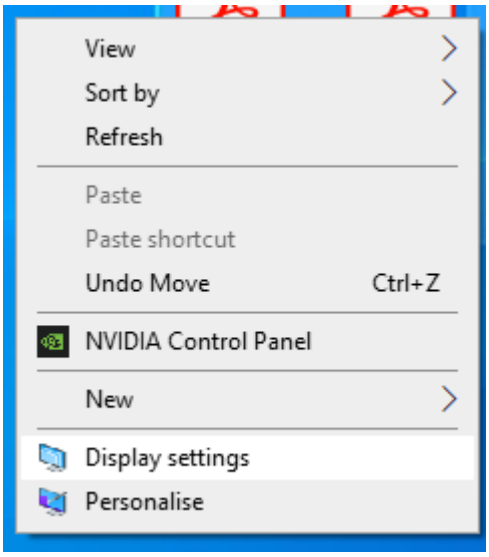
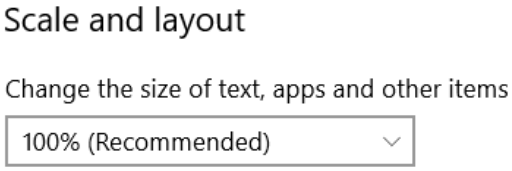
# Contents



## 1.1 Prior Setup

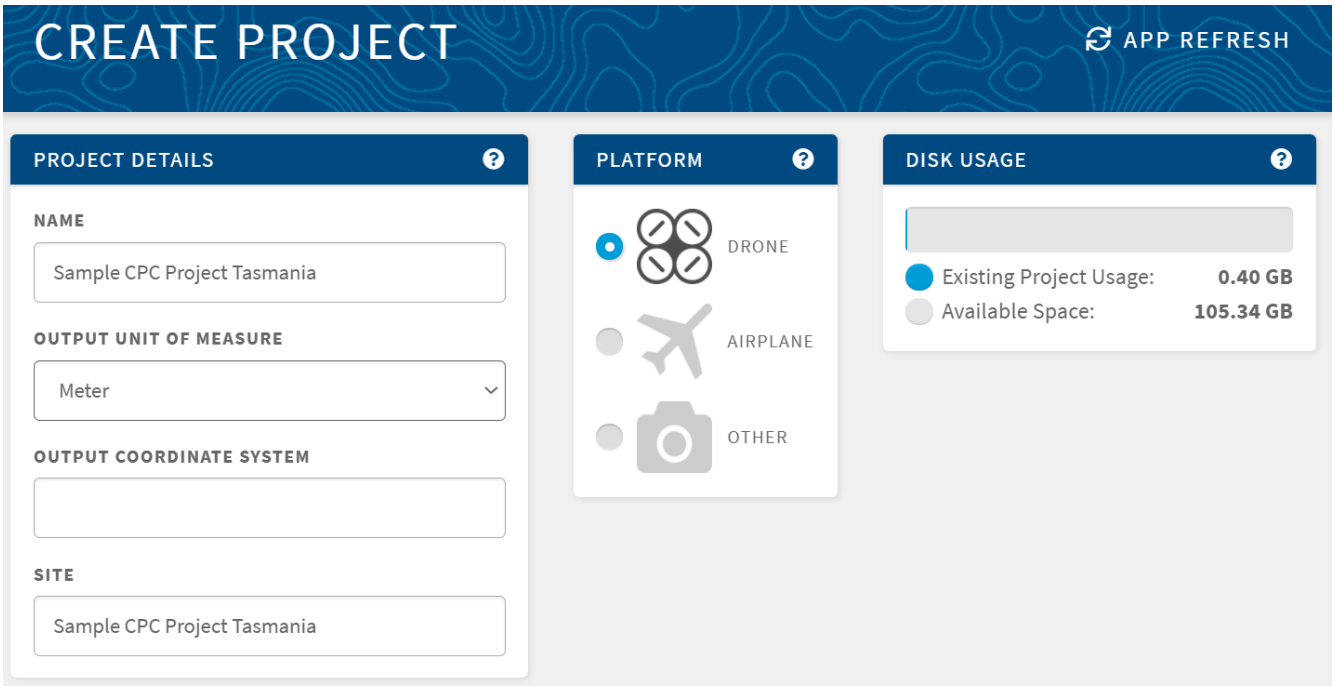
Before Launching CPC Standalone it is recommended to change the screen Display Settings scale to 100%



## 1.2 Launch CPC


### 1.2.1 Create Project

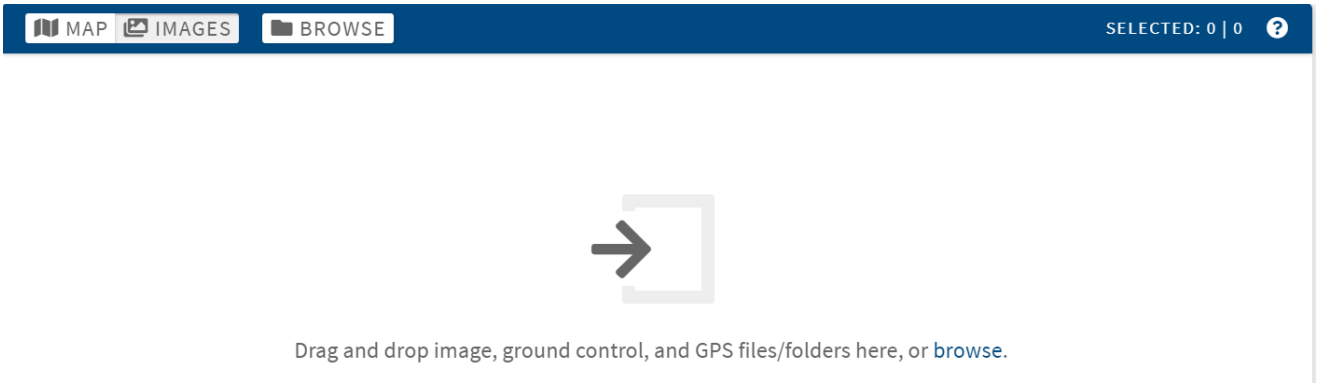




Enter the **Project Name** and **Output Unit of Measure**. There is no need to enter the **Output Coordinate System** as it is easier to get this automatically by dragging and dropping the images into the images area below**.**

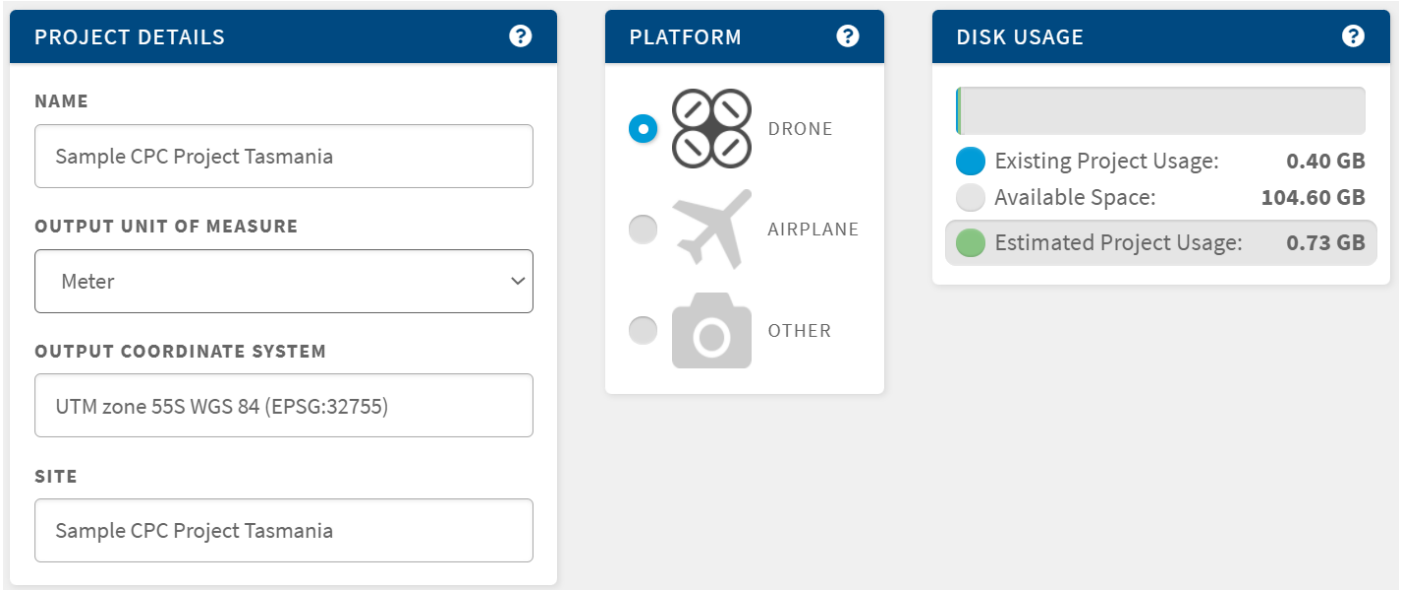
### 1.2.2 Import Images

Drag and drop the images into the images area. You can also drag and drop the GCP's (in txt, csv or gcp format) and the GPS Log file (if the images are not georeferenced).

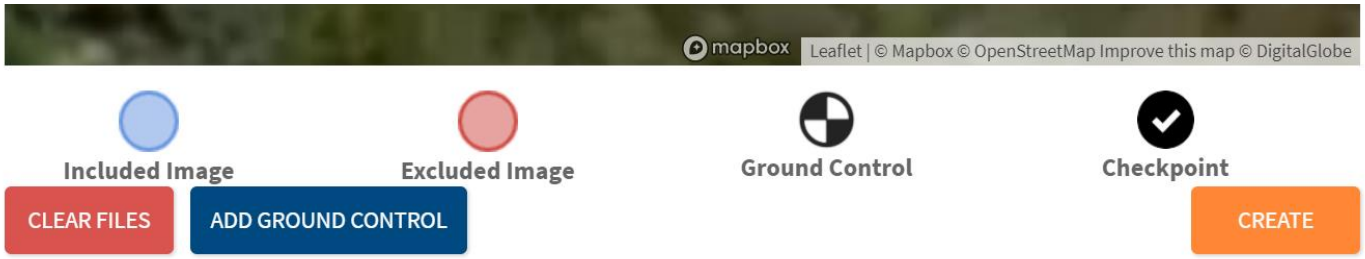
You will need at least 10 images to create a project. This small project only has 11 georeferenced images and 2 GCP's.



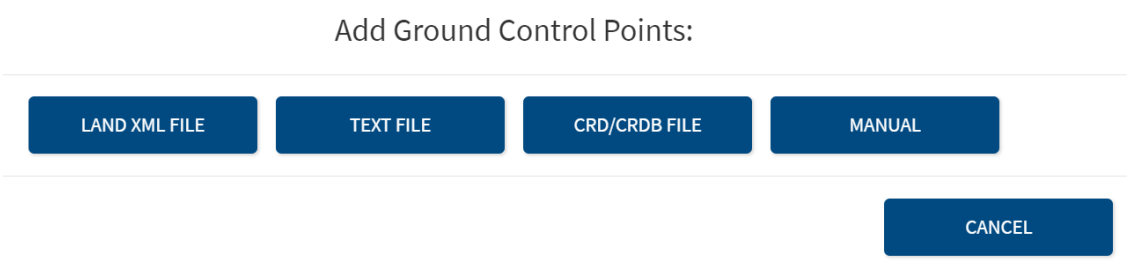

The **Output Coordinate System** will be automatically created, depending on what is in the EXIF (metadata) of the Images.



