



CapturingReality

3DUserNetVISION

## RealityCapture and 3DUserNetVISION - The Perfect Combination

3DUserNet VISION gives you a powerful online platform for collaborating and delivering projects using Imagery and LiDAR. It can ingest and integrate multiple datasets be they point clouds, meshes, models, HD images or 360 panoramics and provides tools for adding measurements, mark ups and notes to create powerful deliverables.

The RealityCapture software produced by Epic Games is an ideal processing tool if you are working with imagery and LiDAR data sets. It can output a range of high quality deliverables that you can now share with your customers much more easily using **3DUserNet VISION**.

### Your guide to exporting data for upload to VISION

The outputs we cover in this guide include:

- **Dense Pointcloud**
- **Level of Detail Meshes**
- **High Resolution Imagery**
- **Orthomosaics**

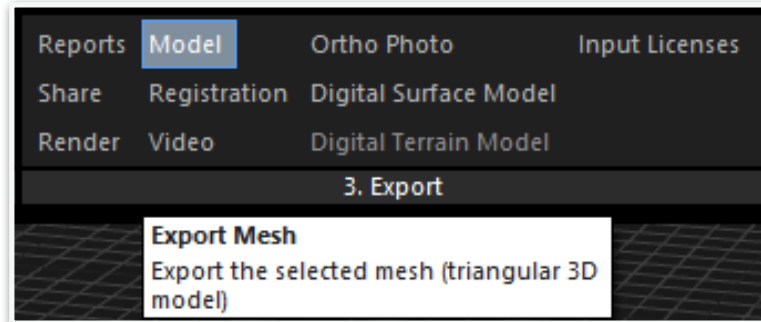
It is important to note that 3DUserNet Vision uses **cartesian coordinates** with **z-up** orientation so be sure that you process your data in either a local coordinate system or using a projected coordinate reference, so that the geometry is correctly oriented. In most cases you will be producing your survey in this way already but for additional help you can check out this support page:

<https://support.capturingreality.com/hc/en-us/articles/360001577032-How-to-geo-reference-the-scene-in-RealityCapture-using-ground-control-points-faster>

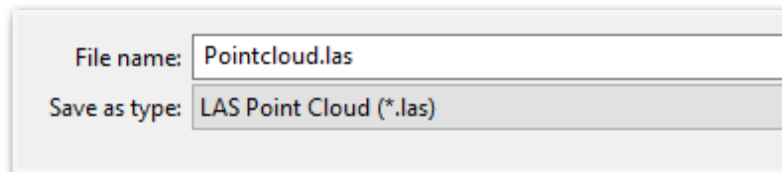
## DENSE POINTCLOUD

After producing your high detail pointcloud the most efficient way to export the data ready for upload to VISION is as a .las file format. The steps to follow are shown below:

- 1) From the **EXPORT** menu choose the **MODEL** option.



- 2) When the file save dialogue appears choose the .las option and name your pointcloud file. The outputted file will be ready for import to VISION

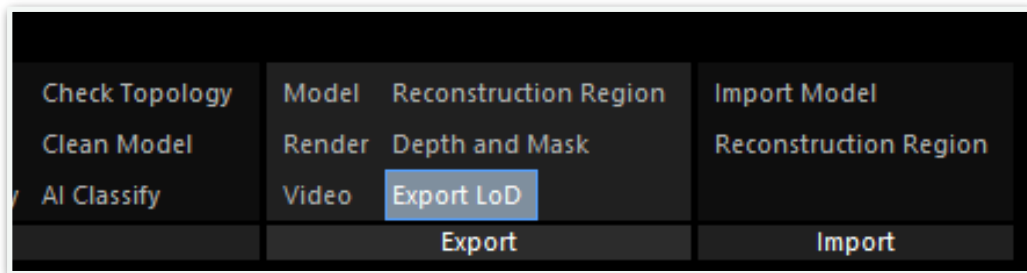


## LEVEL OF DETAIL MESHES

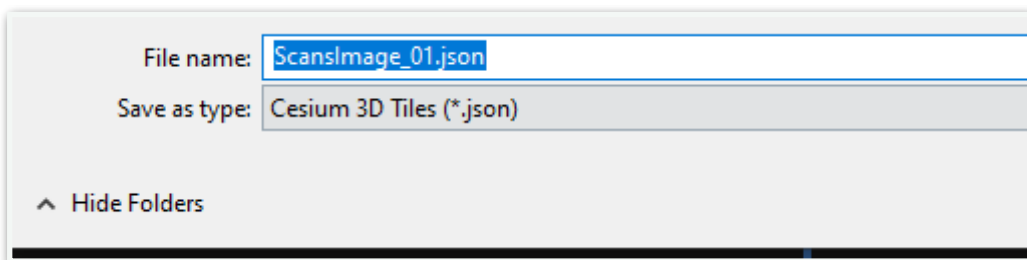
3DUserNet VISION can show large scale LoD (Level of Detail) meshes in the 3DTile format. This format can easily be exported from RealityCapture.

