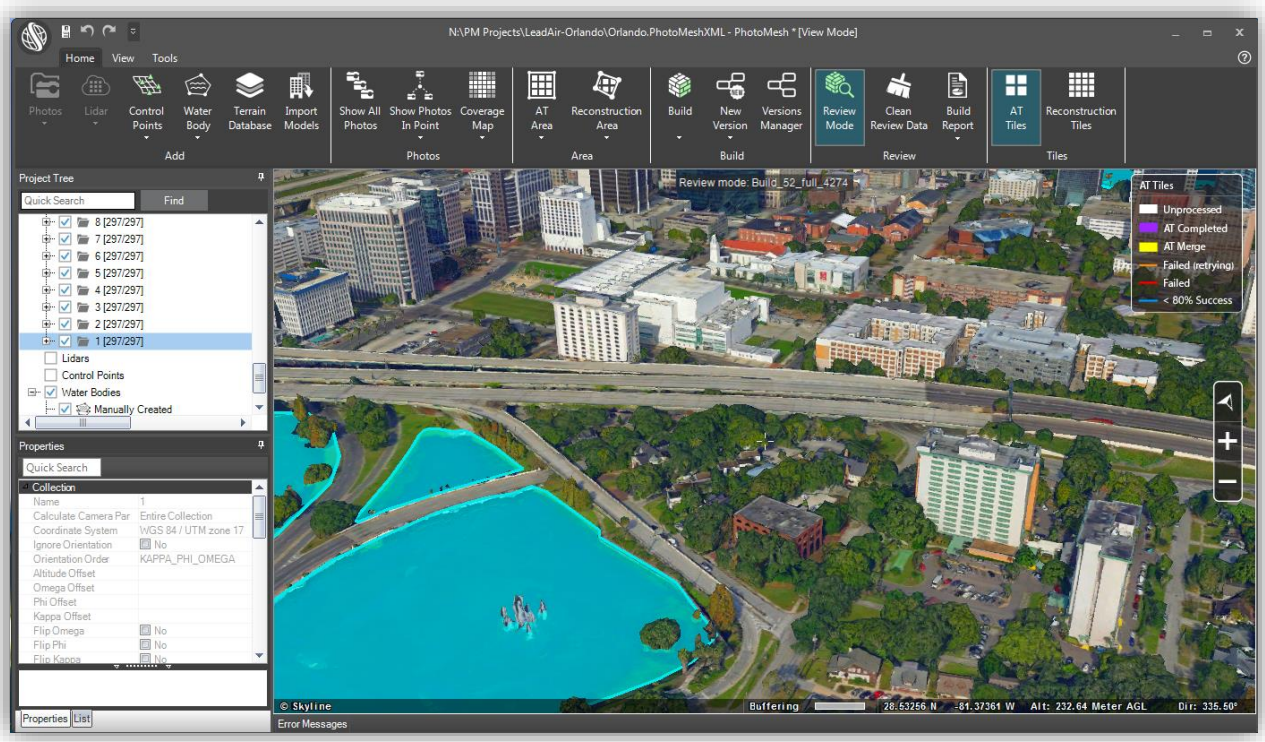
RELEASE NOTES FOR PHOTOMESH 7.6.2

About PhotoMesh

Skyline's PhotoMesh application fully automates the building of high-resolution, textured, 3D mesh models from oblique and nadir photographs and Lidar captured from street view, drones, UAV and airplanes. PhotoMesh's breakthrough technology is based on the highest-performance photogrammetry, computer vision, and computational geometry algorithms. PhotoMesh offers a range of output options including standard 3D model (3DML, OSGB, DAE, OBJ), raster (Orthophoto, DSM, DTM) and point cloud (LAS) formats. PhotoMesh's 3DML format can be transformed into powerful geospatial data that fully supports spatial operations and attribute queries, by loading it into TerraExplorer and merging it with classification information. 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.).