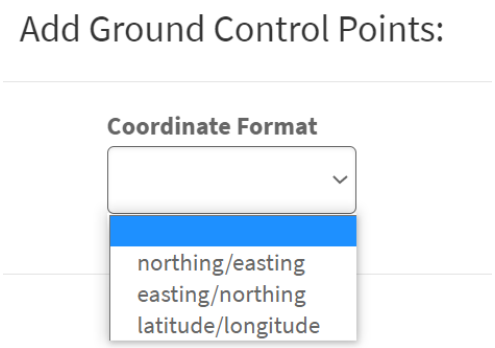

### 1.2.3 Add Ground Control (GCP's)



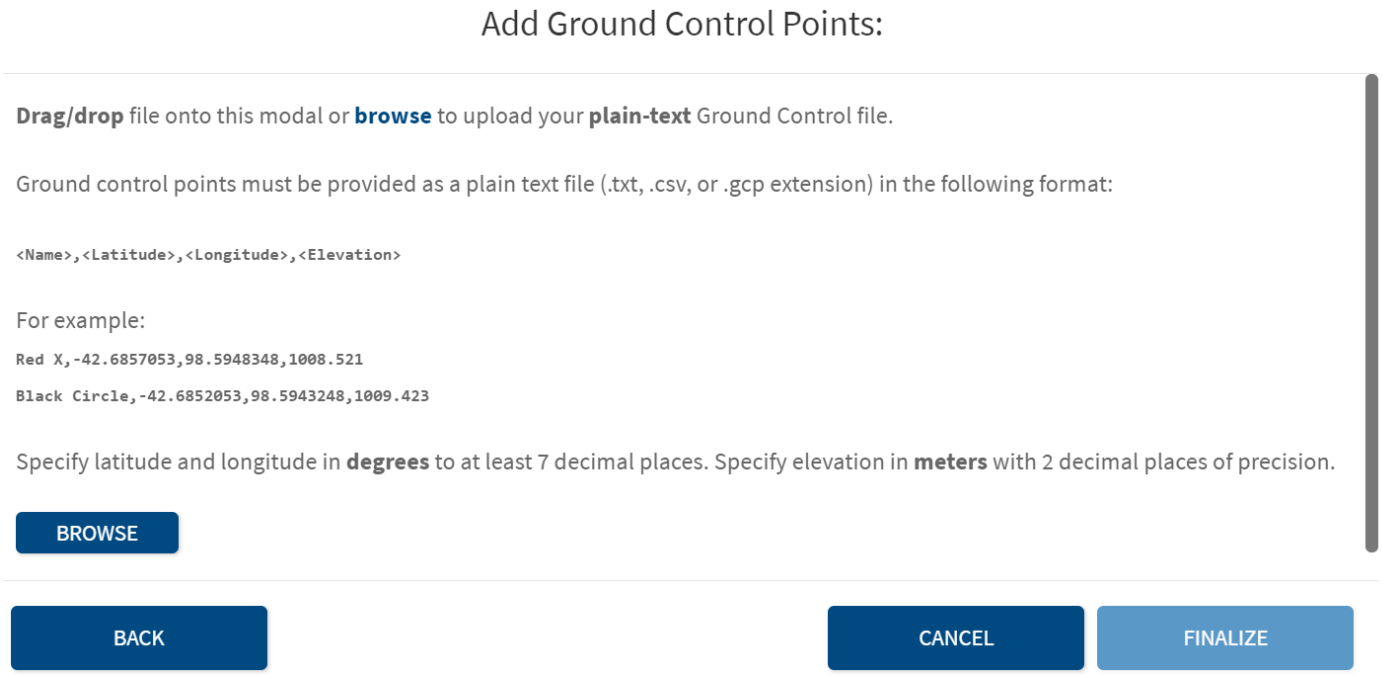
If you have GCP's (ground control points) add the file with them now, using **Add Ground Control**. You could also have drag and dropped them into the images area after the images. If you successfully brought in the GCP's this way (check the screen to see if they appear) then select **Create**.



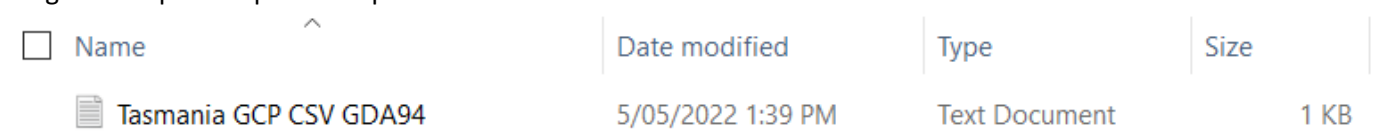

Select **Text File**

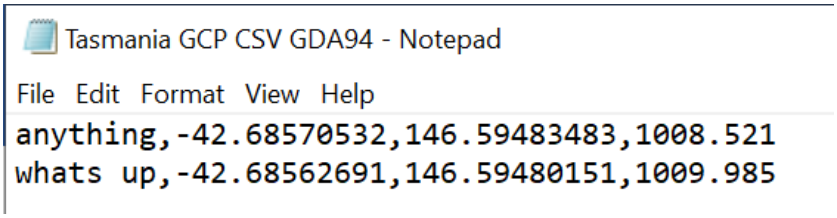


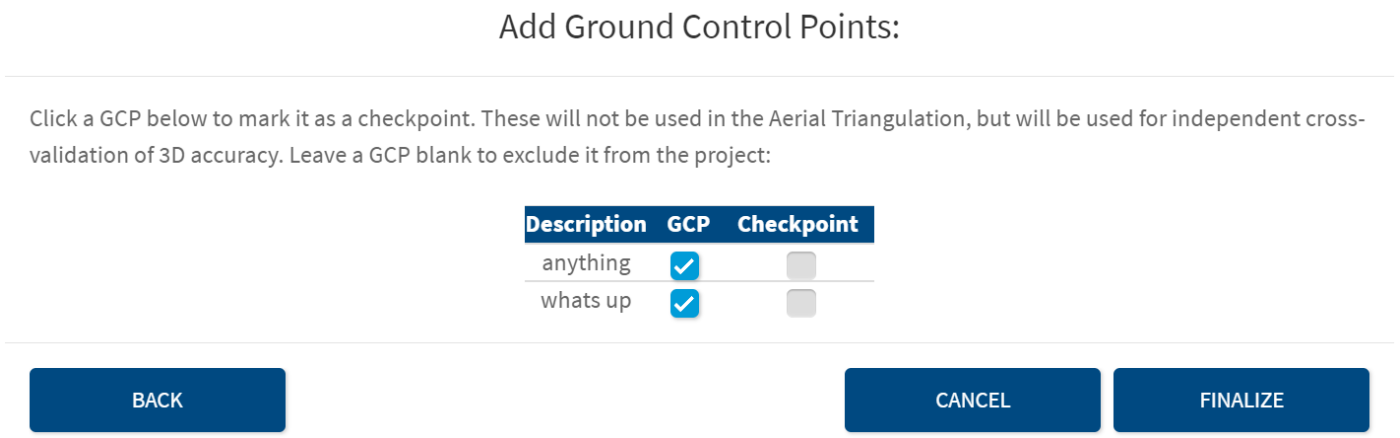

Select **Latitude/Longitude**




Drag and drop to drop the sample text file

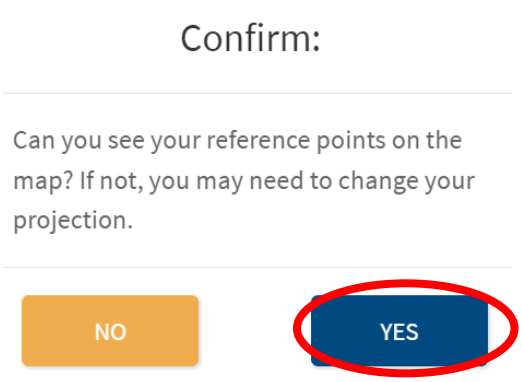




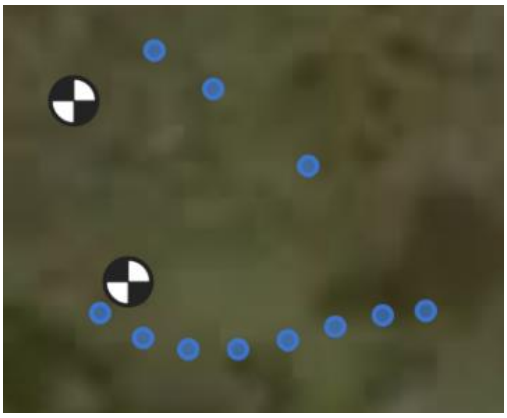




If the file is in an acceptable format the GCP's will be identified (as above).