The process for producing the 3DTile format is shown below.

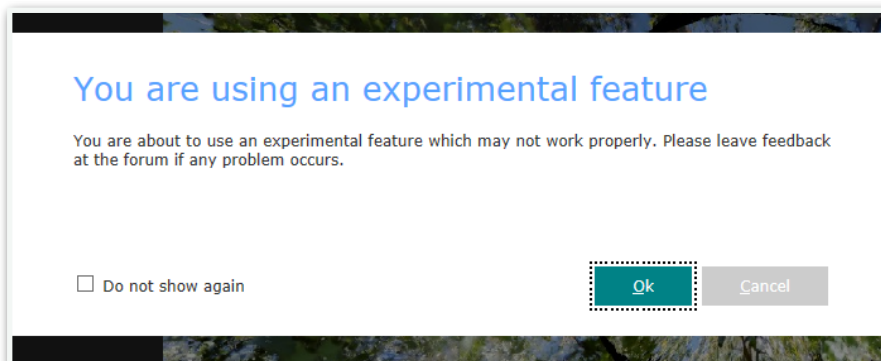
- 1) Before exporting your mesh please ensure you have completed any simplification / cleaning and texturing you require so that the mesh is fully prepared to export.
- 2) Go to RECONSTRUCTION > EXPORT > Export LoD menu item and select it.



- 3) Choose the Format called Cesium 3D Tiles (\*.json)



- 4) Depending on the version of the software you may get a message stating this is an experimental. You can press ok to continue.



- 5) Next you will be asked to specify parameters for the export. It is recommended to use some simplification and optimisation when outputting these as it will improve end user experience, but you can try different settings to suit your data. To date we have used the following settings ranges:

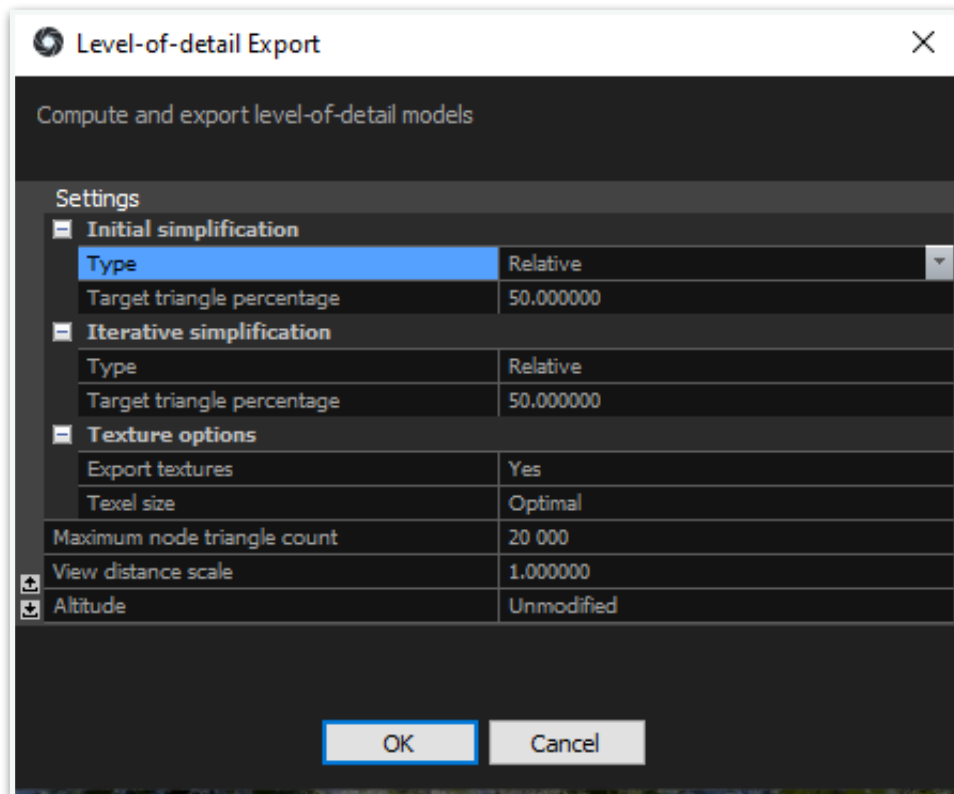
**Initial Simplification (Relative):**

Target Triangle Percentage 25 - 50

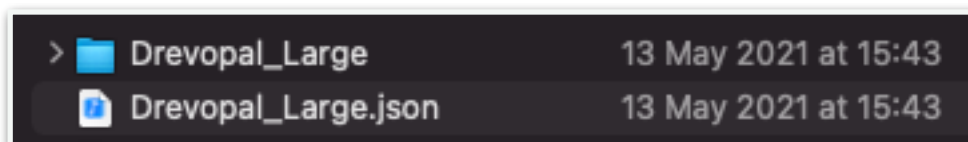
**Iterative Simplification (Relative):**

Target Triangle Percentage 30 - 70

**Maximum Node Triangle Count: 20 000**



- 6) After the export has completed you can create a .zip file with the.json file and the folder contained within it and upload this to your 3DUserNet VISION Project. You will then be able to view it within a task.

