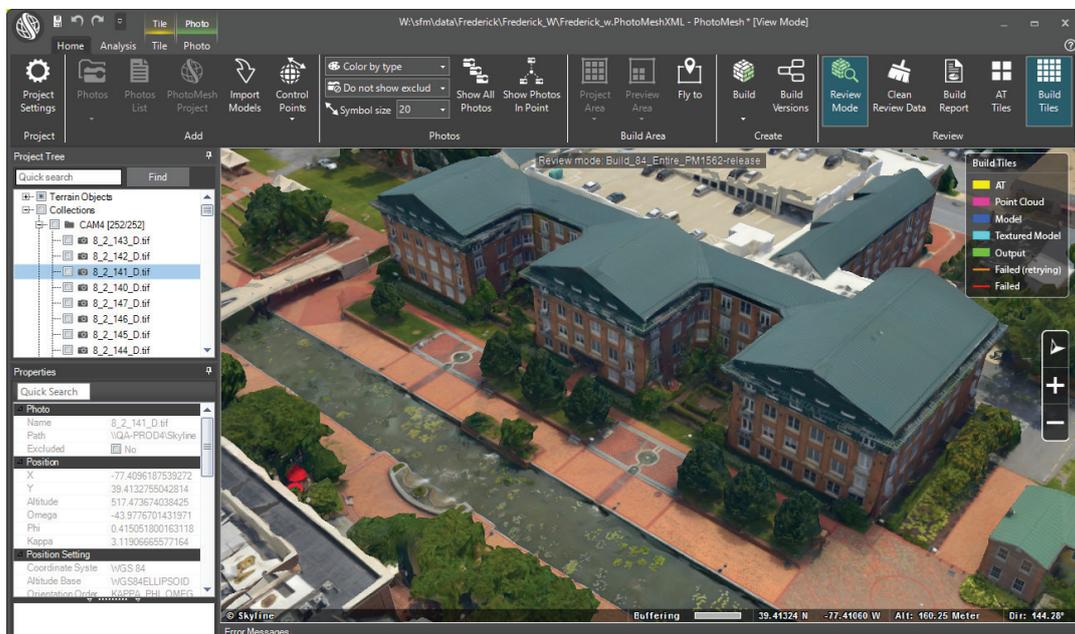


# SkylineGlobe 6.6.1's New Developments

The SkylineGlobe 6.6.1 release highlights **PhotoMesh v6.6.1**, an all-new Skyline product developed from the ground up, based on the latest state-of-the-art technologies. 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.



TerraExplorer also plays a starring role in the 6.6.1 release, with powerful enhancements to the Mobile app and a redesigned Desktop application that features even greater analysis capabilities, BIM layer integration, stunning new visual effects, and more.

We offer here a glimpse into our latest product developments.

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# What's New in PhotoMesh?

## High Quality

PhotoMesh generates a full-3D mesh model that faithfully reproduces even small-scale details such as cars, trees, fences, and walls - all with advanced color balancing and high-quality texturing.

## High Performance

PhotoMesh can run its efficient algorithms fluidly on standard, low-cost GPUs, or exploit computer clusters and cloud computing to accelerate database creation. A single project can run simultaneously on hundreds of fuser machines, processing hundreds of km<sup>2</sup> per day.

## Unlimited Scalability

PhotoMesh efficiently handles even hundreds of thousands of photos using an elaborate tiling mechanism. PhotoMesh exploits multi-computer architecture (fusers) to further accelerate database creation, running a single project simultaneously on hundreds of machines.

## Source Image Flexibility

PhotoMesh supports all standard image formats (Jpg, Tiff, etc.), generating complete true 3D mesh models from a set of standard, unordered oblique, nadir and ground photos.

## Interoperability

PhotoMesh's 3D models can be exported in various multi-resolution 3D formats (3DML, OSGB DAE, OBJ, and PLY), ensuring full interoperability with 2D/3D GIS solutions.

## Cost and Time Efficient

PhotoMesh offers a significant reduction in cost and time when compared with traditional modeling methods. Reconstructions that would generally take weeks using manual modeling methods can be completed in mere hours using PhotoMesh.

