

Tutorial 15: Publish web scenes



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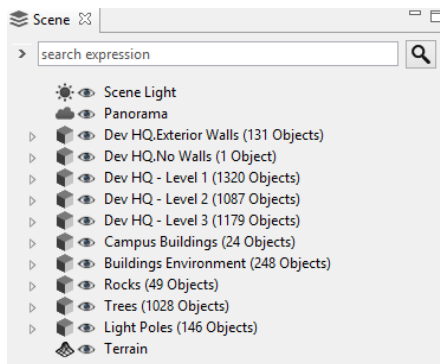


Part 1: Export CityEngine scene to Web Scene (.3ws)

- Open scene Esri_Campus.cej
- Generate models

Scene layers

Have a look at the various layers in the scene:



The layer setup is essential for the Web Scene we are going to create, as the layers will be shown in the Web Viewer like in the CityEngine scene.

The scene contains 5 layers for the Dev HQ building: Exterior Walls, No Walls, and a floor plan layer for each of the three floors. The No Walls layer is basically empty, it will be used to enable the swipe view in the Web Scene later on.

Campus buildings and Buildings Environment contain the surrounding buildings as shells with no interior detail.

Rocks, Trees and Light Poles contain point data that load their respective 3D assets.

Other scene details

Beside the actual 3D content, other scene details are exported to a Web Scene:

Bookmarks:

The view bookmarks of a CityEngine scene are exported directly to the Web Scene. All view bookmarks appear in the bookmarks menu of the Web Viewer (top left Star icon).

Current view:

The camera view (camera position and view direction) that is current during export will be the initial view when the Web Scene is loaded in Web Viewer. It is therefore recommended to choose a good viewpoint before starting the Web Scene exporter.

The following shadow settings are exported to the Web Scene:

Shadow on/off:


Sets the initial state for direct shadows.

Ambient Occlusion on/off:

Sets the initial state for diffuse shadows.

Ambient occlusion settings:

The four ambient occlusion settings found in the Scene Light layer settings in the Inspector are exported to the Web Scene and are used for the diffuse shadow settings

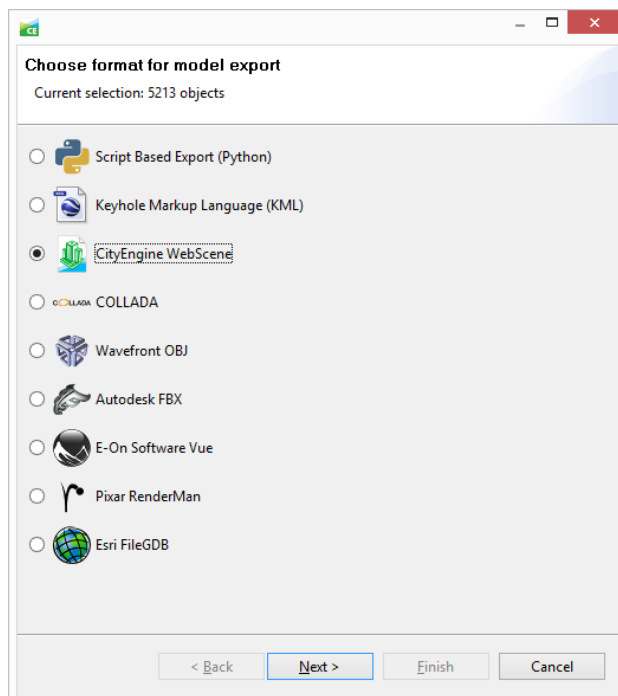
 **Note:** that the lights elevation and azimuth angle might be different in the Web Scene, as Web Viewer automatically sets the lights dependent on the world position and time information set in the sunlight pane.

Export 3ws

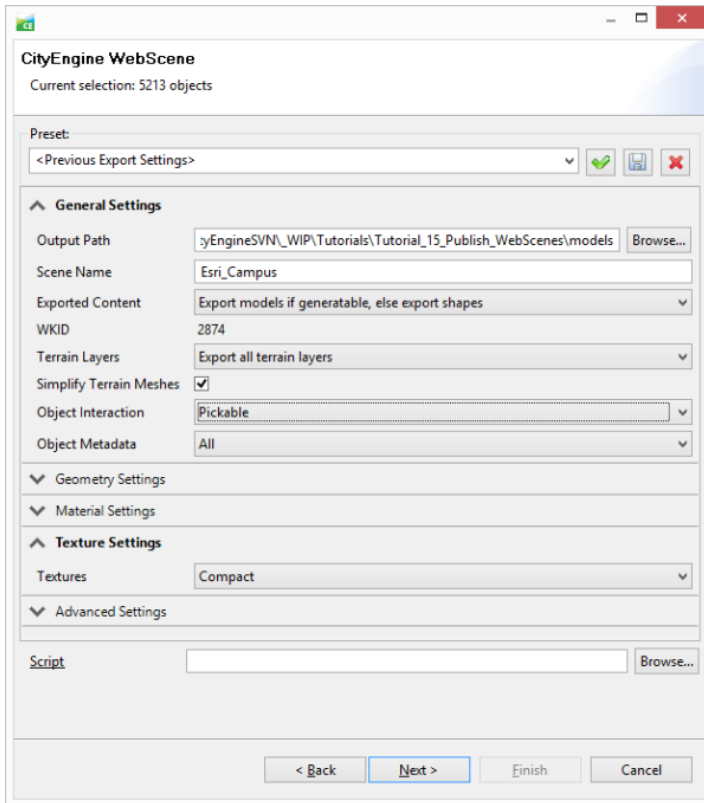
Make sure all layers are visible, and use drag-select to select all models in the scene

