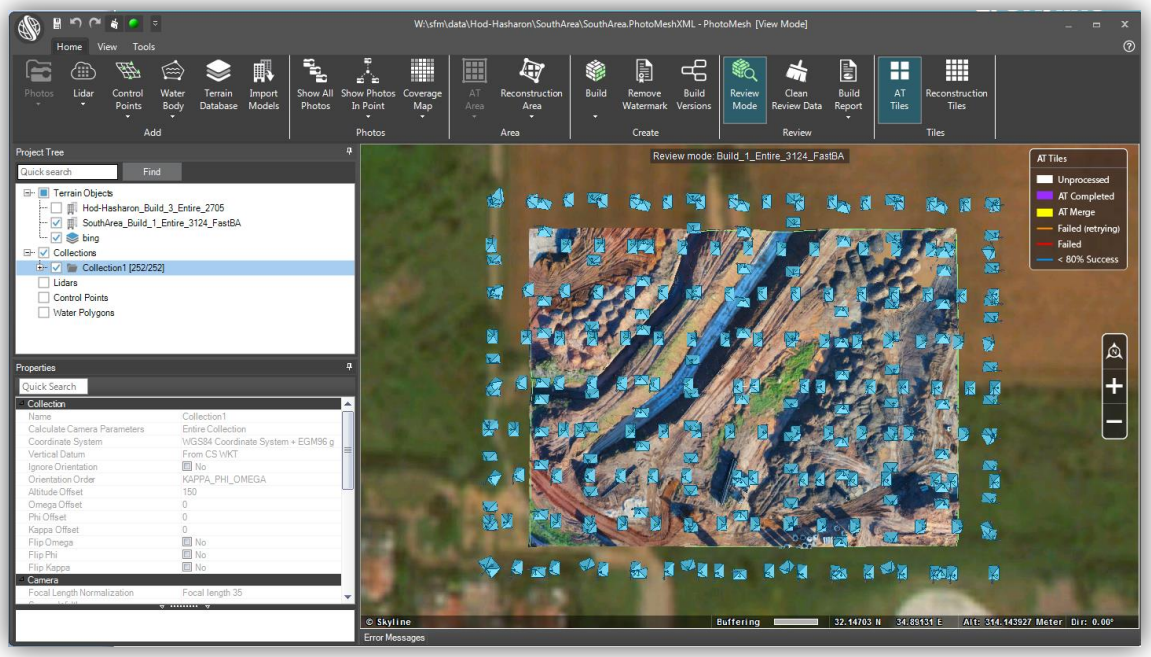
RELEASE NOTES FOR PHOTOMESH 7.5.1

About PhotoMesh

Skyline's PhotoMesh fully automates the generation of high-resolution, textured, 3D mesh models from standard 2D photographs, offering a significant reduction in cost and time compared to traditional modeling methods. PhotoMesh's breakthrough technology is based on the highest-performance photogrammetry, computer vision, and computational geometry algorithms. Combining any number of photographs, in a wide range of formats and resolutions, PhotoMesh generates highly-detailed 3D models that can be viewed and queried using TerraExplorer or other 3D and GIS products.



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New Features in Release 7.5.1

Support for 16-Bit TIFF

PhotoMesh 7.5.1 supports the loading of 16-bit TIFF files with automatic color histogram adjustment.

Improved AT Feature Detection Algorithm

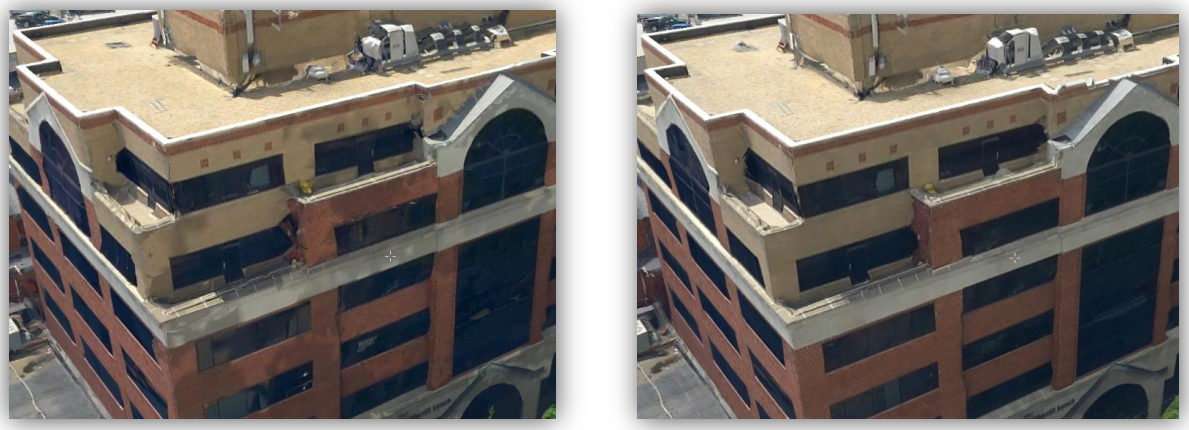
Modifications to the aerotriangulation algorithm for feature detection have improved the accuracy and success rate of the aerotriangulation process.