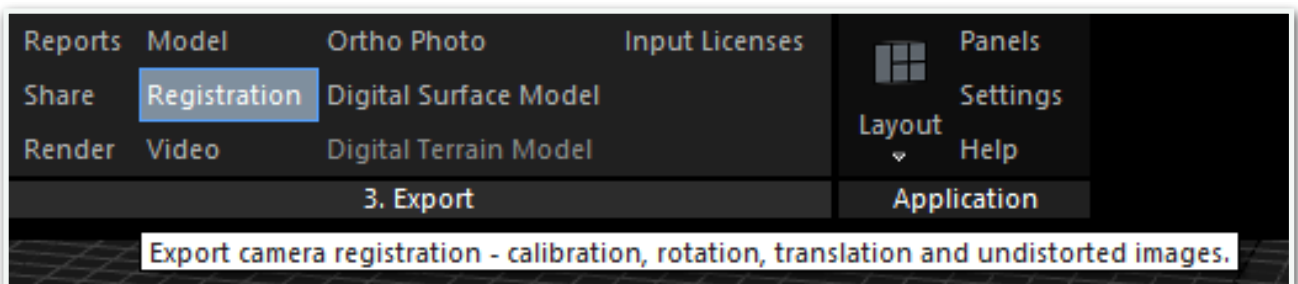


You can currently upload files upto 100GB to our servers, which should accommodate very large models and terrains. You can also upload multiple files.

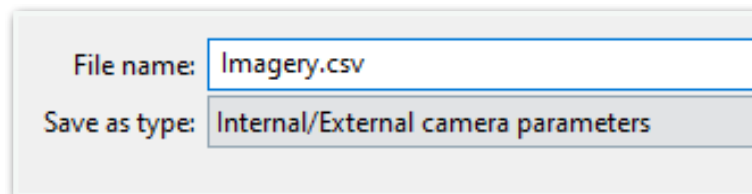
## HIGH RESOLUTION IMAGERY

One of the great features of 3DUserNet VISION is being able to import your high resolution imagery that you used to create your model, as this can be extremely useful to the end users and seeing it in the 3D View is just like in RealityCapture. Preparing your image files is straight forward too, you just need the images in a zip file and a .csv that has the image parameters. The steps to follow are below:

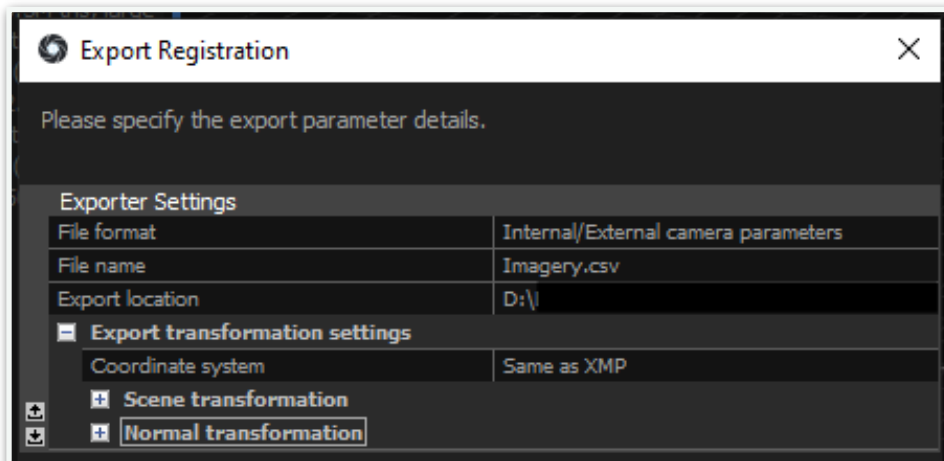
- 1) Create a **zip** file that contains all of the images that you want to upload. These will be the originally imported images that you brought into RealityCapture, so you probably have them organised well already. **Just ensure you only have the images and no folders or subfolders in the zip.**
- 2) Back in Reality Capture go to EXPORT > REGISTRATION



- 3) Then in the file save dialogue choose the type as **Internal/External camera parameters** and give the .csv file a name.