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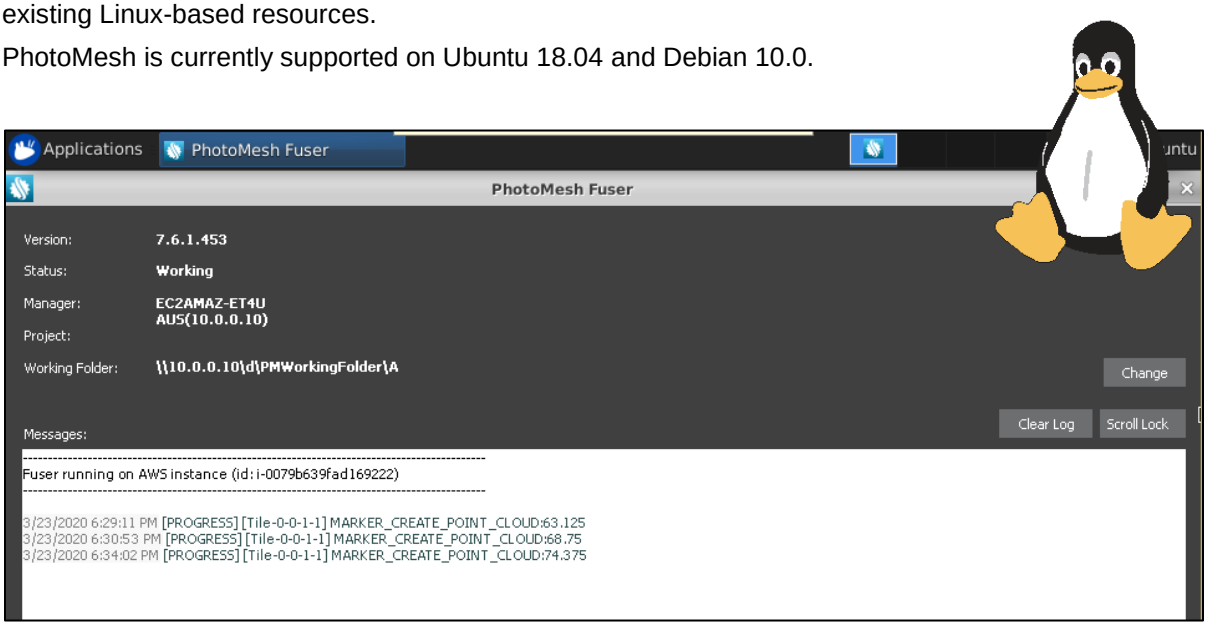
New Features in Release 7.6.2

Cross-Platform Fuser Support

PhotoMesh Fuser 7.6.2 can now run on Linux as well as Windows operating systems. This is especially exciting news for users of Amazon Web Services (AWS). On AWS, Linux fuser instances offer a significant cost advantage over Windows instances. In addition to being considerably cheaper than Windows instances, Linux instances are also billed in one second increments, while Windows instances are billed by the hour. This takes the cost of unused minutes and seconds in an hour off the bill and can amount to significant savings.

For on-premises computers, using Linux saves the Windows license costs, and enables the use of existing Linux-based resources.

PhotoMesh is currently supported on Ubuntu 18.04 and Debian 10.0.



New Features in Release 7.6.1

Bug Fixes and Improved Stability

This release improves overall stability and performance, and provides the following bug fixes:

- Changes to the coordinate system of a water body polygon or control point are saved and applied when reopening their project (APPS-3555).
- Memory usage is no longer increased when processing AT tiles in very large projects with significant number of AT tiles (APPS-3560).
- All selected build outputs are generated even when the 3DML build output is not selected (APPS-3586).
- Progress bar displays properly upon loading multiple Lidar files or a Lidar folder (APPS-3487).
- Generated multi-band orthophotos are now listed the Project Tree's Outputs folder (APPS-3361).
- Changes to fill color of added or imported water polygon are saved to project and applied when project is reopened (APPS-3557).
- Resolved bug that prevented project from opening when one of the project's outputs or build versions was manually deleted from the project folder (APPS-3525).
- Collection information is copied correctly to AT tile when using "Fully trusted AT input" (APPS-3499).
- Reconstruction of Lidar data and points generated from photos now works accurately on flat terrain (APPS-3550).
- Principal point is now calculated correctly for photos imported from Excel file (APPS-3479).
- Detailed report and property sheet now include the calculated Omega-Phi-Kappa values (APPS-3663).