Steps:

1. Start exporter **File > Export Models...**
2. Select CityEngine Web Scene.



General export options



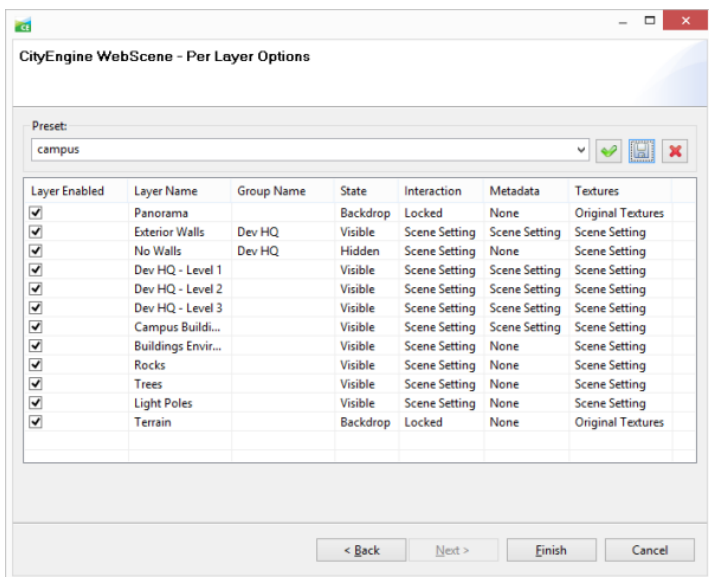
Make sure to set the Location to the models/ folder of the current project.

For details about the other general export options please refer to the export part in the CityEngine help manual.

Pay special attention to the **Simplify Terrain Meshes** option: Enabling this option can help to reduce the size of the .3ws file. For terrains with a resolution above 512x512, the simplification process can take a while. In general, try to set a low terrain resolution and enable terrain simplification.

Settings **Object Interaction**, **Object Metadata** and **Textures** define the default behavior for all layers.

Per layer export options



Check the first column to verify that all layers will be exported. If one checkbox is missing, no object of this layer has been selected for the export (or the layer is invisible).

Layer Groups

Set the layer Group Dev HW for the layers Exterior Walls and No Walls. This will enable swipe view in Web Viewer for these two layers.

State

The layer states of Panorama and Terrain are automatically set to backdrop: They will always be visible and will not appear in the layer list. By settings No Walls to Hidden, we ensure that the initial visibility of the Dev HQ group will show the Exterior Walls layer.

Interaction

Backdrop layers cannot be selected, and are therefore automatically set to locked. Set all other layers to pickable to ensure all objects will be selectable in the Web Scene.

Metadata

We only want to show metadata on the Campus buildings, therefore set No Metadata for all other layers.

Texture Quality

A JPG texture has been prepared specifically for the terrain, and is set as Texture on the terrain layer. We can therefore use the Texture Quality option Original Textures for the terrain layer. Other layers use Scene Settings (set to Compact in previous dialog page).

Note: Only use texture quality Original on layers with specifically prepared textures. WebGL only supports PNG and JPG textures, other image formats such as TIFF will appear black. When using non-prepared textures set the texture quality option to High, Medium, Low, Half-sized or compact (recommended).

Click 'Finish' to start the export process. The exporter will create a Web Scene file (.3ws) in the chosen output directory.

Part 2: Preview Web Scene locally

Before publishing the Web Scene it is recommended to preview it locally. This way you can ensure correct export and layer settings, and verify the Web Scene displays as expected.

- Locate the exported Web Scene (the .3ws file) in the Navigator
- Double-click the .3ws file

This opens your web browser, and loads the CityEngine Web Viewer loading the new Web Scene. The preview will load in your systems default browser. If you want to preview in a different browser (in case your default browser does not support WebGL), you can change your systems default browser, or copy-paste the URL to the desired browser.

