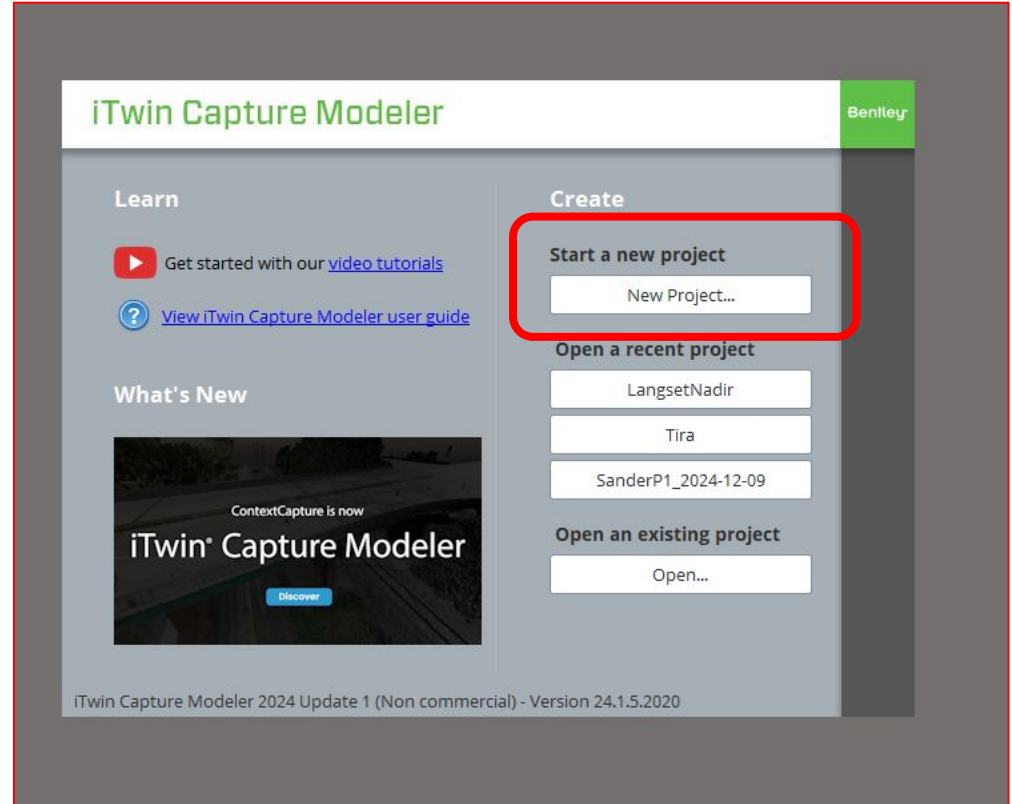
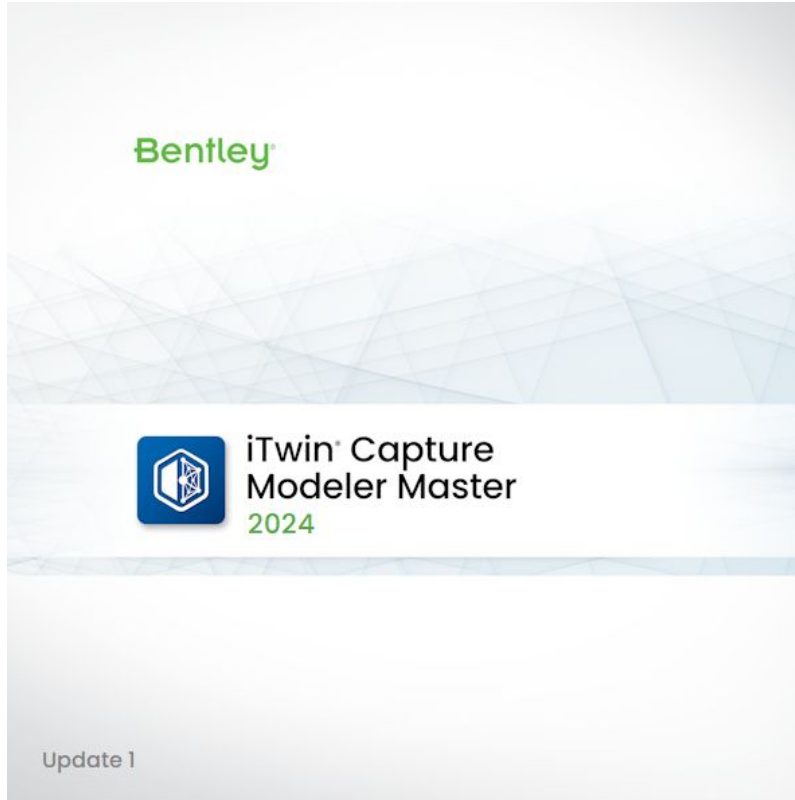