New Features in Release 7.6.0

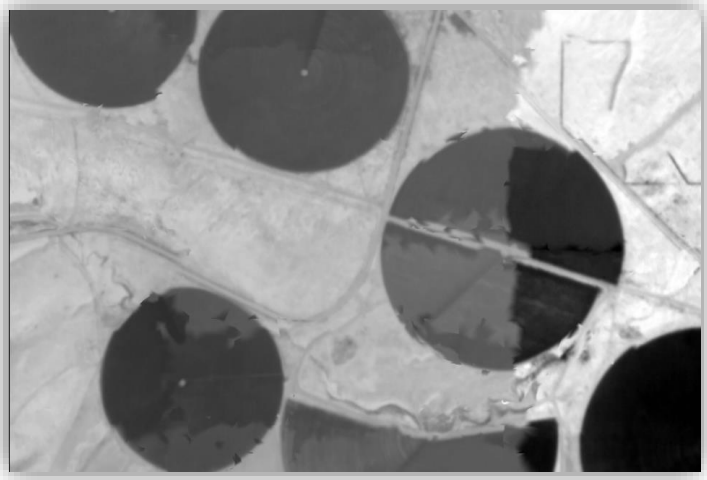
Quality Enhancements

- Improved mesh geometry for small objects, edges, cars, etc.
- Improved hole-filling algorithm
- Improved calculation of reconstruction tile height (to avoid tower cropping effect)
- Reduced geometry noise in small tiles

Multi-Band Support

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

- Define the bands available in each photo collection
- Select three bands for 3D model texturing (RGB, CIR, NIR, etc.)
- Select three or more bands for the orthophoto output



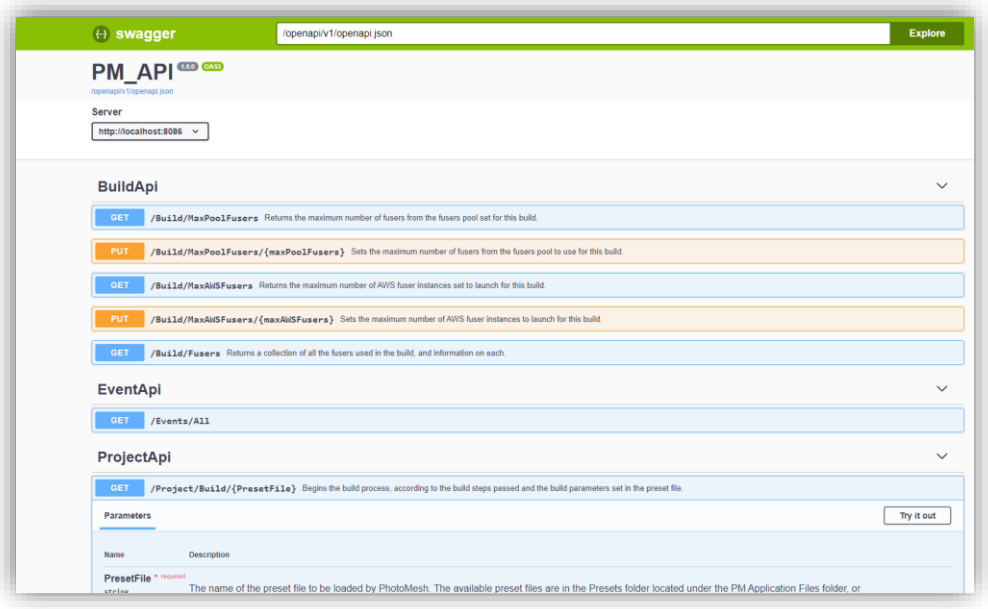
Improved Gigapixel Mechanism

New gigapixel mechanism allows you to pre-purchase a bank of gigapixel credits, load them to your local Skyline Floating License Server (SFLS), and automatically apply them towards different PhotoMesh projects to allow building of all output types without watermarks. Within a single project, multiple build versions can be created using the same gigapixel credits.

