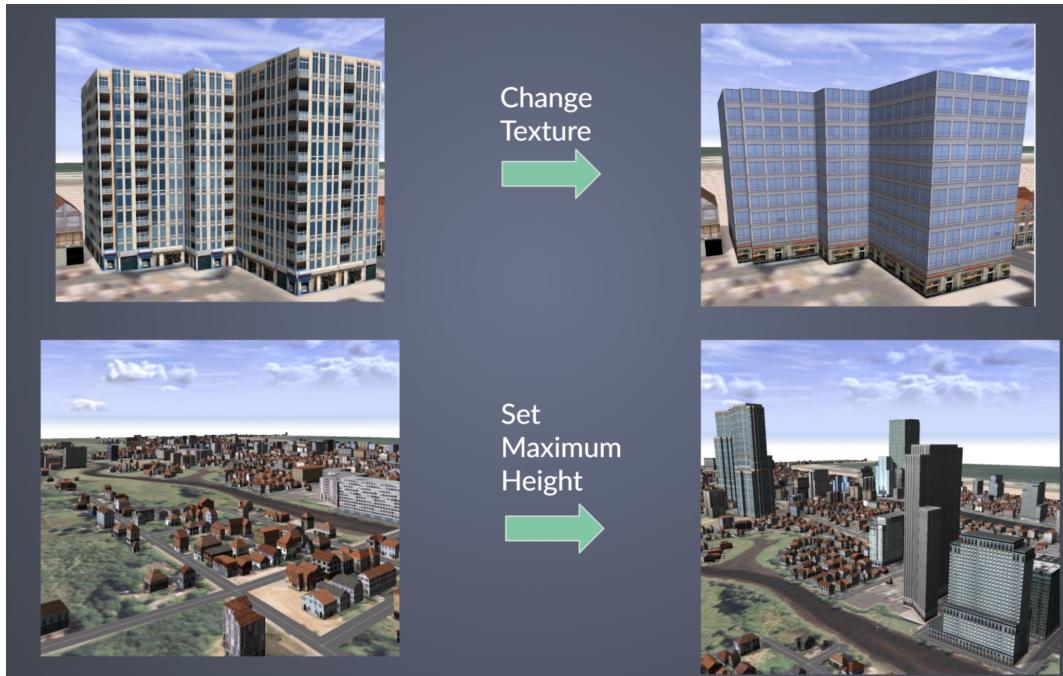
Data:



- Building footprints (.shp)
- Road network (.shp)

CityEngine:

1. Import datasets into CityEngine
2. Apply [CityEngine rule .cga](#) files to generate models



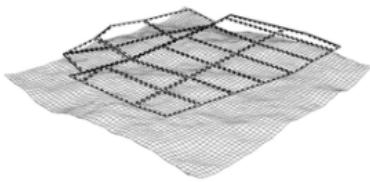
3. Align Graph to the terrain: (Street)

Align streets to terrain

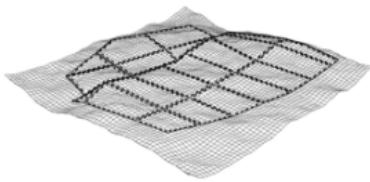
CityEngine 2019.1 | [Other versions ▾](#)

You can use the **Align streets to terrain tool**  to align graph networks to a terrain (map layers with attribute elevation defined) or to the $y=0$ level. You can access the tool in the following ways:

- Click the **Align streets to terrain tool**  in the main toolbar.
- Click **Graph > Align streets to terrain** in the main menu.