Change from **GCP** to **Check Point**, if relevant. **Finalize**

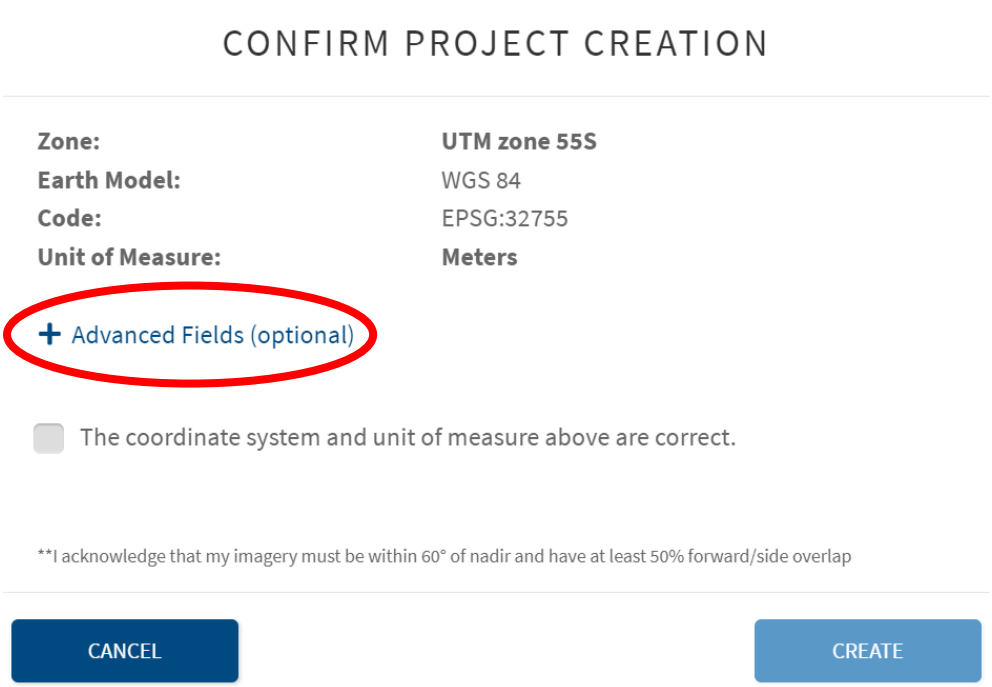



Check that the GCP's appear correctly in the Map image. Select **Yes**

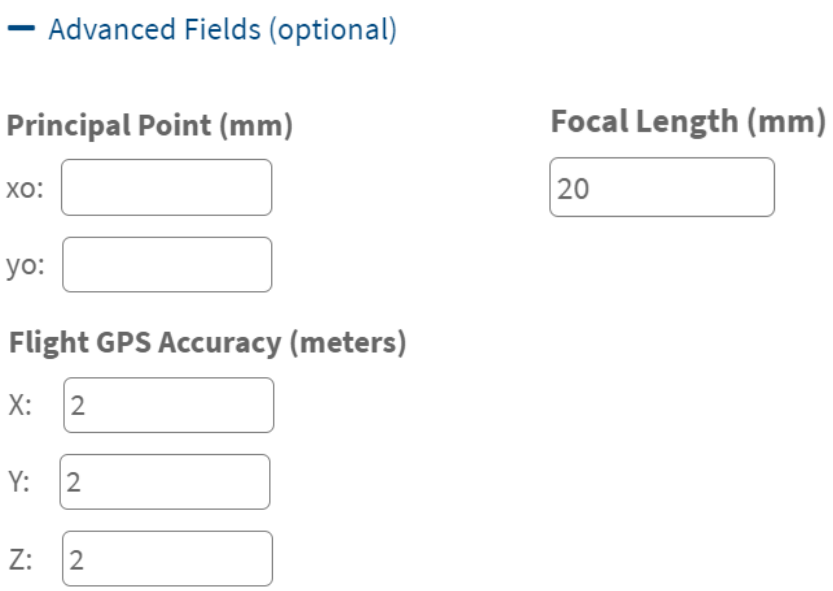



Select **Create**

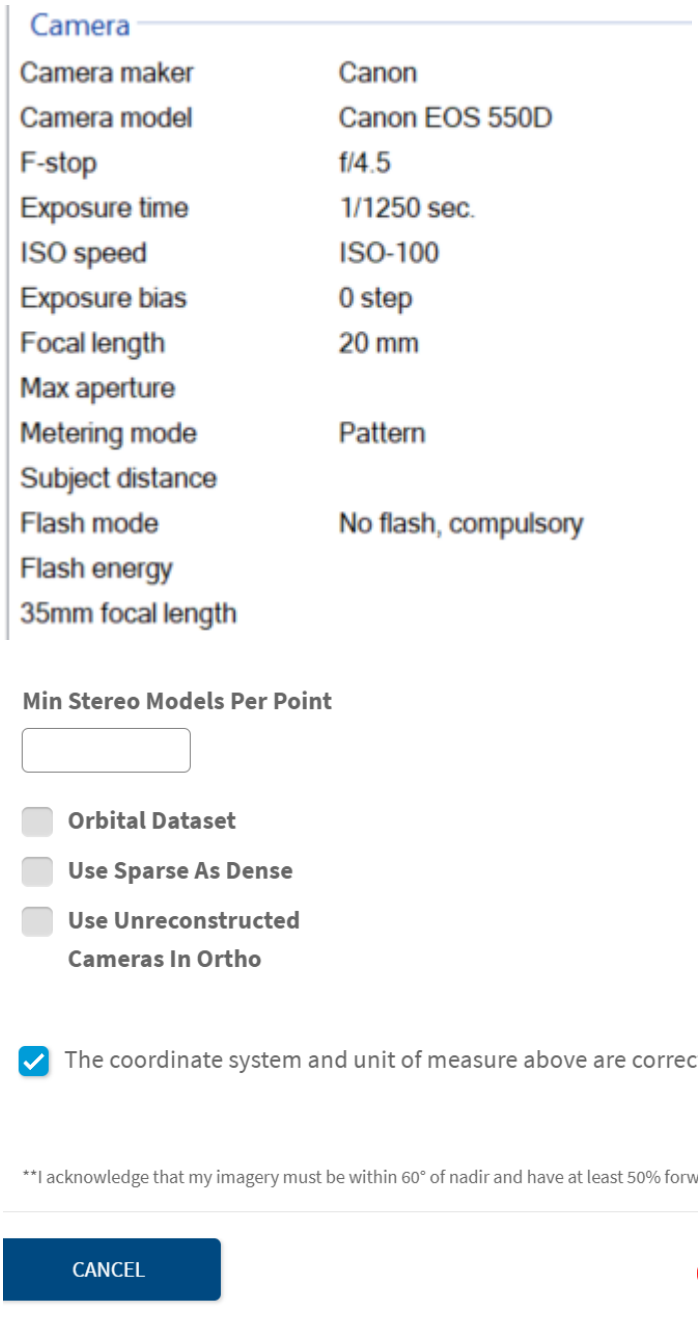
### 1.2.4 Create Project




Select **Advanced Fields (Optional)**



You can right click an image and check the properties to get the focal length, or enter this manually

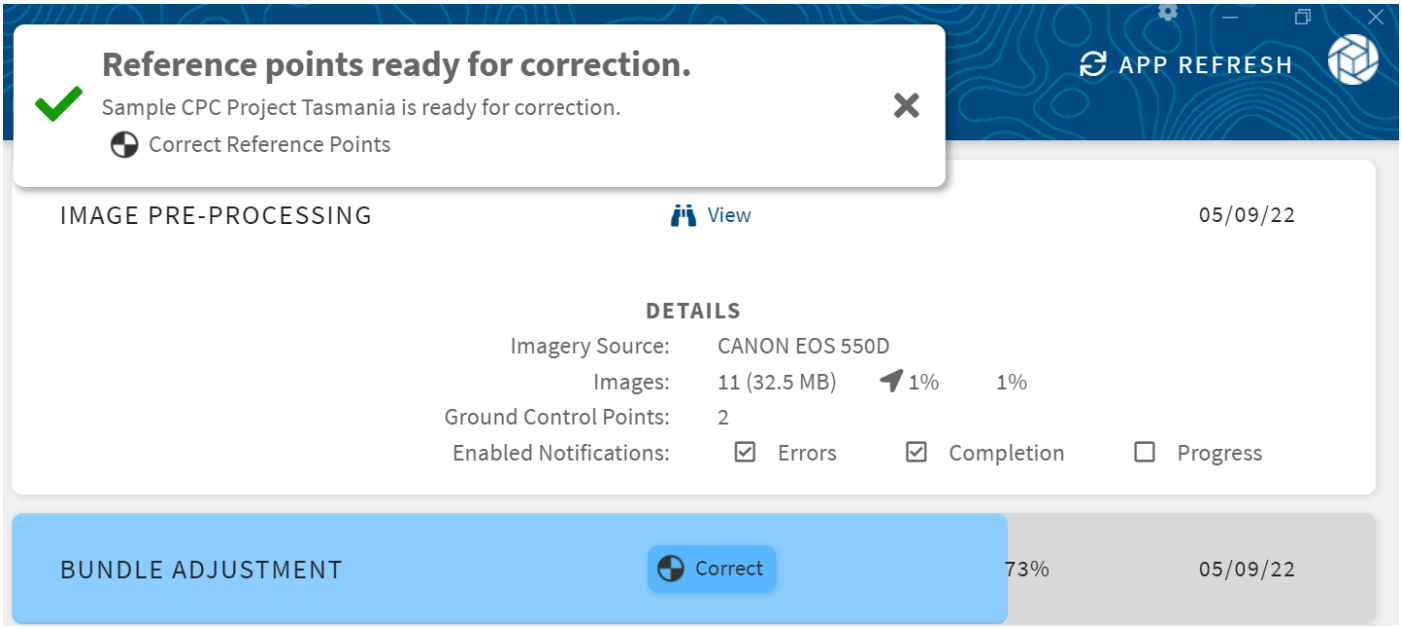



Ensure **The coordinate system and unit of measure above are correct** is enabled then click on **Create**

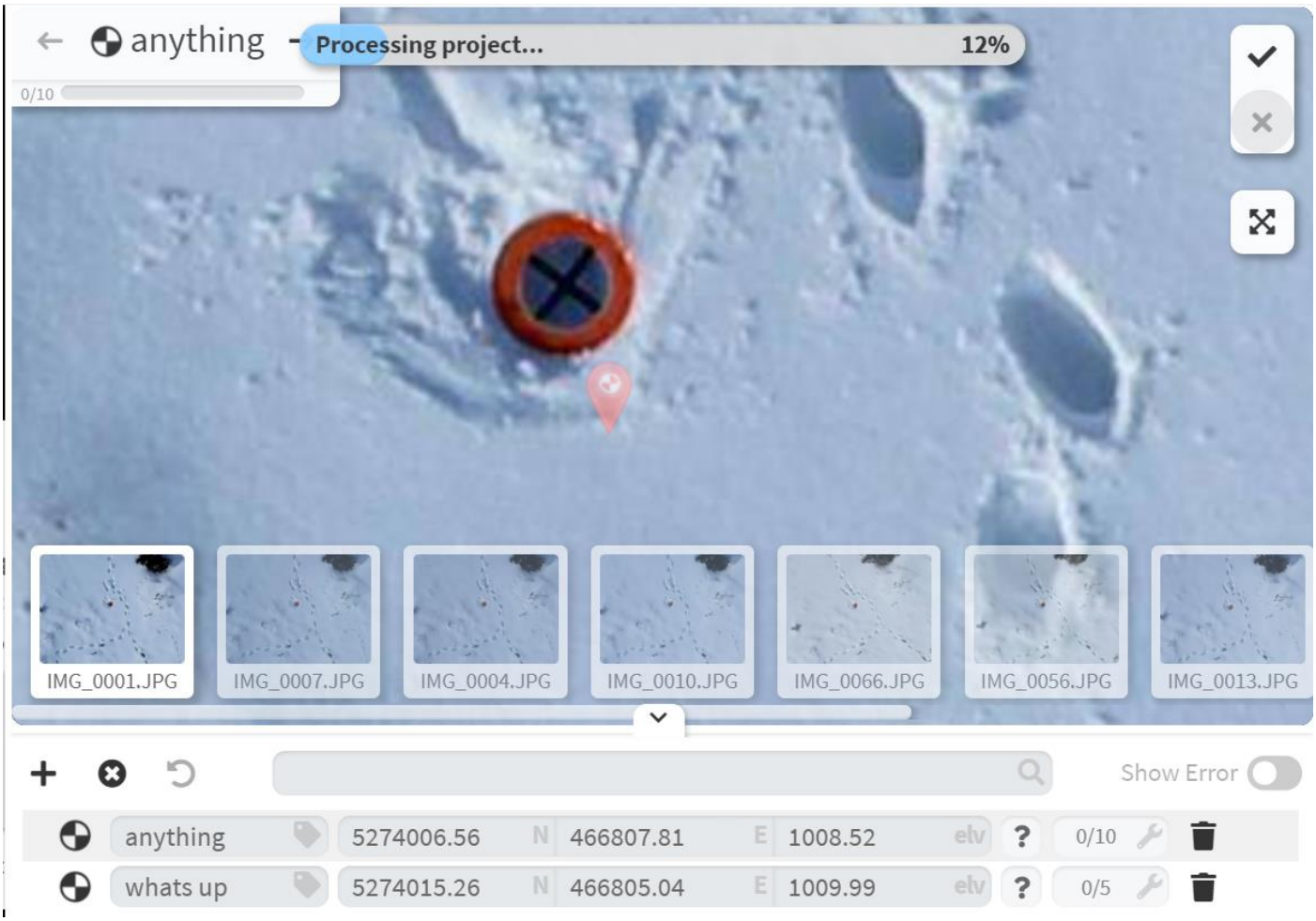
### 1.2.5 Bundle Adjustment


Now, wait until the **Initial Processing** takes place

### 1.2.6 Correct Ground Control Points



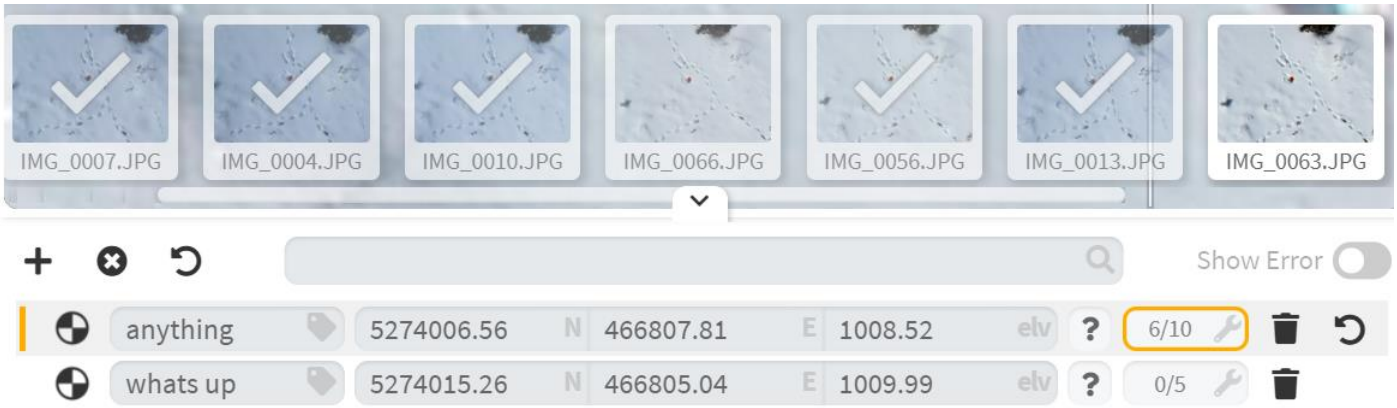

This message indicates that the GCP's are now ready to be manually corrected. Select **Correct**




The best way to correct a GCP is to centre your mouse cross hair onto the GCP and left-click