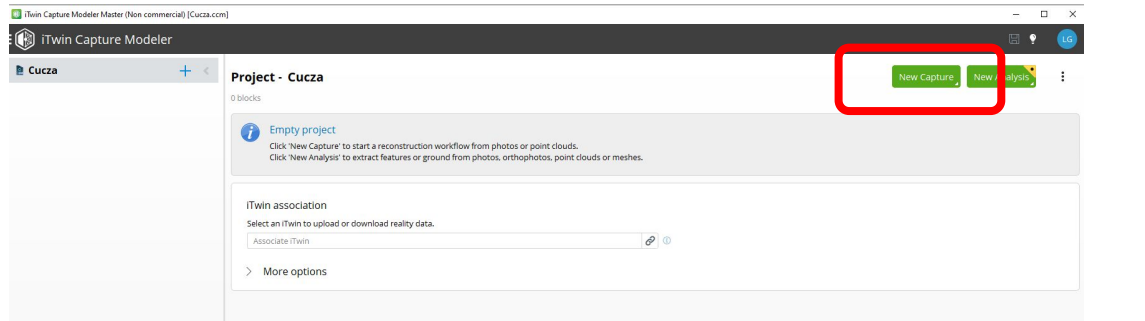
Processing photogrammetric data

Using iTwing Capture Modeler
DJI Matrice 4E geotagged data over Langset Kirke

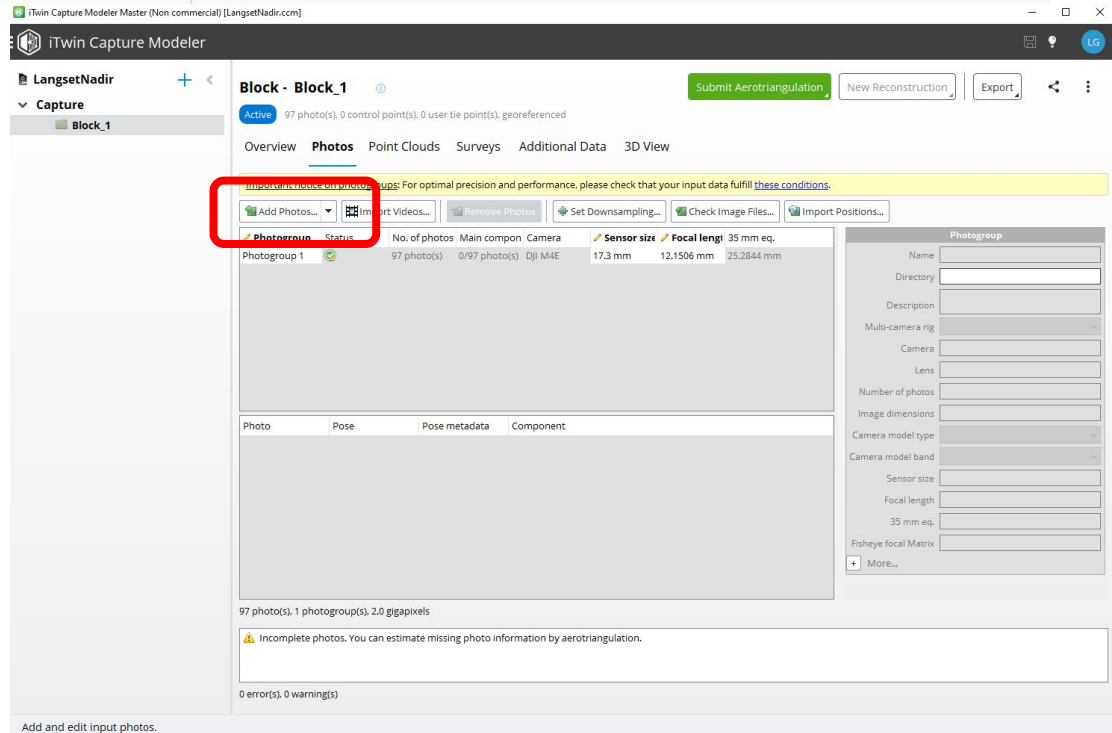
Open iTwin Capture Modeler Master, start new project