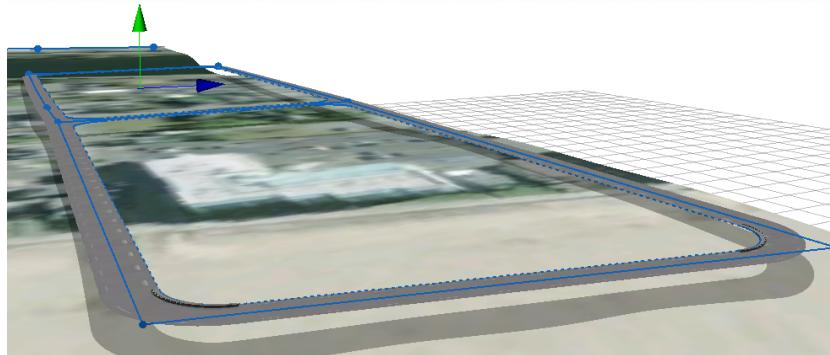


Non-aligned graph network

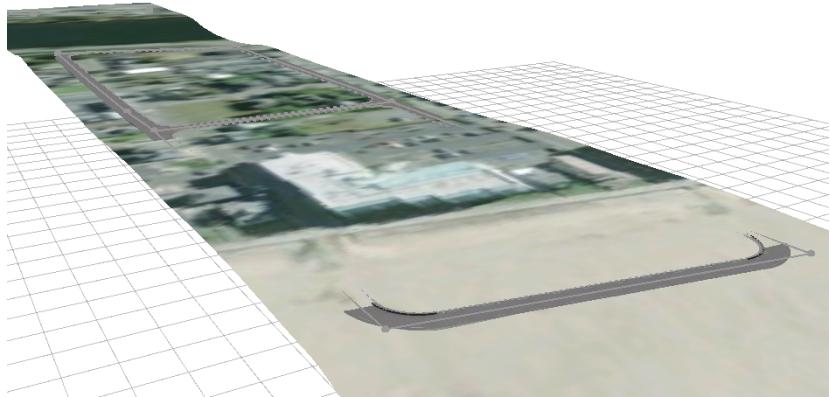


graph network aligned to a terrain

Before the alignment



After the alignment:



4. Align Terrain to Graph:

Align terrain to shapes

CityEngine 2020.1 | [Other versions ▾](#)

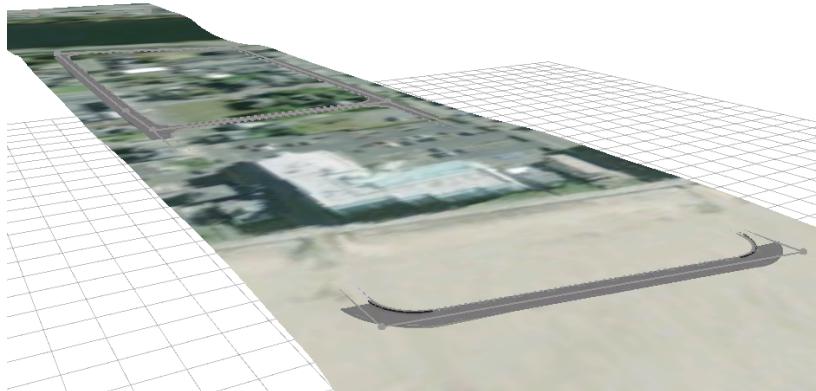
Terrains can be aligned to shapes by using the **Align Terrain** tool . You can select shapes and access the tool the following ways:

- Click the **Align Terrain** tool .
- Click **Layer > Align Terrain** in the main menu.

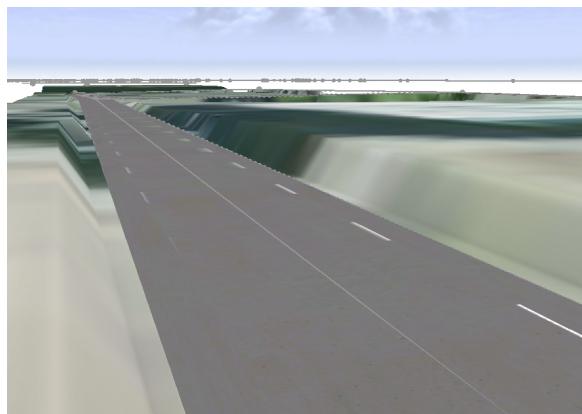
 Note:

The **Align Terrain** tool  aligns one or all terrains to the shapes currently selected.