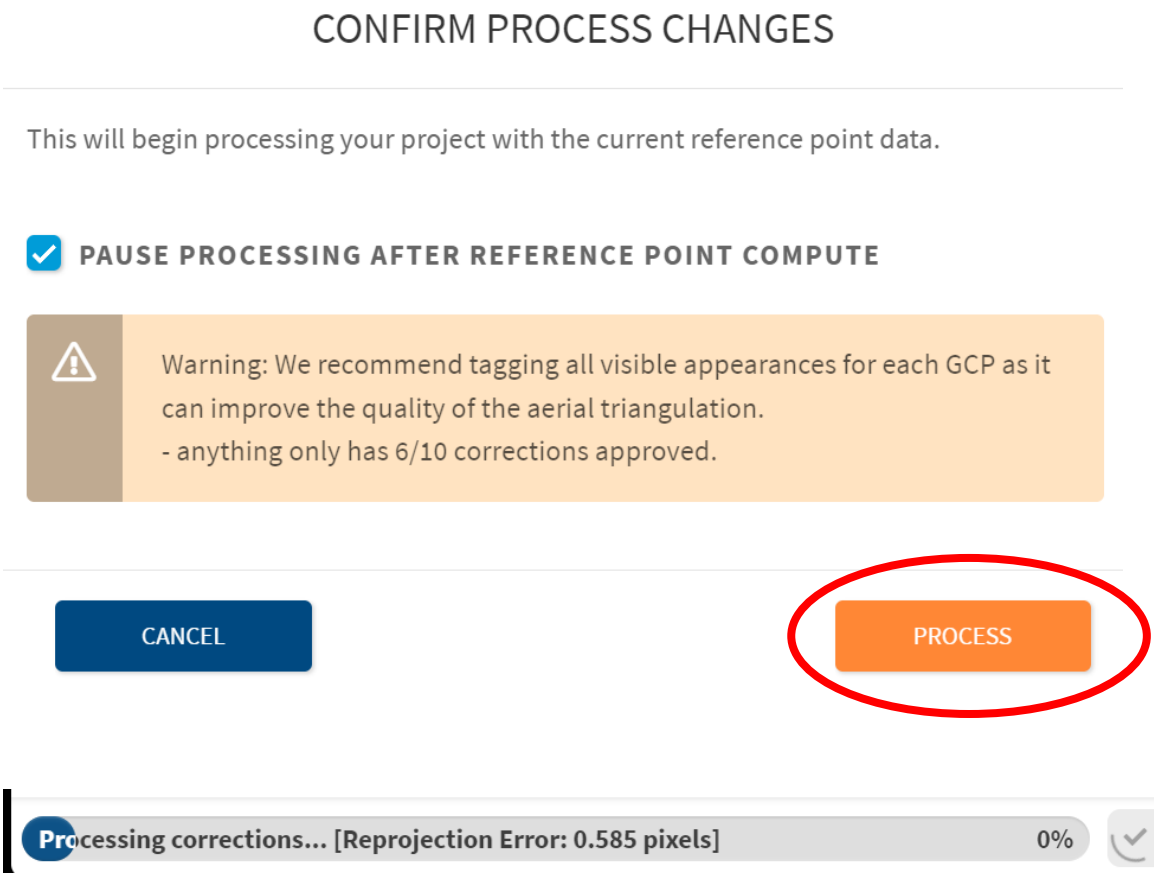
**Cross hairs centred + left-click =**

Next, right-click to correct another image (do this for at least 3 images per GCP). The first 2 images will be a few metres away but the 3rd one will be much closer




Select the next GCP and repeat the process for all of the GCP's

### 1.2.7 Process Project with Ground Control Points



# SPARSE RECONSTRUCTION AND CAMERA ORIENTATIONS

Welcome to the **Processing Analyzer** tool!

Use this tool to understand the steps between initial images and final products.
Once the bundle adjustment is close to finishing, you will see a sparse reconstruction of your scene here along with calculated cameras positions and orientations.

**Some issues to look for that could indicate trouble in your project:**

- Lines of drone positions at drastically different elevations.
- Jumbled or disoriented areas in the reconstructed sections.
- Large gaps of points where points are expected to exist.
- Large, non-uniform shifts in original camera positions to adjusted positions.

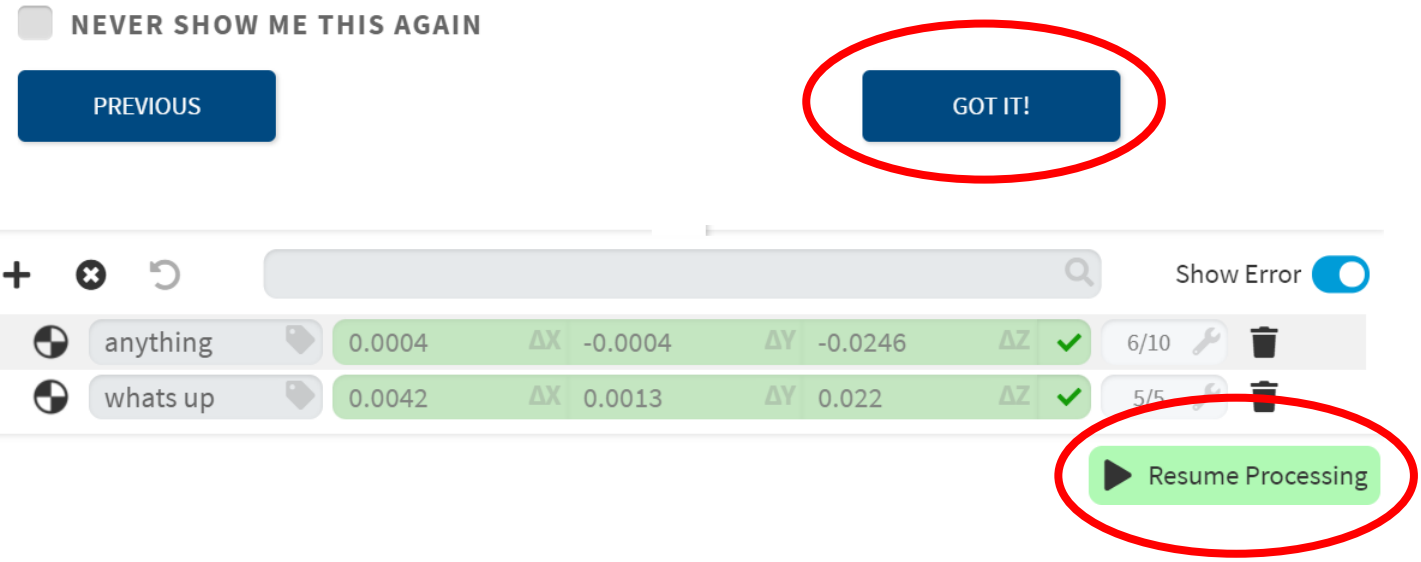
If any of these occur, expect the project to either fail or not produce quite the desired results. In these cases, the issue is *likely* due to input data that didn't meet the proper collection criteria.

NEXT

## REFERNCE POINT CORRECTION ANALYSIS

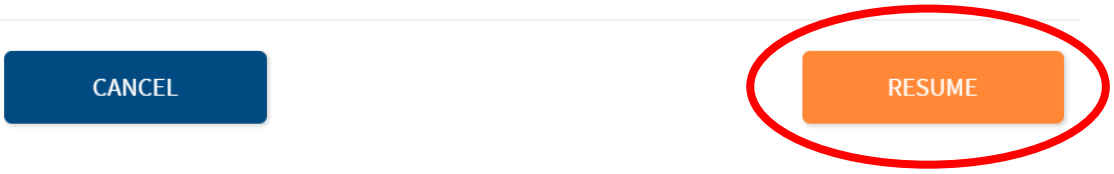
Use this page to analyze GCP corrections and checkpoint accuracies.
A number of things to note:

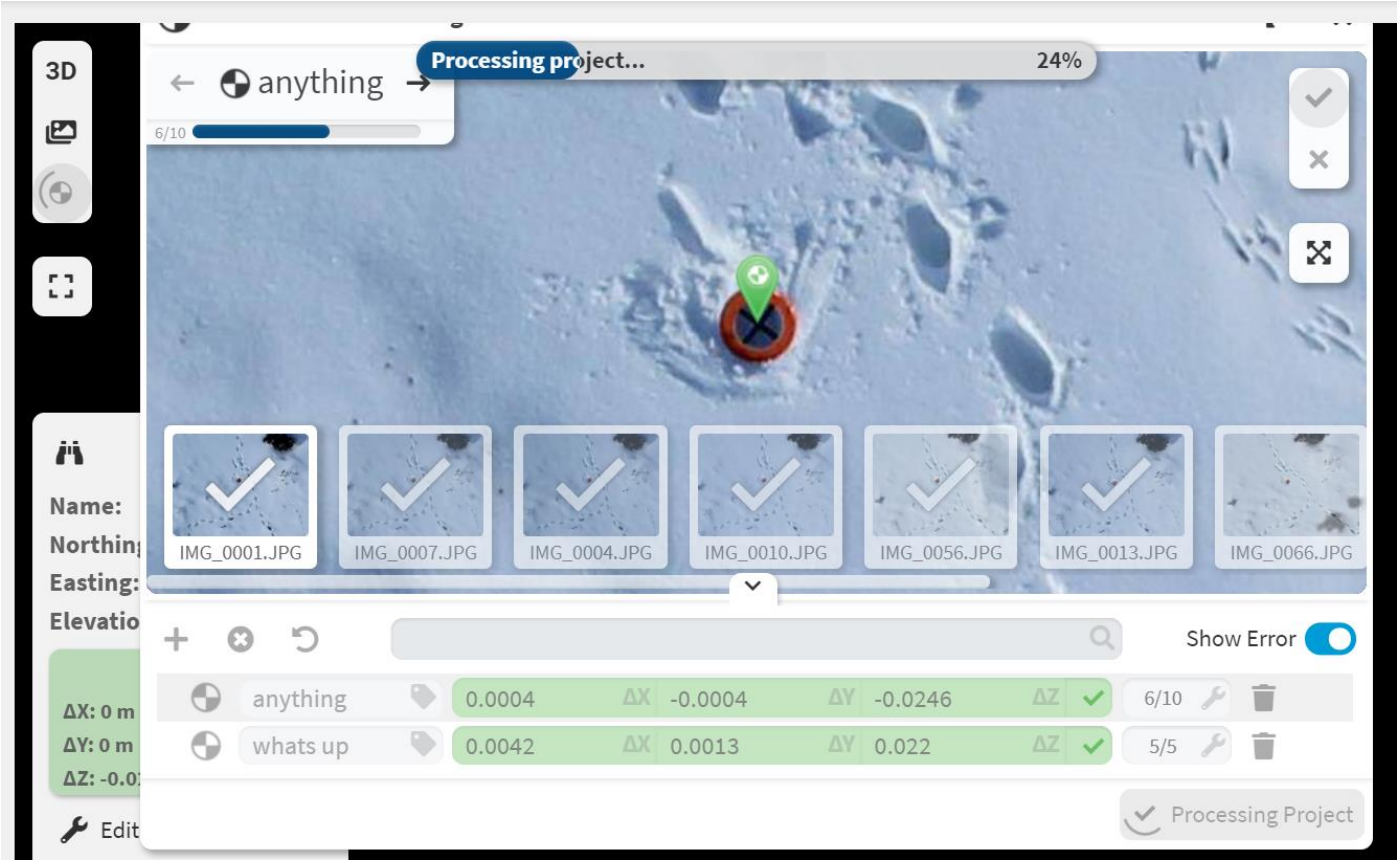
- Reference points (GCPs and checkpoints) will be color-coded either **green** (good), **yellow** (borderline), or **red** (bad) in correspondence with how you have manually corrected it.
- If all reference points are **green** expect accurate data.
- Click a reference point to see which cameras view that reference point and see where it lies in 3D.
- Reprocessing the bundle adjustment after adding, deleting, or modifying existing reference points is free given that you pause to examine the results before processing the rest of the products.
- Reference points can be modified on completed products.