Start a “new capture”



Add photos or a directory of photos



Information about your photos is automatically read

[illegible]

| | | |
|---------------------------|-----------|---|
| Spatial reference system: | | WGS 84 (EPSG:4326) |
| Position | Longitude | 11.24130268 |
| | Latitude | 60.40736328 |
| | Height | 302.340000 |
| Rotation (ECEF) | | [-0.190473; 0.981689; -0.002586; 0.853885; 0.164375; -0.000000] |

Setup parameters (default except circled here), and submit

Aerotriangulation Definition

Define parameters and submit aerotriangulation processing.

Output Block Name

Choose the name and the description of the aerotriangulation output block.

Positioning/Georef...

Settings

ID: **Block_3**

Name:

Description:

< Back **Next** Submit Cancel

Aerotriangulation Definition

Define parameters and submit aerotriangulation processing.

Positioning/Georeferencing

Choose how the aerotriangulation should be set and orient the block.

Settings

☐ Control points

☒ **Photo positioning metadata**

☐ Point clouds (scans)

☒ **Final rigid registration**

☐ Positioning constraints on user tie points

☐ Control points

☒ **Photo positioning metadata**

☐ Point clouds (scans)

☐ Custom

☐ Use targets (QR Codes, AprilTags or ChiliTags)

Using selected data for adjustment (1) and for rigid registration (2)

The block is first adjusted to selected data (Adjustment constraints) and then rigidly register registration).

< Back

Aerotriangulation Definition

Define parameters and submit aerotriangulation processing.

Settings

Choose aerotriangulation settings.

Poses and tie points

☐ Compute ☒ **Adjust** ☐ Extend ☐ Lock

Computing tiepoints and adjusting poses.
Parameters: normal keypoints density, default pairs selection mode.

Optical parameters

☒ **Adjust main parameters** ☐ Lock all parameters

Adjusting focal length, principal point, radial distortion and tangential distortion.
Keeping aspect ratio and skew unchanged.

Targets extraction:

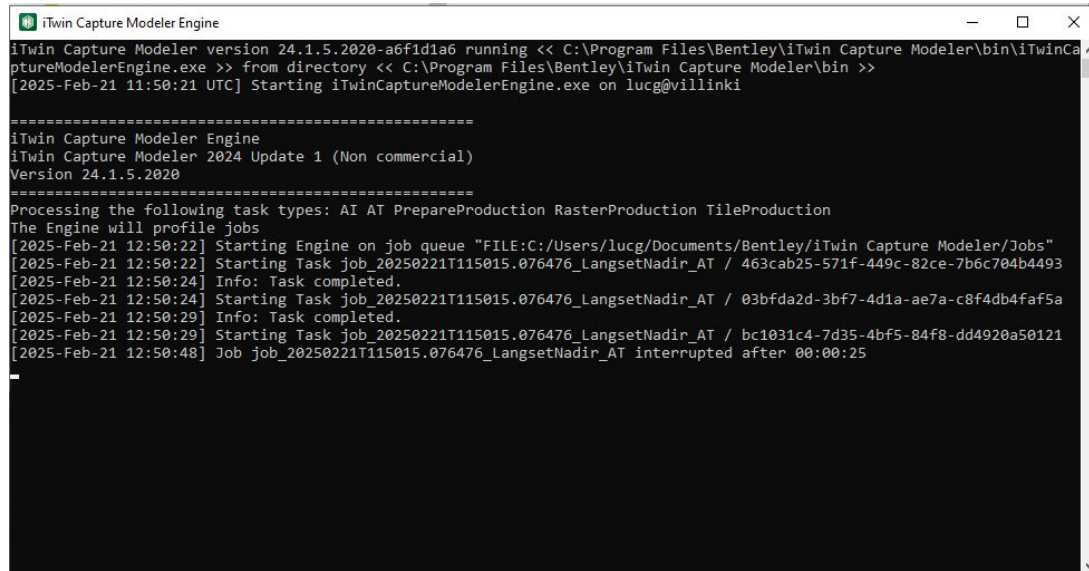
Automatic color correction:

Create splats: ☒

Adjusting poses is advised with proper initial position/rotation information.

< Back **Submit** Cancel

Start iTwin Capture Modeler Engine (that's the actual processing engine, it listens to new “jobs” being added by other iTwin tools)



```
iTwin Capture Modeler Engine
iTwin Capture Modeler version 24.1.5.2020-a6f1d1a6 running << C:\Program Files\Bentley\iTwin Capture Modeler\bin\iTwinCa
ptureModelerEngine.exe >> from directory << C:\Program Files\Bentley\iTwin Capture Modeler\bin >>
[2025-Feb-21 11:50:21 UTC] Starting iTwinCaptureModelerEngine.exe on lucg@villinki

=====
iTwin Capture Modeler Engine
iTwin Capture Modeler 2024 Update 1 (Non commercial)
Version 24.1.5.2020
=====
Processing the following task types: AI AT PrepareProduction RasterProduction TileProduction
The Engine will profile jobs
[2025-Feb-21 12:50:22] Starting Engine on job queue "FILE:C:/Users/lucg/Documents/Bentley/iTwin Capture Modeler/Jobs"
[2025-Feb-21 12:50:22] Starting Task job_20250221T115015.076476_LangsetNadir_AT / 463cab25-571f-449c-82ce-7b6c704b4493
[2025-Feb-21 12:50:24] Info: Task completed.
[2025-Feb-21 12:50:24] Starting Task job_20250221T115015.076476_LangsetNadir_AT / 03bfda2d-3bf7-4d1a-ae7a-c8f4db4faf5a
[2025-Feb-21 12:50:29] Info: Task completed.
[2025-Feb-21 12:50:29] Starting Task job_20250221T115015.076476_LangsetNadir_AT / bc1031c4-7d35-4bf5-84f8-dd4920a50121
[2025-Feb-21 12:50:48] Job job_20250221T115015.076476_LangsetNadir_AT interrupted after 00:00:25
```

Wait (few minutes, depending on hardware and number and size of images)



The screenshot shows the iTwin Capture Modeler interface. The top bar indicates the project is 'Block - LangsetNadir - AT'. The left sidebar shows the project structure with 'Block_1' and 'LangsetNadir - AT'. The main content area is divided into tabs: 'Overview', 'Photos', 'Point Clouds', 'Surveys', 'Additional Data', and '3D View'. The 'Overview' tab is selected, showing a 'Complete data' status with a green checkmark. Below this, technical details about the block are listed, including photo counts, known vertices, and point counts. A red rectangle highlights the 'Stereotriangulation' section, which contains links for 'See settings', 'View acquisition report', and 'View quality report', along with a 'Job Details' link.