Before:



After:



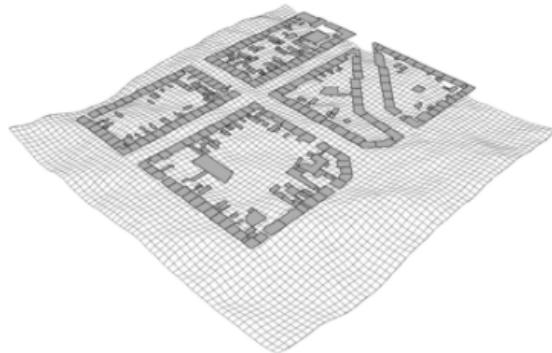
5.Align shapes to terrain (Buildings):

Align shapes to terrain

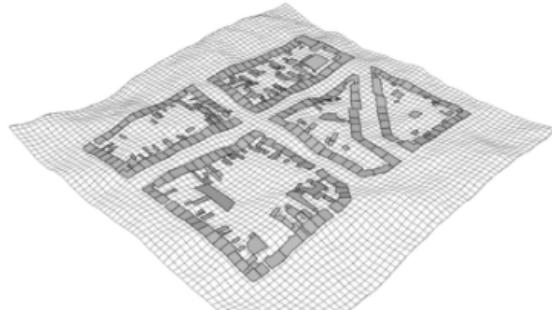
CityEngine 2020.0 | [Other versions ▾](#)

The Align shapes to terrain tool  aligns shapes to arbitrary terrains (map layers with attribute "elevation" defined) or to the y=0 level. All currently selected shapes and all shapes of the selected layers are aligned. The shapes are aligned to a terrain, using an alignment function and an optional offset. You can access the Align shapes to terrain tool  the following ways:

- Click the Align shapes to terrain tool  in the toolbar.
- Click Shapes > Align shapes to terrain... in the main menu.



Shapes not aligned to terrain



Integrate CityEngine and Unreal Engine:

1. Export model from CityEngine in .udatasmath format
2. Enable Datasmith Importer in Unreal Engine
3. Import .udatasmath file into UE4w

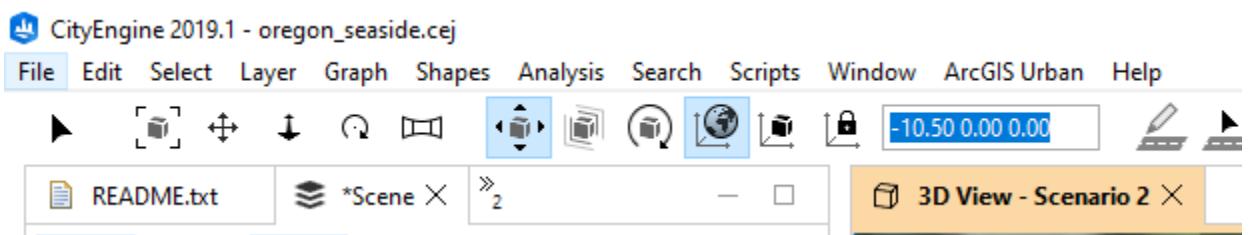
Export:

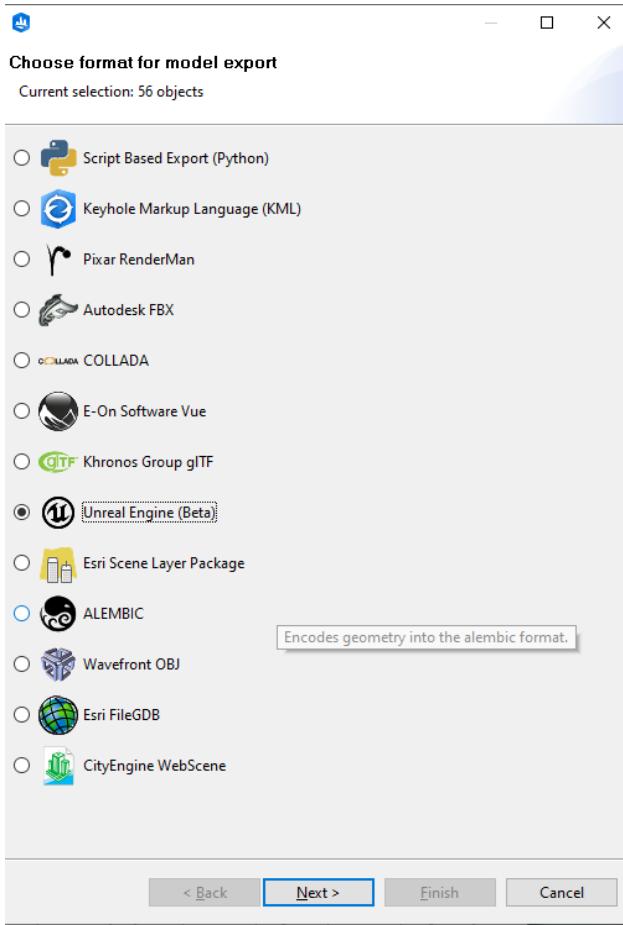
1. Export model from CityEngine in .udatasmith format
2. Enable Datasmith Importer in Unreal Engine
3. Import .udatasmith file into UE4



Walkthrough:

1. File -> Export Models -> Choose “Unreal Engine (Beta)” -> Next





2.

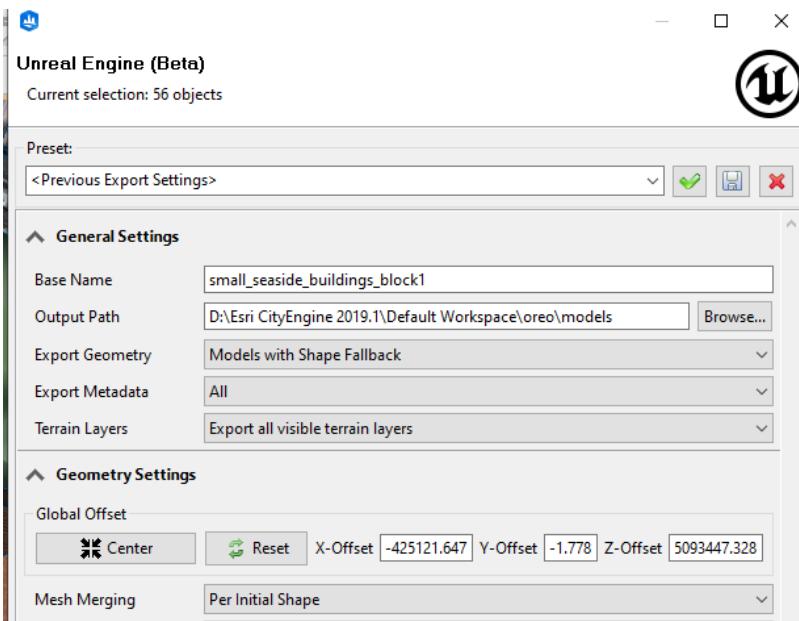
Base Name: "MyCity"

Global Offsets -> Click "Center"

Mesh Merging -> "Per Initial Shape"

Instancing -> "Use Instanced Static Mesh Actors"

Click "Finish"



3. In Unreal Engine:

- Enable “**Datasmith Importer**”
- Restart the project



Other UE4 Plugins:

- Dataprep plugin to
 - substitute materials
 - Delete objects
 - Learning Material
 - <https://www.youtube.com/watch?v=oSRZ1ipQ19o>
- Vitruvio plugin (Procedural Runtime Tool(PRT) in UE4)
 - Generate models in UE4
 - <https://github.com/Esri/vitruvio/blob/master/doc/usage.md>