## CONFIRM RESUME PROCESSING

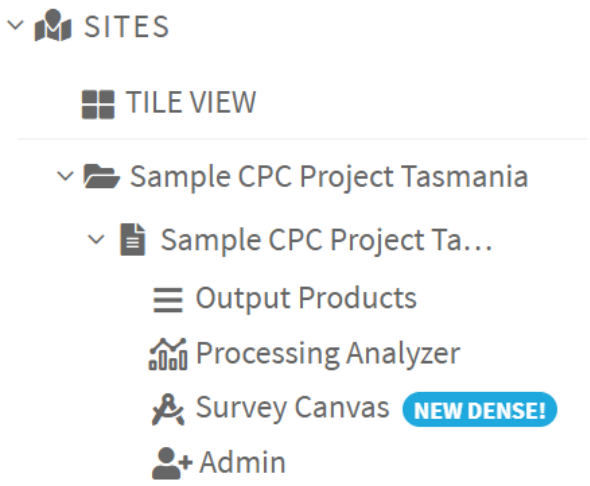
Resume processing with the current GCP corrections.





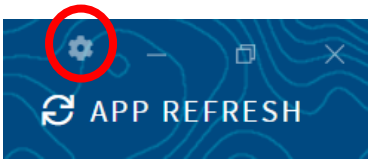

Once Completed close the Reference Point Manager

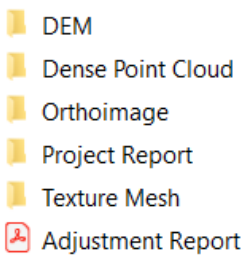
## 1.3 Output Products

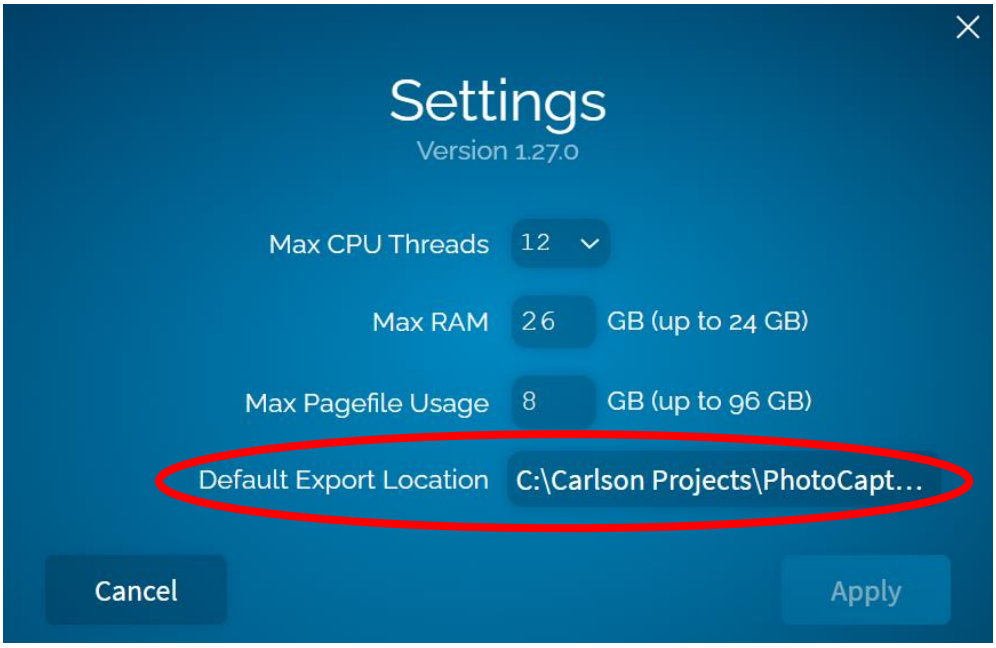




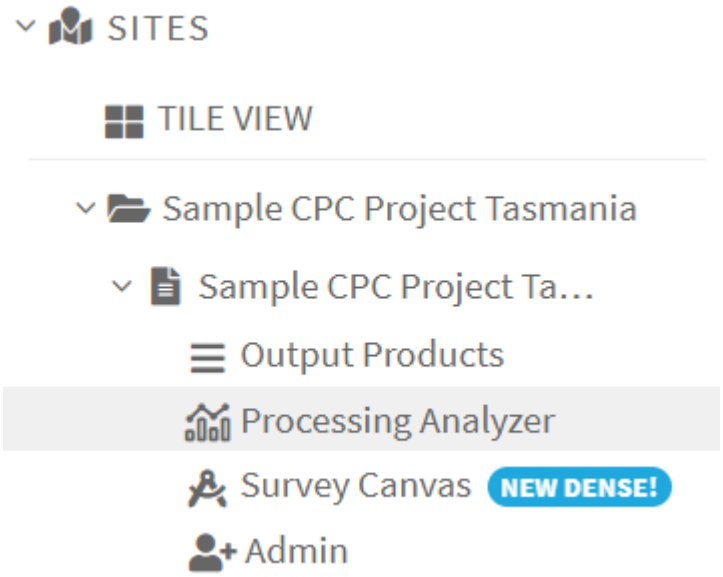
The output products are automatically saved to the Default Export Location (this can be set by selecting **Settings**)

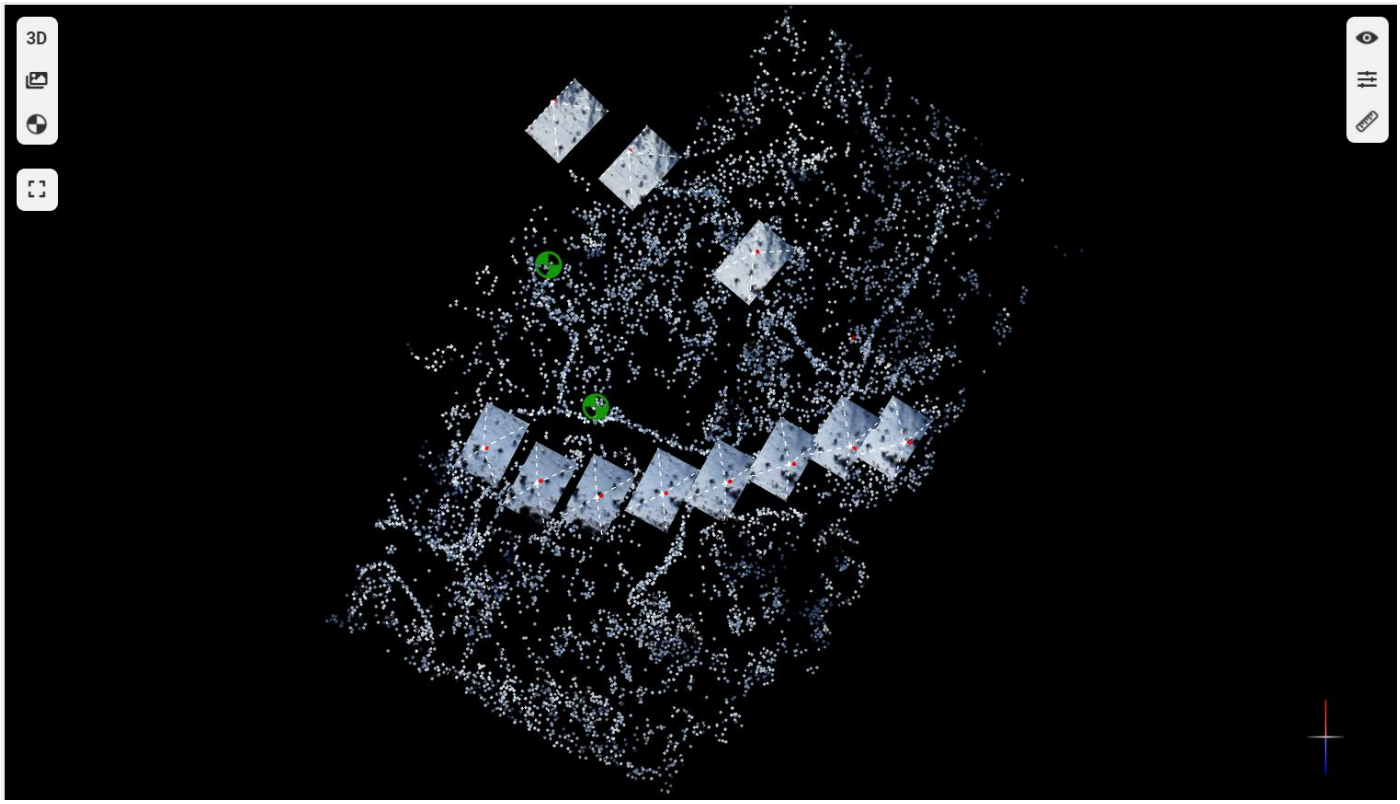



Settings
Version 1.27.0
Max CPU Threads
12
Max RAM
26
GB (up to 24 GB)
Max Pagefile Usage
8
GB (up to 96 GB)
Default Export Location
C:\Carlson Projects\PhotoCapt...
Cancel
Apply