Production Automation

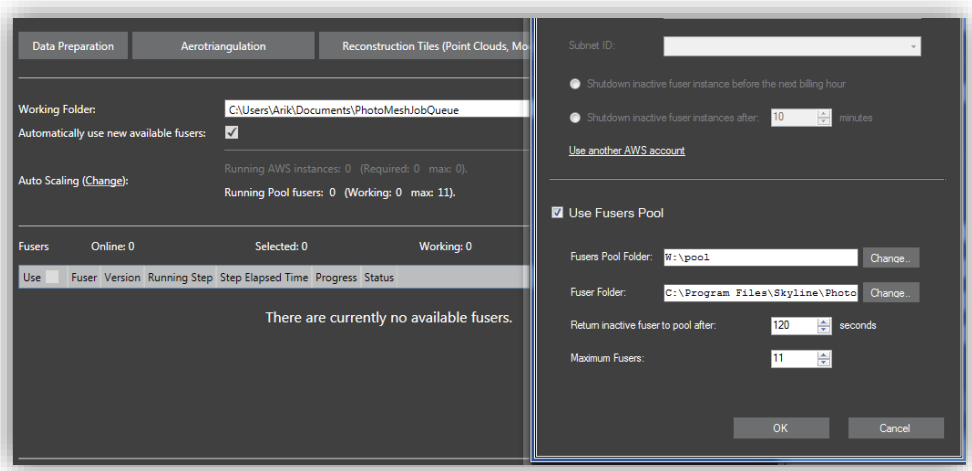
PhotoMesh 7.6 provides new API and automation tools:

- **PhotoMesh API** - REST API to automate production phases, e.g., load photo files or list, set AT and reconstruction areas, begin and manage a build, and create new build versions. This robust API allows developers to automate PhotoMesh production flows on local machines and remote servers.
- **ProjectQueue API** - REST API to create a project queue, and then activate, monitor, and manage the queue processing.

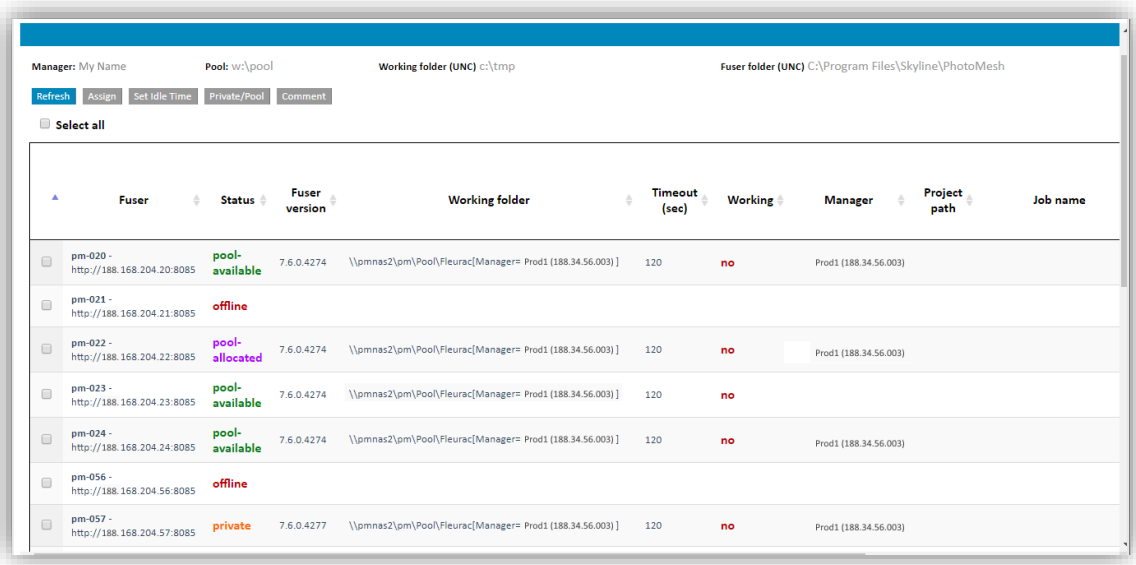


Fusers Pool

- Auto-Scaling - PhotoMesh 7.6 enables you to share fusers between several PhotoMesh managers in your organization, to dynamically allocate and free fusers based on each project's resource needs. Each PhotoMesh Build Manager continuously monitors the fusers' progress and status and the processing requirements, and allocates or frees fusers as required.