Block - LangsetNadir - AT

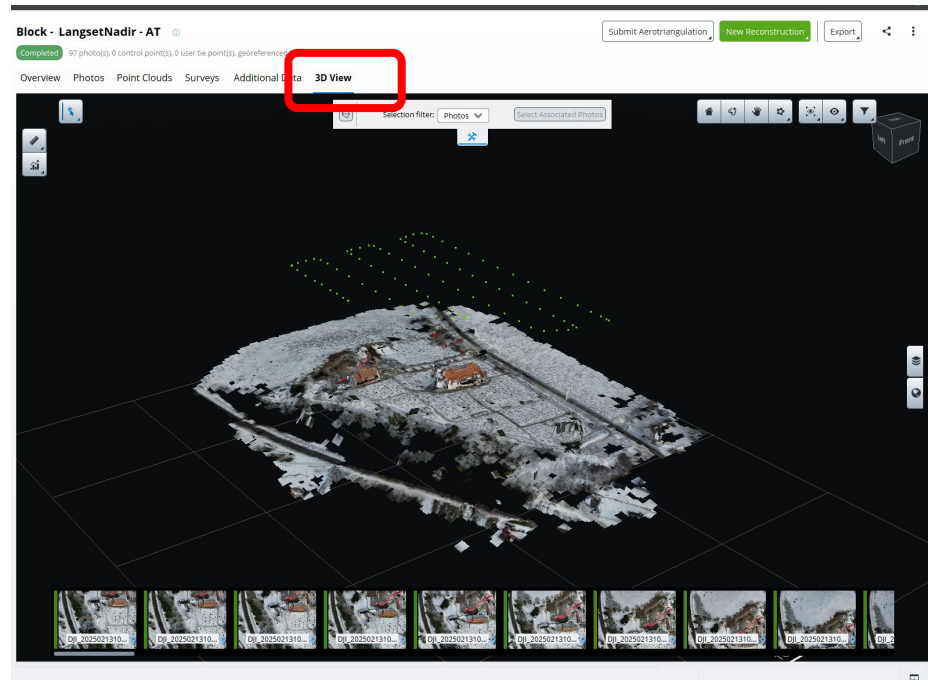
Complete 97 photos(0), 0 control point(s), 0 user tie point(s), georeferenced

Overview Photos Point Clouds Surveys Additional Data 3D View

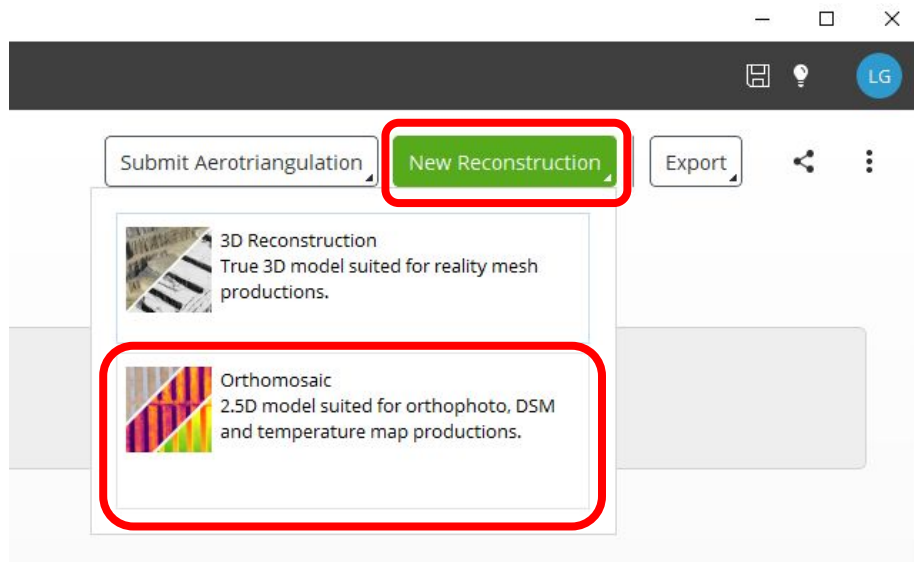
Complete data
The block is ready for reconstruction.
Photos positioning level: **georeferenced**