## 1.4 Processing Analyzer



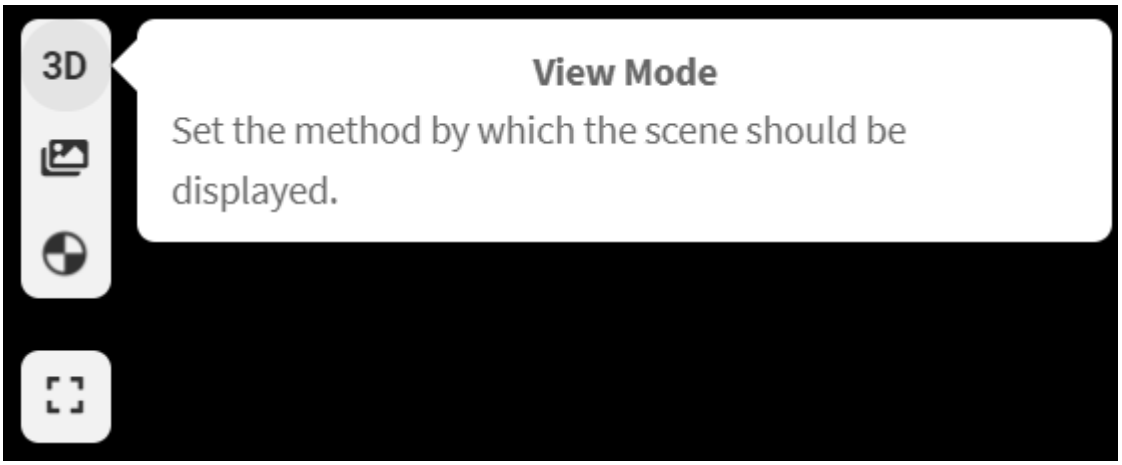



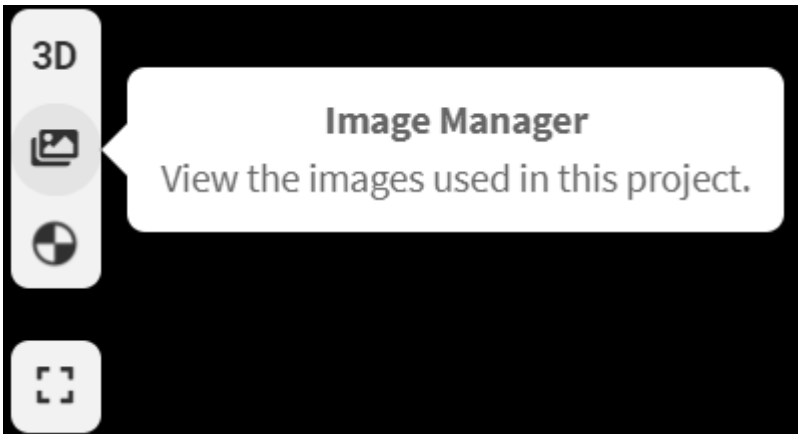

**View Mode**

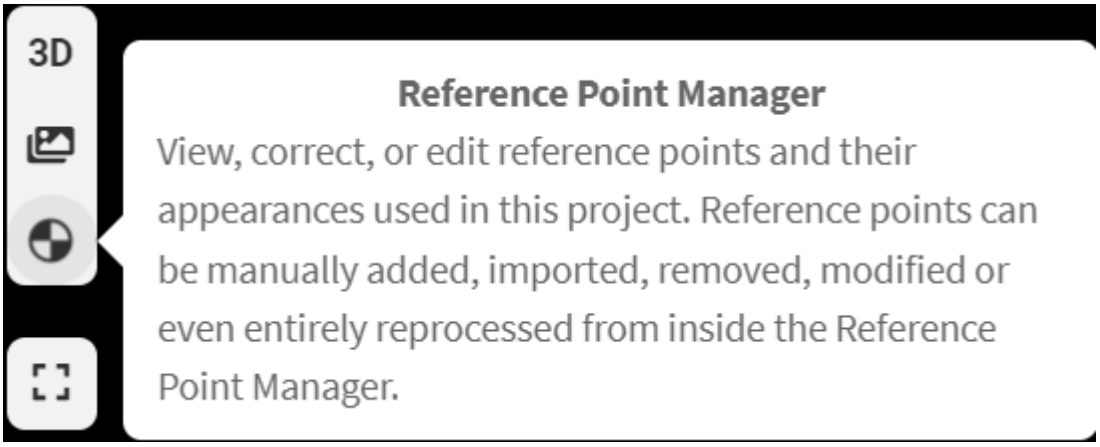
**Image Manager**

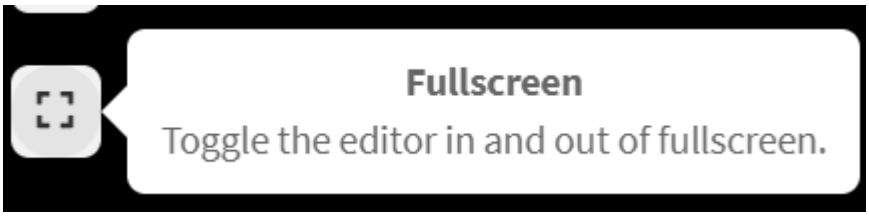
**Reference Point Manager**

**Full Screen**



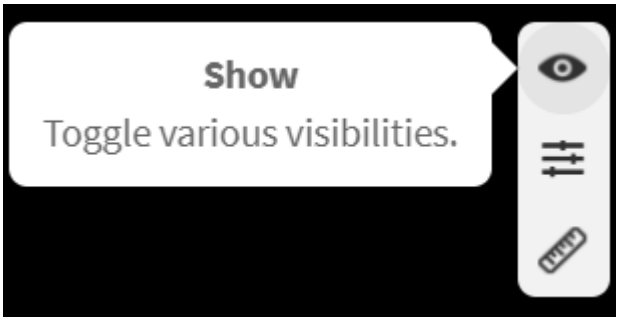



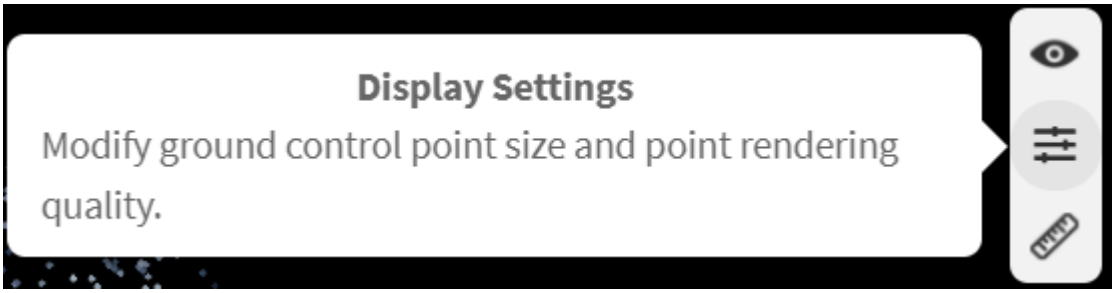


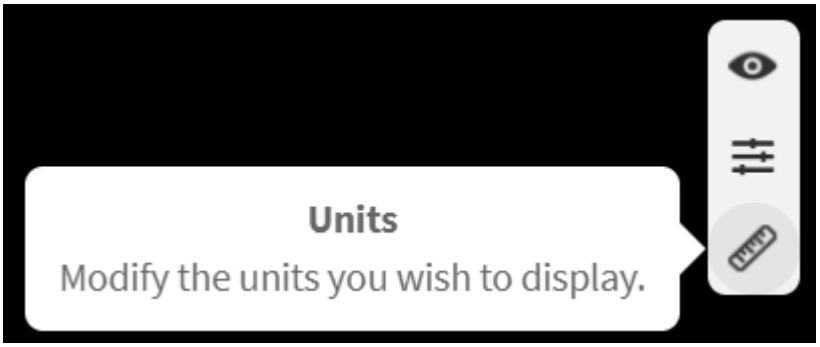

**Show**

**Display Settings**

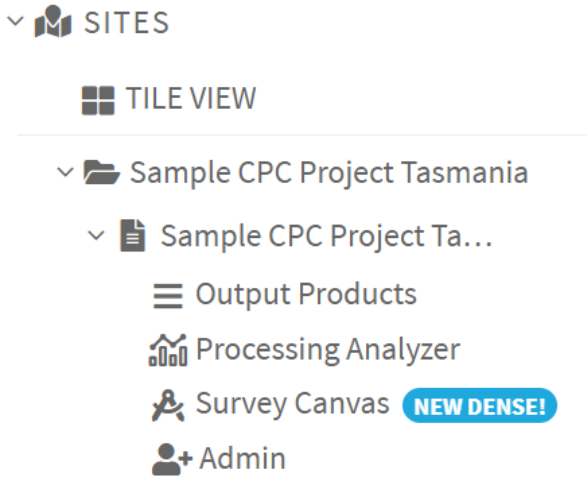
**Units**

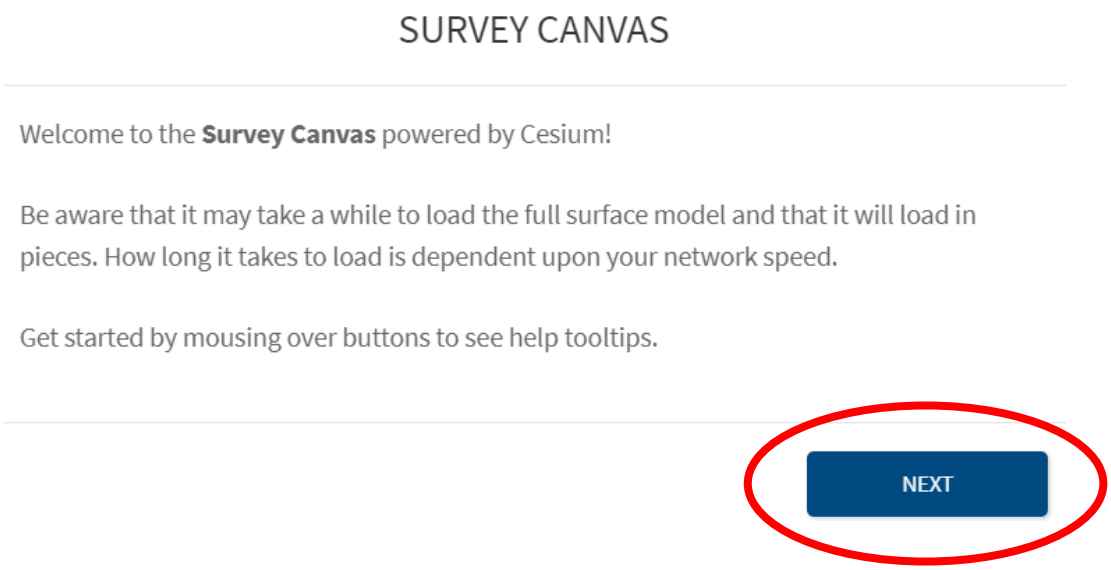


## 1.5 Survey Canvas



# NAVIGATION

**Pan** around by *left-clicking* and dragging your mouse.

**Rotate** the screen by *right-clicking* and dragging your mouse while in 3D mode.

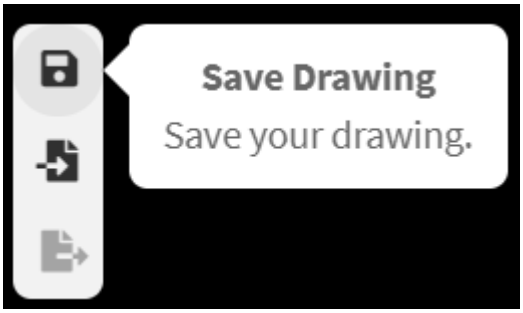
**Zoom** in and out by *scrolling* the mousewheel or by clicking down the *scroll-wheel* and dragging your mouse while in 3D mode.

**NEW DENSE!** **Dense Point Cloud in Survey Canvas.** We unified the Dense Point Cloud Viewer and the Survey Canvas. Now you can see and edit your linework using the dense point cloud. Control the point cloud and/or mesh visibility from the *bottom right panel*.


NEVER SHOW ME THIS AGAIN

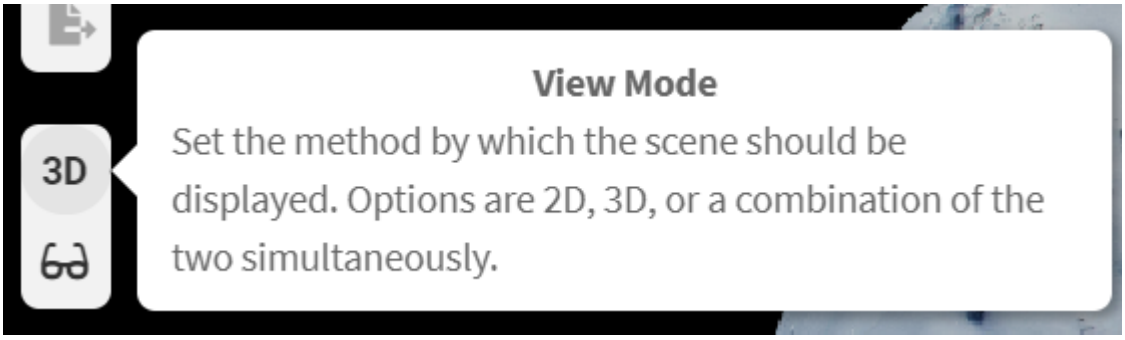
PREVIOUS

GOT IT!