Improved Lidar Display

Enhanced support for Lidar data imported without RGB values, enables the automatic coloring of Lidar based on its intensity values.

Revamped Texturing Algorithm

Improved texture blending algorithm helps to clean “ghosting” effects such as moving vehicles. The texture blending algorithm refines the overall quality of areas with high color variance (e.g., water bodies, sun reflection).



PhotoMesh v7.5.1 vs. PhotoMesh 7.4

Enhanced Aerotriangulation Settings

New AT settings improve the accuracy and success rate of the aerotriangulation process by providing greater control over the weight assigned to different input sources based on their reliability and other factors:

- **Multiple AT Groups in Tile** – Select whether to include only a tile’s largest AT group (photo block) or all AT groups in AT Calculated Photos.
- **GPS Factor** – Weight factor to assign to the photos GPS data when performing the aerotriangulation

Expanded Reconstruction and 3D Model Output Settings

New settings with flexible options enable you to select the algorithm that best accommodates each input dataset. This ensures optimized results even with more complex datasets, e.g. photos with moving objects or shadows.

- **Texture Blending** – New options reduce “ghosting” artifacts and improve the texturing in the 3D model and orthophoto.
- **Photo Priority** – New options provide greater control over photo selection for texturing the orthophoto.

Bug Fixes

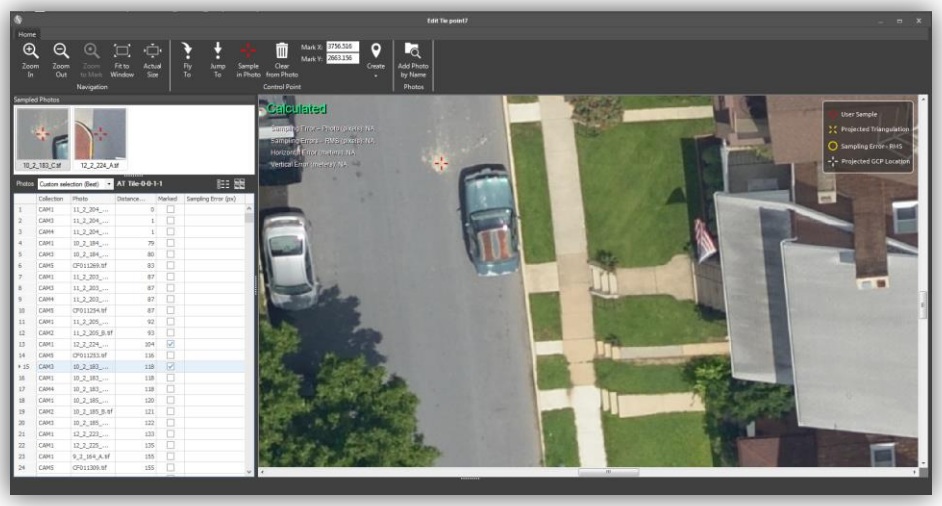
This release improves overall stability and performance, and fixes bugs in all the following:

- Display of the “Project Complete” message
- Holes in the model in areas of water polygons
- Black texturing when “Use Lidar Color” is set to Auto
- When uncalculated photos are not excluded from exported AT results, they are now exported with original position and orientation values.

New Features in Release 7.5

New Tie Point Mechanism

New tie point functionality improves the accuracy and success rate of the aerotriangulation process.