## Intuitive GUI

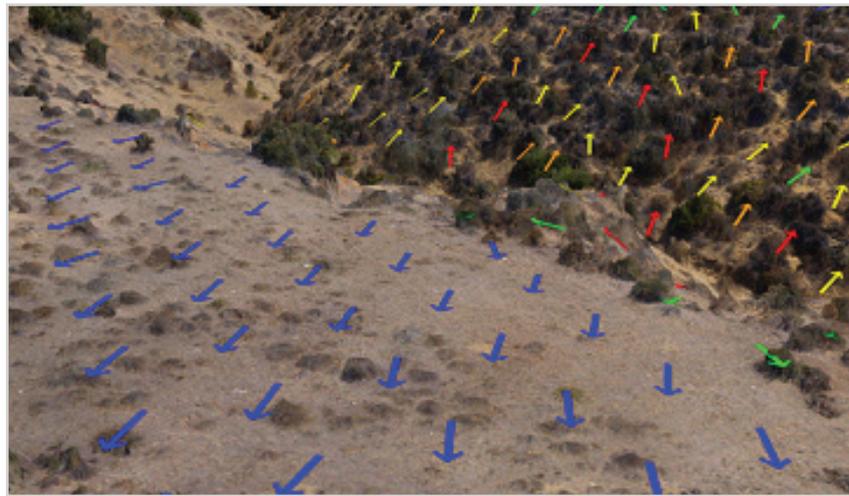
PhotoMesh provides powerful visualization capabilities and tools, including photo projection on the terrain and project preview, which facilitate accurate evaluation and adjustment of photo and camera parameters.

# What's New in TerraExplorer?

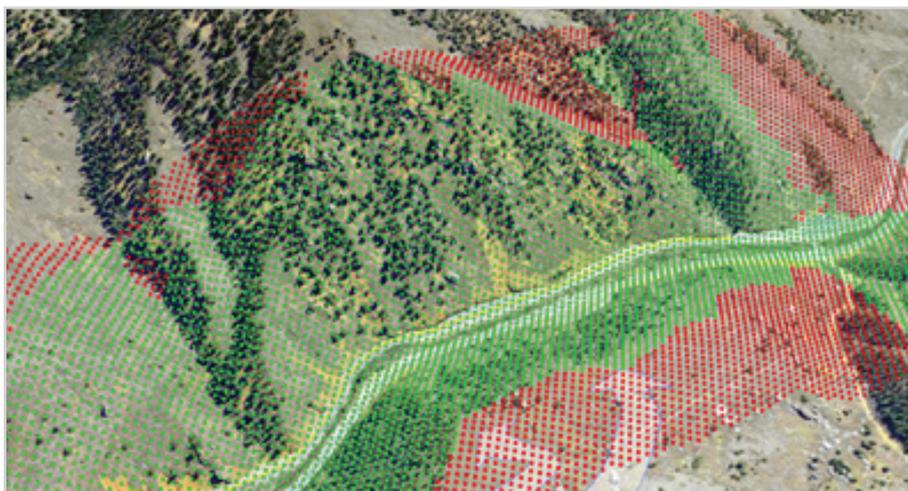
## Powerful Analysis Capabilities

New capabilities provide precisely the information you need:

- The new Slope Map Query graphically represents slope values in a specified area, outputting a highly-accurate color coded point feature layer that is listed in the Project Tree and can be exported to a shapefile or SQLite layer.



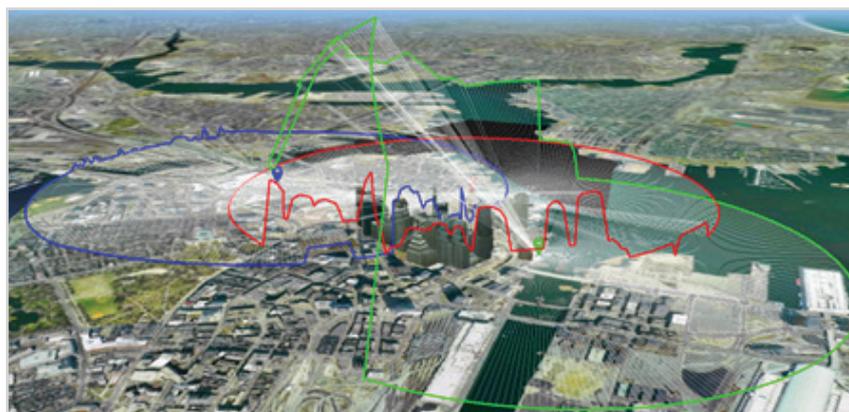
- One-click **Global Contour Map** displays map with contour colors and dynamically placed contour lines.
- **Viewshed:** Viewshed options were renamed and reorganized into Viewshed and Viewshed on Route command groups as follows:
  1. Dynamic 3D Viewshed > 3D Viewshed on Route by Speed
  2. Timespan Viewshed on Route > 3D Viewshed on Route by Time
  3. Viewshed Query > 3D Viewshed on Route - Query
  4. Viewshed > 2D Viewshed