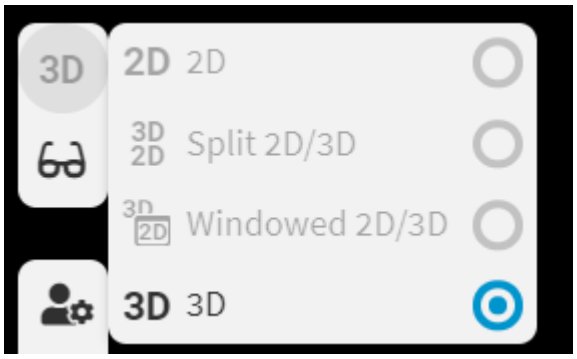

**Save Drawing**

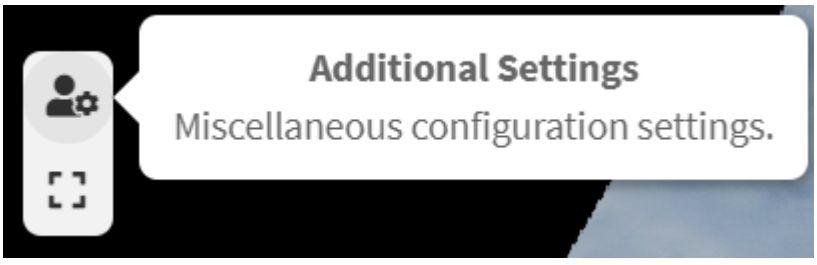
**Import Drawing**




**View Options**

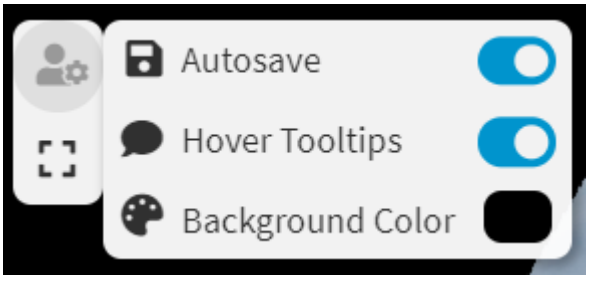
**Stereo Reconstruction**




**Additional Settings**

**Full Screen**



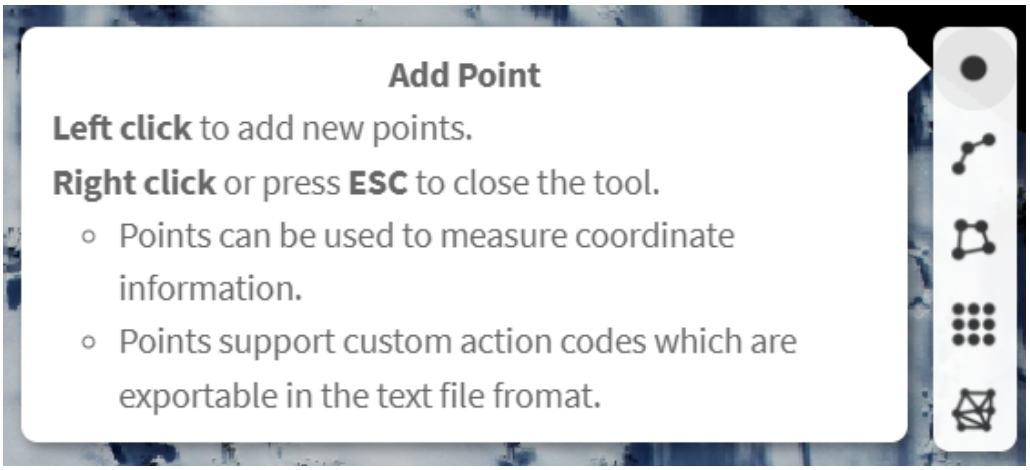
**Add Point**

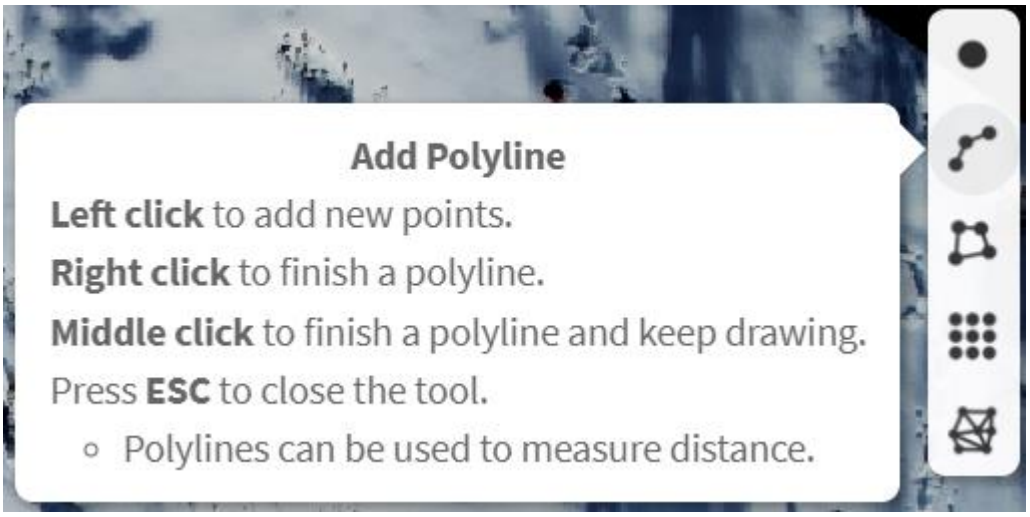
**Add Polyline**

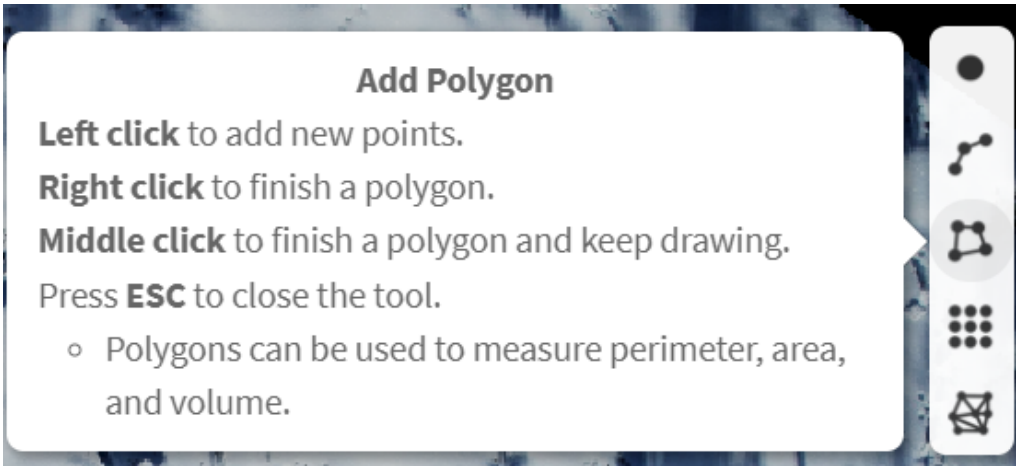
**Add Polygon**

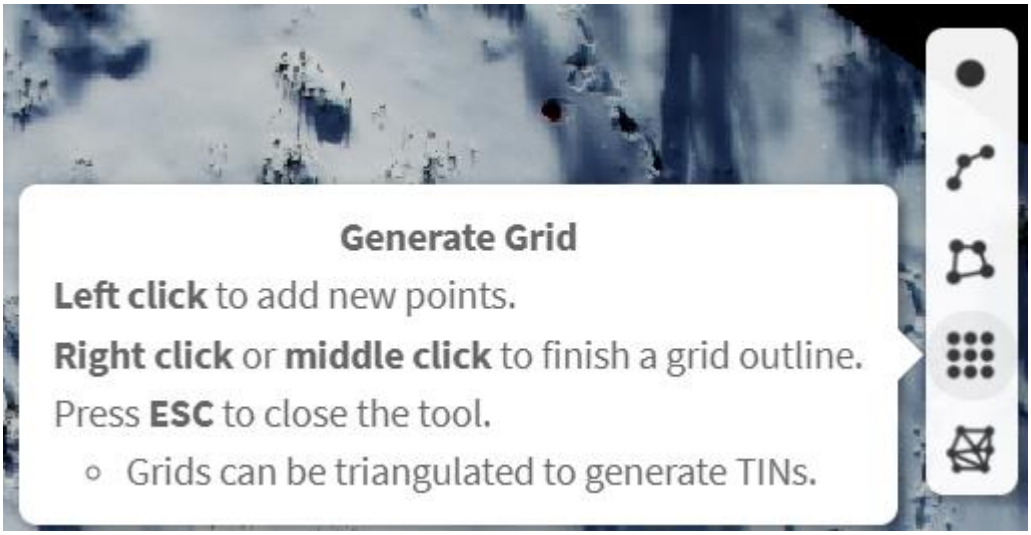
**Generate Grid**

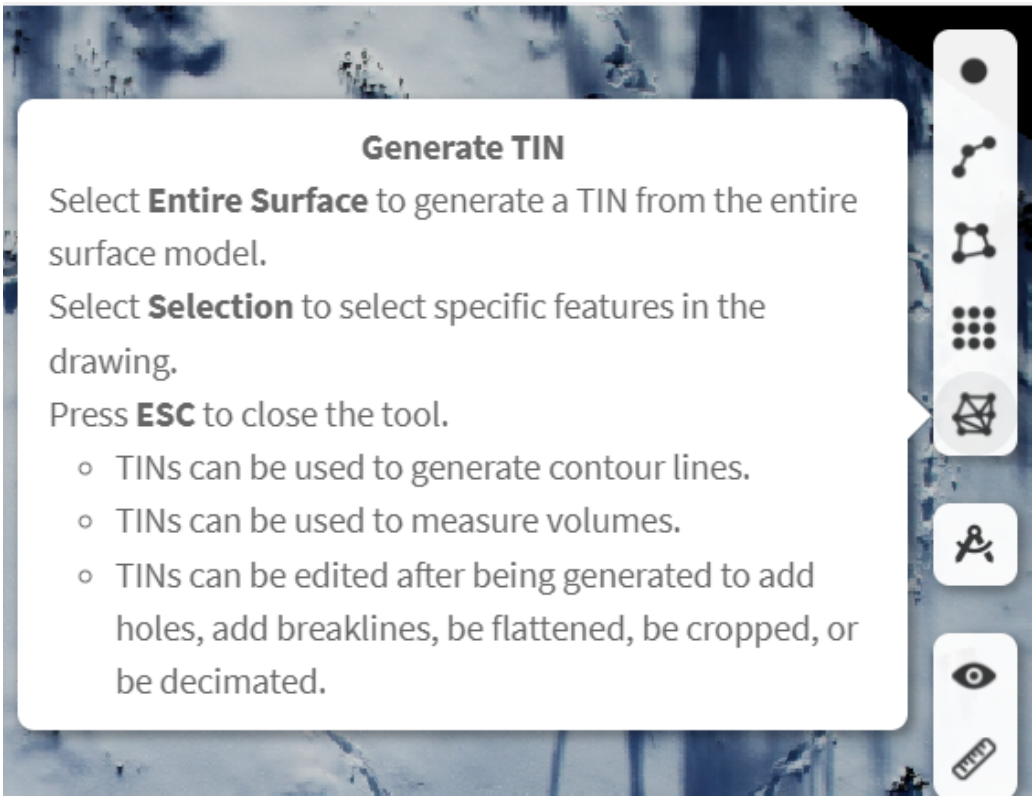
**Generate Tin**

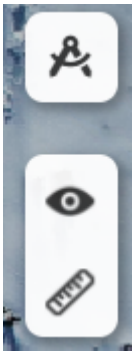



Add Polygon
Left click to add new points.
Right click to finish a polygon.
Middle click to finish a polygon and keep drawing.
Press ESC to close the tool.
Polygons can be used to measure perimeter, area, and volume.


Generate Grid
Left click to add new points.
Right click or middle click to finish a grid outline.
Press ESC to close the tool.
Grids can be triangulated to generate TINs.

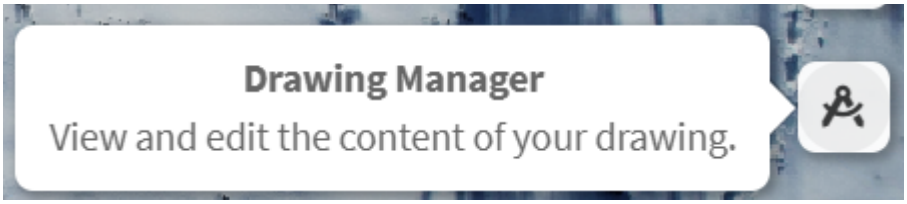

Generate TIN
Select Entire Surface to generate a TIN from the entire surface model.
Select Selection to select specific features in the drawing.
Press ESC to close the tool.
TINs can be used to generate contour lines.
TINs can be used to measure volumes.
TINs can be edited after being generated to add holes, add breaklines, be flattened, be cropped, or be decimated.