- Fusers Management Page - Provides centralized management of all the fusers in your organization so you can monitor them and their current tasks, and remotely move fusers from one project to another.

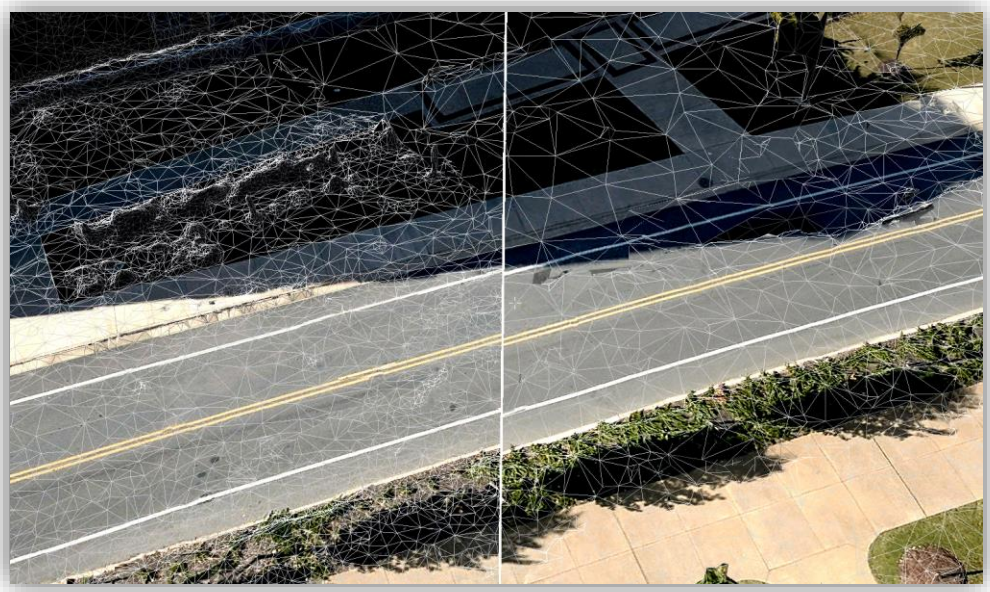


Improved I/O Performance

Improved input/output operations turbocharge performance in ultra-large-scale (100K+ photos) projects.

New Model Simplification Algorithm

Model simplification algorithm was rewritten to produce a simplified mesh model that uses less memory, without sacrificing model quality.



Cross-Platform Support

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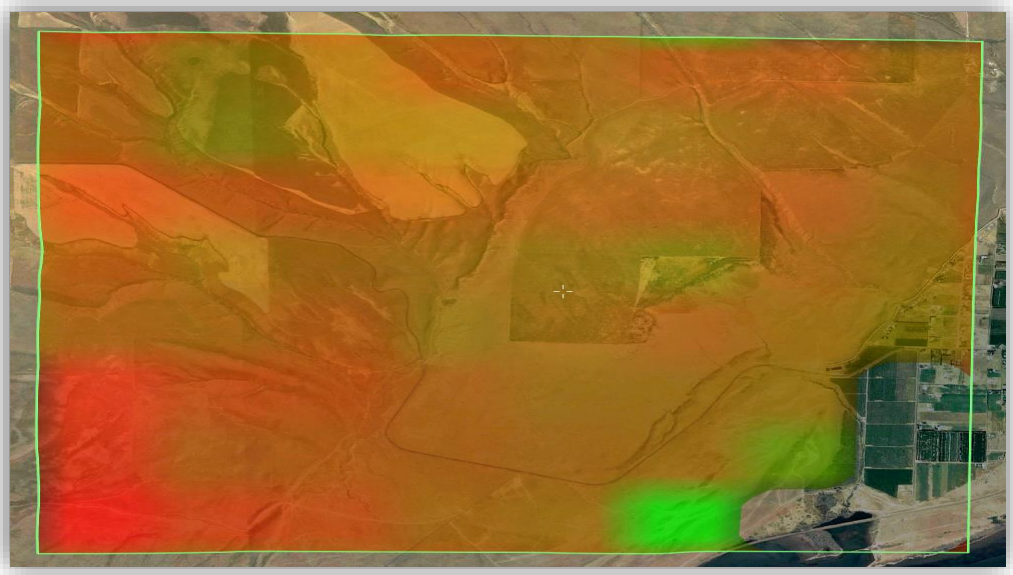
Connection Map