Tie Point Editor

Support for 4-Color Bands photos

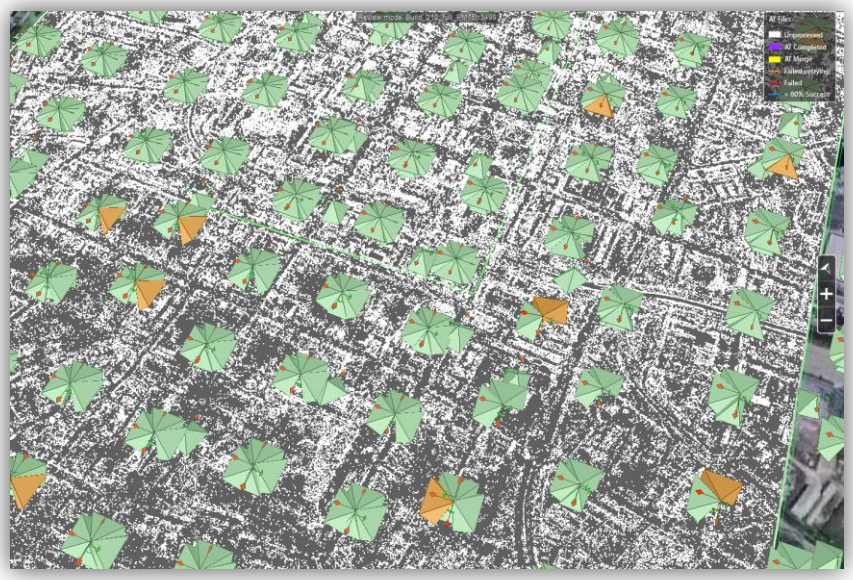
New support for photos with 4 color bands provides additional texturing options for 2D and 3D outputs.

- Texture the 3D model according to selected bands (RGB, CIR, etc.)
- Generate 4-band orthophoto

Red-Green-Blue (left) vs. Red-Green-NearIR (right) texturing

Enhanced Options for Reviewing Aerotriangulation Results

- PM 7.5's range of color coding options for camera position symbols enable classification of photos as needed, so the photos that require more preparation before inclusion in the AT can be identified quickly.
- New color-coded sparse point cloud provides a quick overview of aerotriangulation results.



Camera symbols color coding by Median Error and Sparse Point Cloud display

Revamped Texturing Algorithm

PM 7.5's texturing algorithm refines the overall quality of areas with high color variance (e.g., water bodies, sun reflection).

Superior Support for Ultra-Large-Scale Projects

Optimized data loading and management tools turbocharge performance in ultra-large-scale (100K+ photos) projects, by avoiding bottlenecks and increasing project efficiency.

Amazon Web Services (AWS) Cloud Fusers

PhotoMesh 7.5 automates the utilization of Amazon Web Services (AWS) to scale production beyond the local resources available. AWS virtual machines are dynamically launched by PhotoMesh and used as fusers as needed to accelerate model creation. PhotoMesh continuously monitors the fusers' progress and status and the processing requirements of the current step, adding and terminating AWS instances running fusers as required.

Easily Open Outputs in TerraExplorer

New “Outputs” Project Tree folder makes it easy to access all 2D and 3D outputs. With a simple right-click, all native TerraExplorer formats (3DML, Cesium, LAS, DAE) can be opened directly in TerraExplorer Pro.

All supported formats can be published from TerraExplorer Pro to SkylineGlobe Server for viewing in Skyline 3D viewers (TerraExplorer for Desktop, TerraExplorer for Web and TerraExplorer for Mobile) and 3rd party viewers (Cesium, ESRI, etc.).

Support for Additional Vertical Datums

In addition to the previously supported ellipsoid and EGM96 geoid vertical datums, PhotoMesh 7.5 now supports several additional datums including US and Australia based datums (G2012a and AUSGeoid2020) as well as EGM2008 geoid. Other vertical datums can be added by providing the associated .gtx grid files.

Auto-Start Local Fuser

New option to automatically start a local fuser when there are no available fusers.

Software and Hardware Requirements

Operating System	Windows® 7 / 8 / 10, Windows® Server 2012 R2 – 64-bit required.
System Memory	16 GB RAM (32 GB recommended).
Video Card	1GB of video memory (2GB or more recommended). Pixel and vertex shader v3.0.
Processor	4 cores (8 cores recommended). PhotoMesh works best in a multi-core environment and can utilize multiple CPU's and hyper-threaded processors.