97 photos(0) in 1 photogram(s), 27 pps(photo)
97 photos(0) in the main component
97 known position(s) and 97 known vertex(s)
0 control point(s), 0 tie point(s), 0 horizontal point(s), 0 vertical point(s) among which 0 check point(s)
0 user tie point(s)
38154 automatic tie point(s) [View](#)
Resolution ranges from 0.031 meters to 0.62 meters
Block has blockwise color equalization
Sphinx available [Sphinx](#)

Stereotriangulation
[See settings](#) | [View acquisition report](#) | [View quality report](#)
[Job Details](#)



Start a new reconstruction - Orthomosaic




Choose all the appropriate options - submit the job

Reconstruction - Orthophoto/DSM_1

Not Started 2.5D, Regular planar grid (grid size 60 meters), 10 tile(s), extra precision

Overview Spatial Framework Geometry Constraints Reference Model Processing Settings



Spatial Reference System (SRS)
ETRS89 / UTM zone 32N (EPSG:25832) + NN2000 height (EPSG:59)

Resolution
0.020000 meter/pixel

Tiling
Regular planar grid
Tile size (meters): 60.000000
Orthomosaic/DSM tile size: 3000 pixels


Discard empty tiles: ☒ enabled
Origin: Automatic


Overview
Dimensions: 145,772 meters x 232,316 meters x 32,5062 meters
Orthomosaic/DSM dimensions: 7289 x 11616 pixels
The tiling contains 10 tile(s).
Expected maximum RAM usage for a job: 9.3 GB

Submit Production



Submit Production

 Process with iTwin Capture Modeler Engine
Process the job locally on your own computers.

 Process on the Cloud
Process the job on the cloud.

Set options and submit to the iTwin Engine

Production definition

Define parameters of the new production.

Name

Purpose

Format/Options

Spatial Reference Sys...

Extent

Destination

Name

Enter production name and description.

ID: **Production_1**

Name

Description

Purpose

Choose the purpose of the production to submit.

Purpose of production

☒ Reference model ⓘ

☒ Export Orthomosaic/DSM ⓘ

☐ Water detection ⓘ

Format/Options

Choose output format and options for the production.

Resolution (meters):

Maximum image part dimension (px):

☒ Merge output parts ⓘ

☒ **Orthomosaic**

Color source:

Format:

☐ Color ☒ **Transparent**

Image sharpening:

☐ Temperature Map ⓘ ⓘ

Temperature Unit:

No data:

☒ **DSM**

Format:

No data:

Spatial Reference System

Choose the target coordinate system.

Spatial Reference System:

Default

WGS 84 / UTM zone 32N (EPSG:32632)

Local East-North-Up (ENU); origin: 60.407310N 11.242380E

Recent

ETRS89 / UTM zone 32N (EPSG:25832) + NN2000 height (EPSG:5941)

ETRS89 / UTM zone 32N (EPSG:25832)

ETRS89 / UTM zone 32N (N-E) (EPSG:3044)

More

Spatial reference system database...

Import reference system definition from DGN file...

Extent

Define the production extent.

Bounding rectangle:

X (meters) min max

Y (meters) min max

145.780000 meters x 232.320000 meters

Destination

Choose the production location.