- Featuring more intuitive control and increased capabilities, the new **Terrain Profile** tool supports simultaneous analysis of multiple lines and comparison of the base terrain to an elevation layer. The new tool provides multiple methods for designating the polylines to be analyzed as well as an option to export results to a FLY, KML/KMZ, or shapefile.



- Redesigned **Threat Dome** tool offers expanded display options (sphere, dome base, and skyline) so that the particular information required can be easily visualized. The new tool provides multiple methods for designating the threat dome area as well as an option to export results to a FLY, KML/KMZ, or shapefile.



- New option for both Distance and Area Measurement tools enables you to **Create Measurement Objects** that are listed in the Project Tree and can be exported to FLY, KML/ KMZ, or shapefiles.



## BIM Layer Support

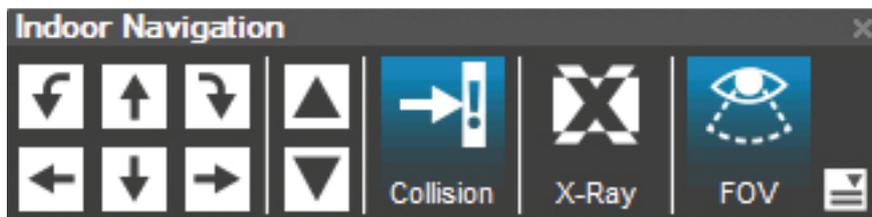
TerraExplorer reads industry standard, FBX BIM files (preserving all geometry and attribute data), and converts them to the 3DML format for optimized viewing and streaming on desktop and mobile applications, with full support for spatial and attribute queries and indoor navigation. TerraExplorer's support for Building Information Models (BIM) enables you to easily add model information to your project and update model attribute data for enhanced collaboration and efficient management throughout the entire building life cycle.

## Online Data and Services from SkylineGlobe.com

1. TerraExplorer provides both address geocoding and reverse geocoding for all OpenStreetMap (OSM) data.
2. Load OSM raster layer and various feature layers (e.g. Amenity, Buildings, Tourism, Roads...).
3. Load online models from the expanded Data Library.

## Indoor Navigation

New Indoor Navigation toolbar offers more intuitive navigation through your indoor spaces, with controls for more precise navigation, collision detection, x-ray vision, and Show/Add locations.



Indoor Navigation

## Timespan Tags

Powerful timespan tool visually displays the timeline for all the objects in a timespan group and enables you to easily set and modify the sequence and length of time for which they display.

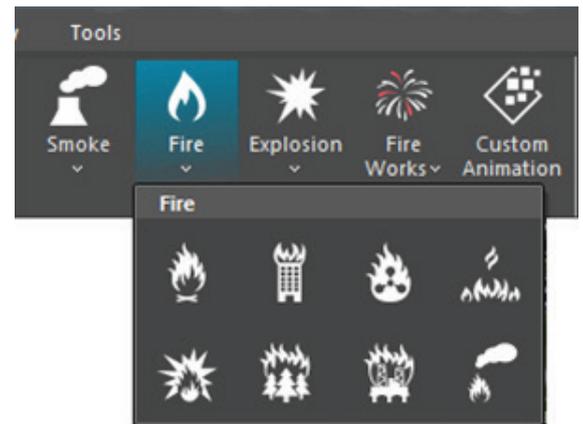


Timespan Timeline

## Visual Effects

New particle system engine enables you to create simulations of natural phenomena such as rain or fire, which transform a standard virtual 3D environment into a stunningly realistic 3D visualization, with minimal performance penalty. New visual effects include animation presets and custom objects, water effects, and weather elements:

- Smoke
- Fire and explosion effects
- Water effects
- Custom objects
- Water body
- Fog, rain, snow