New addition to arsenal of tools for AT review makes it easy to evaluate the quality of the AT, based on the level of interconnection of the photos. Each point in the defined AT area is colored based on the percentage of interconnected photos out of all the photos that intersect with the point.



Improved Water Polygon Mechanism

- Expanded options allow you to easily create exactly the water body you need: whether it is a level water body such as a sea, lake, pond or pool (even on top of a non-flat terrain or mesh), or a water body with an elevation gradient such as a river.
- Import and work on several layers
- Supports vertical datums

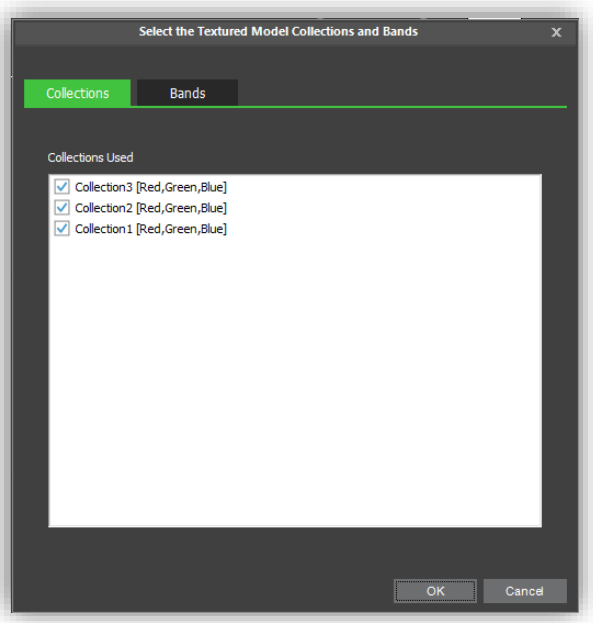
Collection Properties XML

Enables you to easily and quickly load photos and folders, either manually or using the API, and automatically apply a set of property definitions to these photos. The collectionProperties.xml includes only the collection definition and saves you the trouble of creating a full Excel or XML file that contains a list of all the photos.

Filter Collections for Reconstruction and Output

The filter collections option allows you to define the photos that you want for each step in the reconstruction and for the different outputs:

- Select and filter set of photo collections for the reconstruction phase
- Select and filter set of photo collections for the 3D model texturing
- Select and filter set of photo collections for the Orthophoto creation



Optimized Aerotriangulation Process

New settings provide better support for different data types and sensors:

- ECEF is now used as the default internal coordinate system to support large scale projects with no distortions
- New AT property defaults improve success rate when trying to solve projects from different sensors
- Matching results can be exported to Bingo

Revamped Tile Stitching Method

PM 7.6 features a new method of stitching tiles in the correct order to avoid gaps when rebuilding water polygons.

SOFTWARE AND HARDWARE REQUIREMENTS

Operating System	Windows® 7 / 8 / 10, Windows® Server 2012 R2 – 64-bit required. Ubuntu 16.04 and 18.04 (Only for PhotoMesh **fusers**).
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.
Additional Software	.Net Framework 4.6 required.