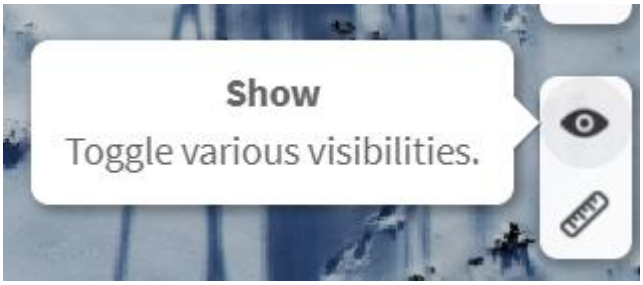


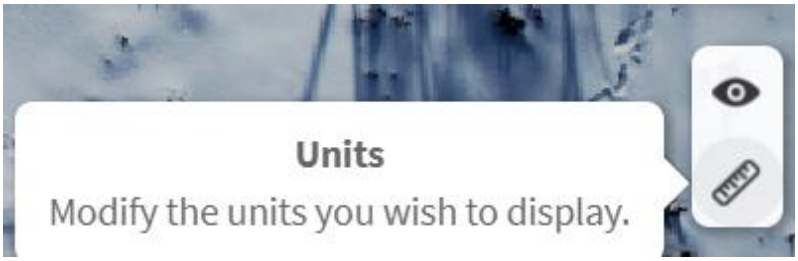
**Drawing Manager**

**Show**

**Units**



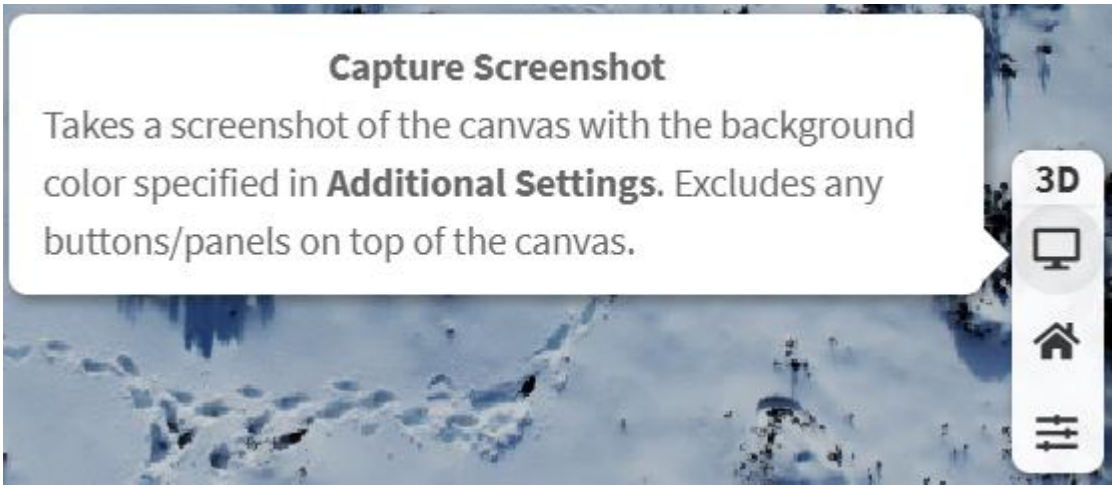


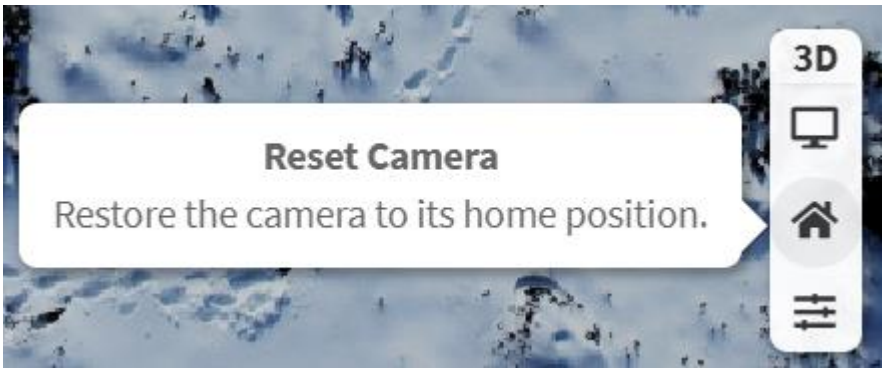
**3D**

**Capture Screenshot**

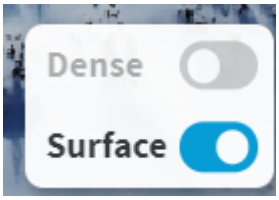
**Reset Camera**

**Sizes**



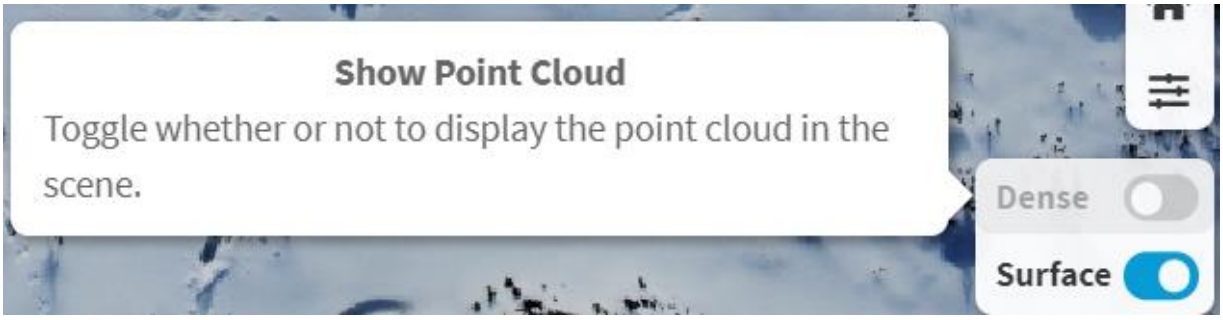







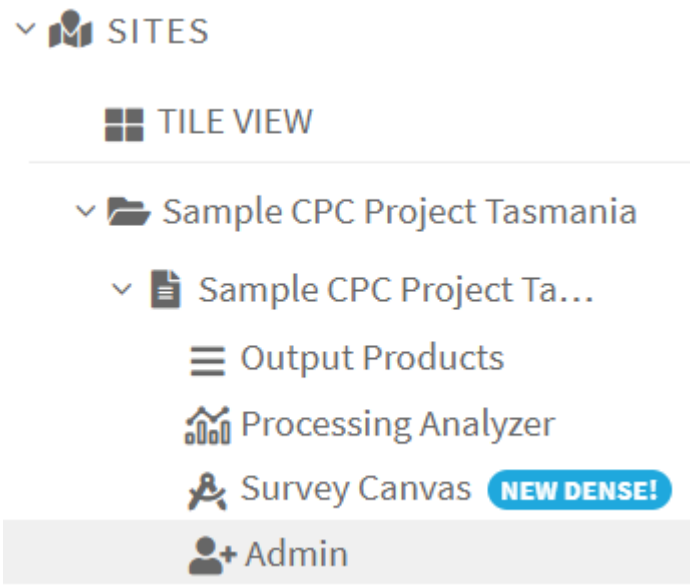

**Dense**

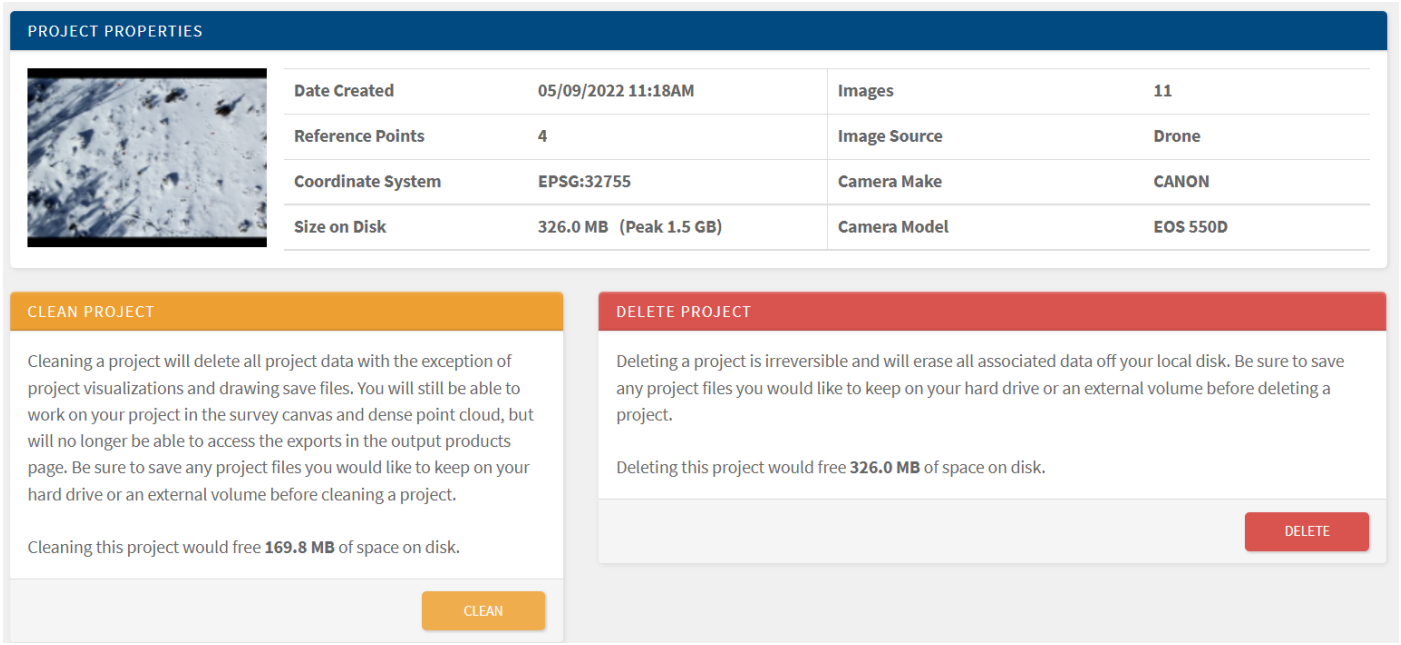
**Surface**



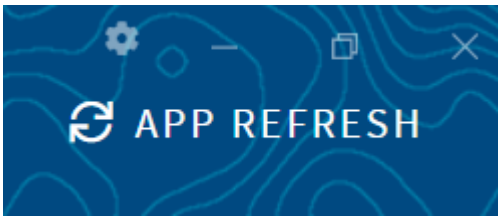

Show Surface Model
Toggle whether or not to display the surface model in the scene.
Dense
Surface

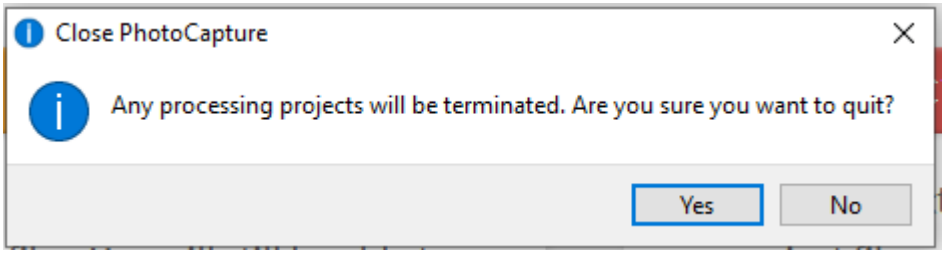
## 1.6 Admin


SITES
TILE VIEW
Sample CPC Project Tasmania
Sample CPC Project Ta…
Output Products
Processing Analyzer
Survey Canvas
NEW DENSE!
Admin


PROJECT PROPERTIES
Date Created
05/09/2022 11:18AM
Images
11
Reference Points
4
Image Source
Drone
Coordinate System
EPSG:32755
Camera Make
CANON
Size on Disk
326.0 MB (Peak 1.5 GB)
Camera Model
EOS 550D
CLEAN PROJECT
Cleaning a project will delete all project data with the exception of project visualizations and drawing save files. You will still be able to work on your project in the survey canvas and dense point cloud, but will no longer be able to access the exports in the output products page. Be sure to save any project files you would like to keep on your hard drive or an external volume before cleaning a project.
Cleaning this project would free 169.8 MB of space on disk.
CLEAN
DELETE PROJECT
Deleting a project is irreversible and will erase all associated data off your local disk. Be sure to save any project files you would like to keep on your hard drive or an external volume before deleting a project.
Deleting this project would free 326.0 MB of space on disk.
DELETE

## 1.7 Exit (Close Application)




If the project has completed processing, then select **Yes**

If not then Select **No** and wait for the processing to complete