Output directory

Directory

Wait (quite a long while :|)




Wait (quite a long while :|)

Production - LangsetNadirOrtho ⓘ

Running Orthophoto/DSM production

Overview Settings Result

 **Running...**
The production is running.
 8%
0/13 milestone(s) completed.
Running processing time: **42s**
[Monitor job queue](#)


Format: Orthophoto/DSM

▼ Job Details

Milestones 13

- ☐ Tile_+001_+001 reconstruction
- ☐ Tile_+002_+001 reconstruction
- ☐ Tile_+000_+002 reconstruction
- ☐ Tile_+001_+000 reconstruction
- ☐ Tile_+002_+000 reconstruction
- ☐ Tile_+001_+002 reconstruction
- ☐ Tile_+002_+002 reconstruction
- ☐ Tile_+001_+003 reconstruction
- ☐ Tile_+000_+003 reconstruction
- ☐ Tile_+002_+003 reconstruction
- ☐ Parts production
- ☐ Orthophoto/DSM merge
- ☐ Scene files creation

Running Tasks 1


 **villinki**
Cloud extraction 25s



Production - LangsetNadirOrtho ⓘ

Completed Orthophoto/DSM production

Overview Settings Result

 **Completed**
The production is completed.
Processing time: **15min 50s**

Format: Orthophoto/DSM

▼ Job Details

Milestones 13

| | |
|-------------------------------|------------------|
| Tile_+001_+001 reconstruction | 21.02.2025 13:47 |
| Tile_+002_+001 reconstruction | 21.02.2025 13:48 |
| Tile_+000_+002 reconstruction | 21.02.2025 13:49 |
| Tile_+001_+000 reconstruction | 21.02.2025 13:51 |
| Tile_+002_+000 reconstruction | 21.02.2025 13:51 |
| Tile_+001_+002 reconstruction | 21.02.2025 13:54 |
| Tile_+002_+002 reconstruction | 21.02.2025 13:55 |
| Tile_+001_+003 reconstruction | 21.02.2025 13:57 |
| Tile_+000_+003 reconstruction | 21.02.2025 13:58 |
| Tile_+002_+003 reconstruction | 21.02.2025 13:59 |
| Parts production | 21.02.2025 13:59 |
| Orthophoto/DSM merge | 21.02.2025 14:00 |
| Scene files creation | 21.02.2025 14:00 |

On a purpose built workstation, expect much longer on the lab computer

Results

(can be opened in GIS!)

Production ID: **Production_1**

Format: **Orthophoto/DSM**

Destination: **S:/Bentley/LangsetNadir/Productions/LangsetNadirOrtho**

Spatial Reference System: **ETRS89 / UTM zone 32N (EPSG:25832) + NN2000 height (EPSG:5941)**

Sampling distance: **0.02**

Projection type: **Highest point**

Maximum image part dimension (px): **4096**

Merge output parts: **true**

Orthophoto

Enabled: **true**

Format: **TIFF/GeoTIFF**

NoData value: **0 0 0**

NoData transparency: **true**

Color source: **Reference model visible colors**

Image sharpening: **Enabled**

DSM

Enabled: **true**

Format: **TIFF/GeoTIFF**

NoData value: **-9999**

| Name | Date modified | Type | Size |
|---------------------------------------|------------------|-------------|------------|
| orthoPhoto | 21.02.2025 14:00 | File folder | |
| LangsetNadirOrtho_DSM_merge.tfw | 21.02.2025 14:00 | TFW File | 1 KB |
| LangsetNadirOrtho_DSM_merge.tif | 21.02.2025 14:00 | TIF File | 353 284 KB |
| LangsetNadirOrtho_DSM_merge.tif.ovr | 21.02.2025 14:00 | OVR File | 116 113 KB |
| LangsetNadirOrtho_ortho_merge.tfw | 21.02.2025 14:00 | TFW File | 1 KB |
| LangsetNadirOrtho_ortho_merge.tif | 21.02.2025 14:00 | TIF File | 353 284 KB |
| LangsetNadirOrtho_ortho_merge.tif.ovr | 21.02.2025 14:00 | OVR File | 116 156 KB |