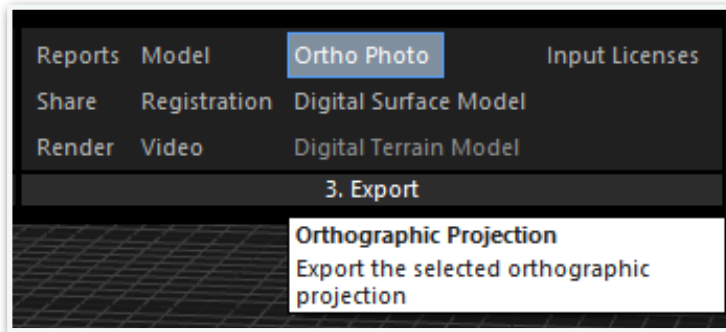
- 4) Finally you specify the export parameters as ensure the coordinate system is **'Same as XMP'**



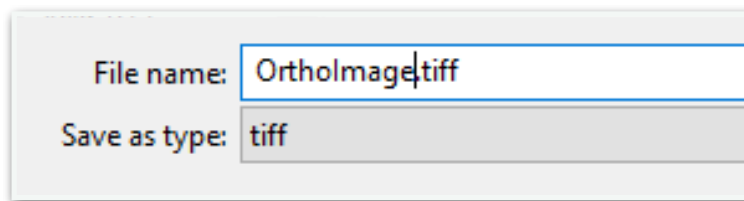
## ORTHOMOSAICS

If your dataset has been produced on a projected coordinate system then you can import an Orthomosaic into VISION as a GeoTIFF file to display over 2D mapping to supplement any 3D data you have for your project. Again, this is pretty easy from RealityCapture. The steps are:

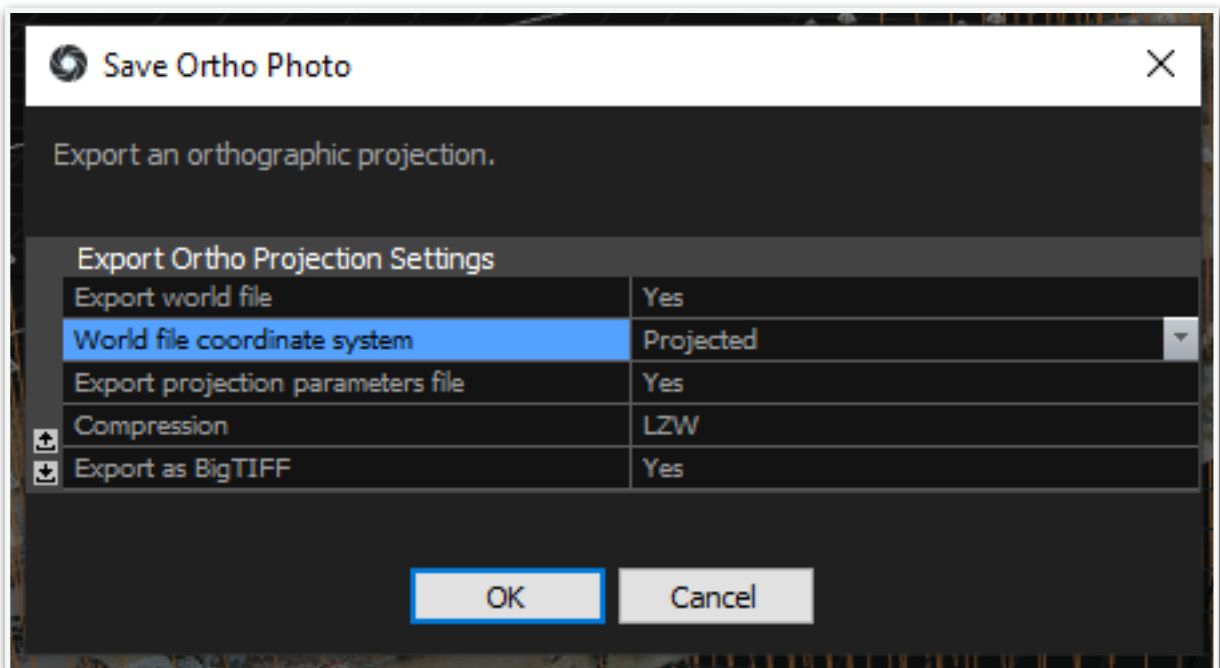
- 1) Go to **EXPORT > ORTHO PHOTO**



- 2) In the file save dialogue select the type as **TIFF** and give the file a name.



- 3) Finally set the parameters for the export. The recommended parameters are shown in the image below. Then click 'OK' and the files will be saved out



- 4) This will create the .tiff and .fw (world file) that you will need to upload to VISION.