RELEASE NOTES FOR PHOTOMESH 7.3

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.

PhotoMesh employs elaborate tiling mechanisms to efficiently handle projects with even hundreds of thousands of photos. Running on standard hardware, PhotoMesh can also exploit computer clusters and cloud computing to run a single project simultaneously on hundreds of fuser machines. Sharing the workload involved in generating PhotoMesh output vastly accelerates all steps of the build.

PhotoMesh Components

The PhotoMesh application is composed of three components:

- **PhotoMesh Editor** – The main PhotoMesh working area for various workflow actions such as preparing, submitting for processing, monitoring, and reviewing the build.

- **PhotoMesh Fuser** – Worker component of PhotoMesh which allows you to share the workload between several computers on the same network. The master computer, equipped with PhotoMesh fuser, utilizes the computing power of the network's client computers by connecting to PhotoMesh fusers on the client machines.

- **PhotoMesh Build Manager** – Manager application that is responsible for managing the build process and PhotoMesh fusers. PhotoMesh Build Manager keeps track of all build tasks and fusers, distributing tasks among the fusers and assigning new tasks as fusers complete their tasks and become available. During the build process, PhotoMesh Build Manager monitors the build and provides the user with detailed information about the build's progress.

WHAT'S NEW IN PHOTOMESH 7.3

Export/Import Textured Model for Manual Retouch

PhotoMesh 7.3 streamlines the process for export and import of models for manual retouch. The user can export a textured or untextured model as an OBJ file, enabling manual geometry and texture editing with external tools. For importing a retouched model, the latest PhotoMesh provides three useful options:

- Import the textured model and continue to the output phase

- Import only the mesh geometry and retexture the model using PhotoMesh

- Import only textures and apply them to the model generated by PhotoMesh before the edits
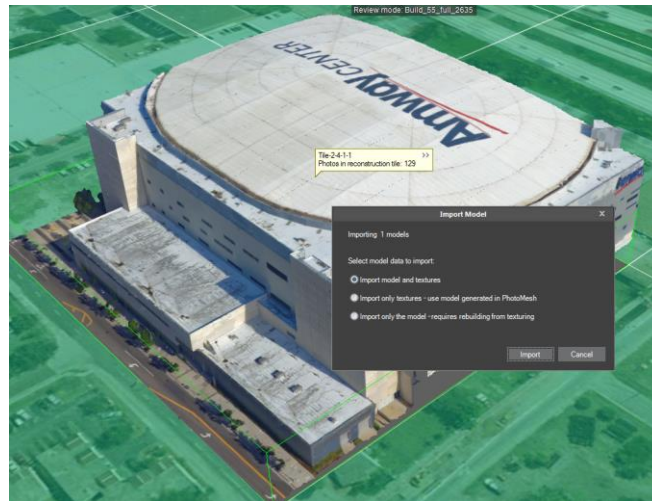
New Resolution Pyramid Mechanism

PhotoMesh 7.3's new and more advanced resolution pyramid mechanism provides improved performance and better color balancing between different model resolutions, and enables the following:

- Application of external changes (manual retouch of model and textures) to the entire resolution pyramid

- Improved removal of a moving object (e.g., car) from all model resolutions

High Quality True-Orthophoto

Version 7.3's high quality true-orthophoto produces:

- True seamless and color balanced orthophoto

- New algorithm significantly reduces visible artifacts

Old/New

Preset Mechanism

Build parameter presets make it easy to automatically set the required parameters to generate the optimum output for the project's data as well as to share user-defined build settings between projects. New presets can be added to the Preset Manager by saving current build settings or by loading from file. Presets are easily managed (deleted, set as default) from the new Preset Manager.
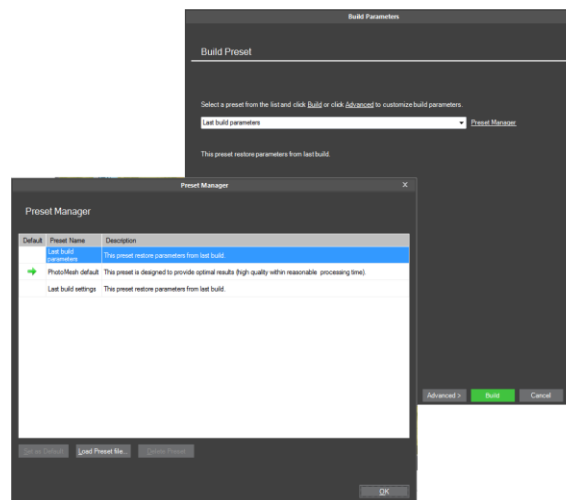
## Improved Matching and Aerotriangulation (AT)

Improved photo matching and aerotriangulation improve the robustness, precision and success rate of the aerotriangulation process:

- Dynamically adjust the complexity of the feature matching process based on the dataset. This option dramatically improves the results from challenging datasets (e.g., wooded areas).

- Range of options for automatic calculation and calibration of camera's intrinsic parameters.

- Select the method of AT tile alignment (only align each individual AT tile to its camera positions and ground control points, or also align the tiles with each other) based on the reliability of camera position accuracy and other factors.

AT Import Tool

The new AT import tool, integrated in the PM user interface, provides the following powerful functionalities:

- Imports AT result from Bingo, Inpho and Stellacore systems

- Reads photo positions and camera distortion information

- Allows PhotoMesh to fully trust the imported AT information (skip AT)
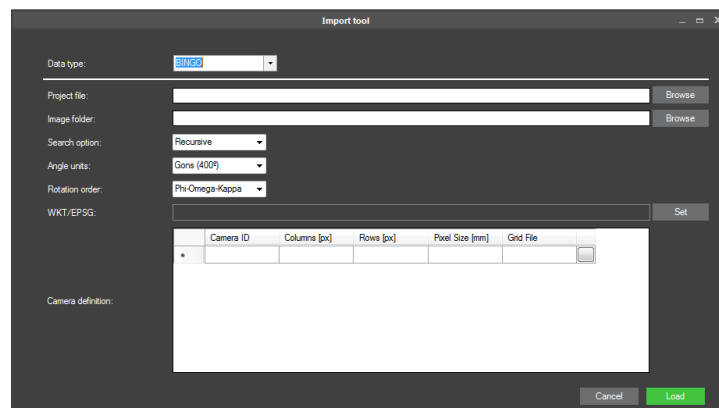
Software and Hardware Requirements

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