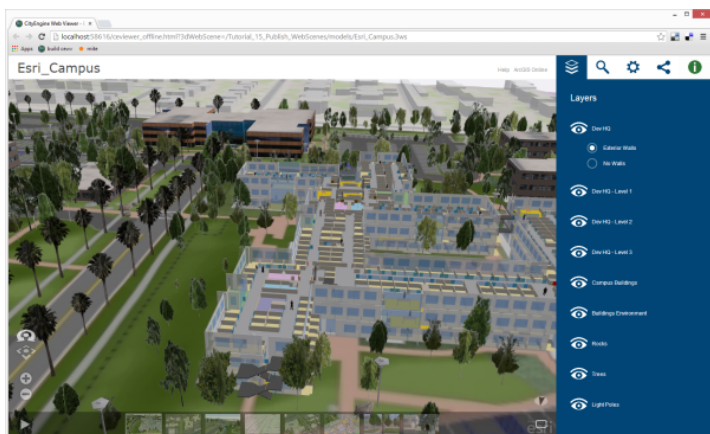
By default the Web Scene preview will load Web Viewer locally, but accesses the Web Viewer application remotely from ArcGIS online. Alternatively you can start the Web Scene preview in offline mode:

- In the Navigator, right-click on the Web Scene (the .3ws file)
- In the context menu, choose Open With... 3D Web Scene Viewer (offline)

Note: Web Scenes can only be previewed within CityEngine. Always open Web Scenes from the CityEngine Navigator. Double-clicking a .3ws file in the systems file browser (e.g. Windows Explorer) will not start the Web Viewer preview.

Part 3: CityEngine Web Viewer

The Web Scene as it shows in the preview Web Viewer:



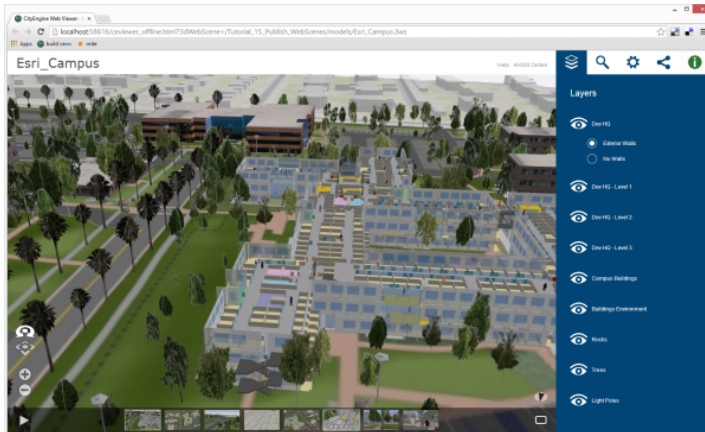
Check that the layers appear as desired. Note how the layer group Dev HQ is displayed as a radio group.

- Hover over the group Dev HQ and start the swipe view by clicking on the swipe icon



Swipe view shows the exterior walls on the left, and no walls on the right.

Ensure that bookmarks are displayed as expected in CityEngine Web Viewer. Mouse-over the 3D viewport shows the bookmarks bar. Use the play button to play a tour through the bookmark views.



Other actions:

- Select one of the campus buildings and find additional metadata in the information pane
- Turn direct and diffuse shadows on / off in the settings pane
- In the layer pane, hide floors 1 and 3 to see details of floor 2
- In the search pane, search for “restroom”

More details on CityEngine Web Viewer can be found in the ArcGIS online help.

Part 4: Publish to ArcGIS online

CityEngine Web Scenes can be uploaded to ArcGIS online, where they can easily be shared with selected people or the public.

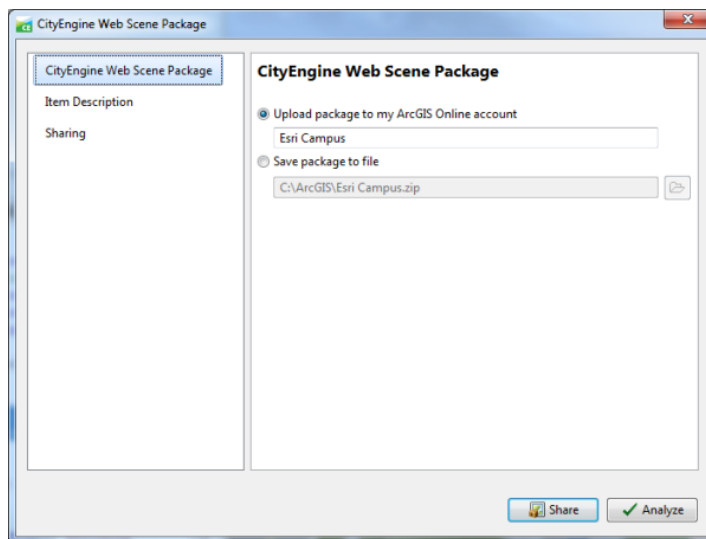
Note: Note: this feature requires an ArcGIS online account. Create one [here](#).

Upload

Steps:

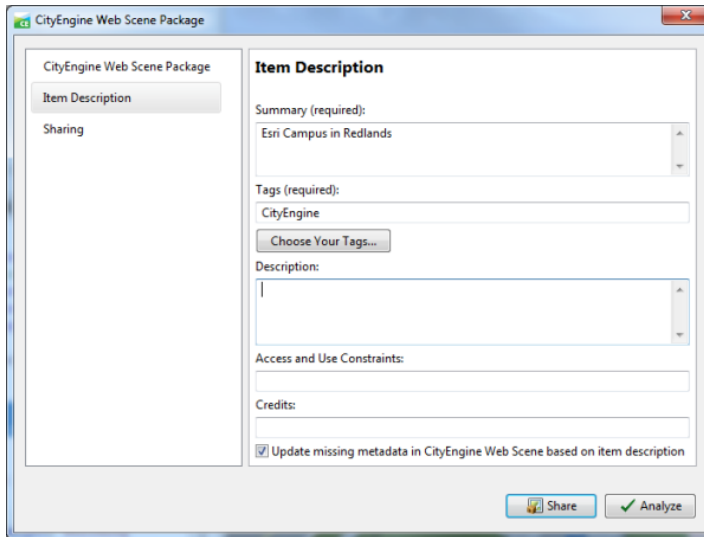
1. Locate the .3ws file in the Navigator.
2. **Right-click > Share as...**

This will display the Web Scene package wizard.



3. Check option upload package to my ArcGIS account.

4. Name the Web Scene, or use suggested Name.
5. Choose tab **Item Description**.



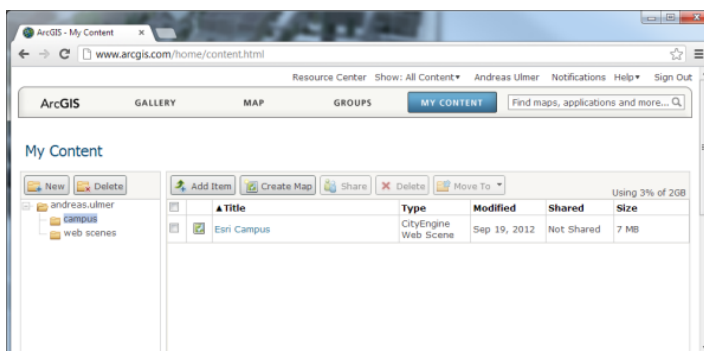
6. Enter a summary for your Web Scene item
7. Choose or enter tags for your Web Scene item
8. Click **Share**.
9. If you are not logged in yet, CityEngine will show the login dialog for ArcGIS online. CityEngine uploads your Web Scene to your ArcGIS online account.

Web Scene on ArcGIS online

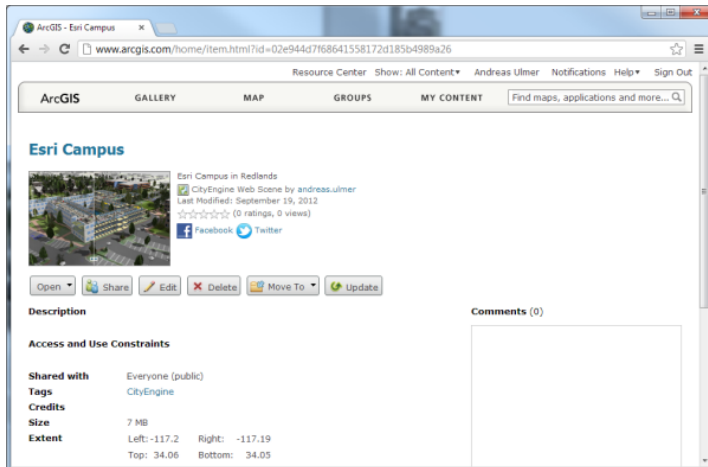
Once the upload is finished, the Web Scene appears as an item in your ArcGIS online account

Steps:

1. Click **File > ArcGIS Online...** this starts the web browser at ArcGIS Online.
2. Sign in, and go to My Content.



3. Click on the item, then click **Edit** and set a nice thumbnail image (e.g. from the projects images folder).



4. Click **Share** to set access rights for selected groups or the public.
5. Click **Open > View application** to start Web Viewer with Esri Campus Web Scene on ArcGIS online

If your item is public, you can use the share pane in CityEngine Web Viewer to share this Web Scene on Facebook, post on Twitter, send as E-mail, share the link itself or embed into a web page.