Snow Effect

## Infrastructure Improvements

- **Stereo vision** - Side-by-side stereo view on any supporting displays provides added depth and realism to the 3D visualization.
- **Touch screen optimization** - New navigation controls and analysis and editing capabilities.
- **Native TerraExplorer Plug-in for Chrome and Firefox**

## Working with 3DML

TerraExplorer 6.6 provides **powerful new capabilities** for working with 3DML layers, including:

- New Hole on terrain (that removes the terrain texture) and Modify terrain with offset capabilities enable you to draw lines on the terrain that follow the terrain contour and yet still show close to the 3DML surface.
- Drawing of "On terrain" lines and polygons on the floor surface (e.g. street layers)
- Manual repositioning and scaling of the 3DML database.

TerraExplorer 6.6 also features **improved performance** of 3DML layers:

- Reduced memory load
- Minimized bandwidth to accelerate web streaming
- Support for analysis and drawing tools in 3DML datasets

## Object Improvements

- **Video projection on all 3D models** - Includes option to calculate which surfaces are visible to the projector, and project video only onto these surfaces for a more realistic result with only minimal performance penalty.
- **Dynamic object** - New method for setting object's route, "Move by Time" allows you to precisely define the start and end times of the route, and then use the time slider to control the object's position on route.

## Mobile



Version 2 of the mobile app features TerraExplorer desktop's main professional-grade tools for viewing, querying, analyzing and editing massive datasets. These include feature layer streaming and editing, raster layers, data query, advanced terrain analysis (including viewshed, shadow analysis, contour and slope maps), white board, and more. Wherever your data is, the app can access it, whether online, from SkylineGlobe's TerraGate and other OGC compliant servers, or offline, loading local TEP projects. Developers who want a customized application can use a robust API to edit the user interface or add targeted functionalities.

- Clean, easy to use GUI
- One-handed zoom and rotate
- Underground mode
- Feature layer editing
- Publishes FLY file to the new Android/iOS app
- .FLY files published to mobile with TEP 6.6 open on mobile, obsoleting the use of .Flyx

## API

TerraExplorer API was updated to support all 6.6 improvements. In addition to all the property and method changes, the API features two new interfaces:

- **\_3DMLCreator66** - This .NET interface is responsible for creating a unified, stream optimized 3D Mesh Layer (3DML) database from point shapefiles with individually referenced 3D model files.
- **ITerrainEffect66** - This interface gives the client access to the animation effect object.

## Modern GUI

TerraExplorer's redesign not only provides a new updated look but is better organized so that you can easily find the command or tool you need.



New Ribbon

## Interoperability

- TerraExplorer 6.6 supports import of several additional feature, raster, and model formats:
  1. **Feature:** SQLite, GeoPackage, File Geodatabase (\*.gdb).
  2. **Raster:** GeoPackage
  3. **3D Model:** .Obj, .Ply
- TerraExplorer 6.6 adds a new layer format for new feature layers, enabling you to easily create feature layers in TerraExplorer in either shapefile or SQLite format.

## Drag and Drop

New drag and drop capability lets you easily load MPT, FLY, KML, KMZ, TBP, and MPT files into your project or into TerraExplorer when no project is loaded.

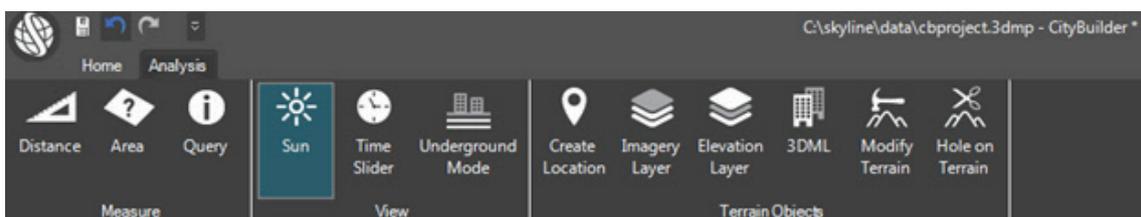
# What's New in TerraBuilder?

## Updated External Libraries

- ECW 5.2.1
- GDAL 2.0.0 (with GeoPackage support).
- LizardTech MrSID Decode SDK 9.0.0.

## Modern GUI

TerraBuilder's redesign to provide a new updated look.



New Ribbon

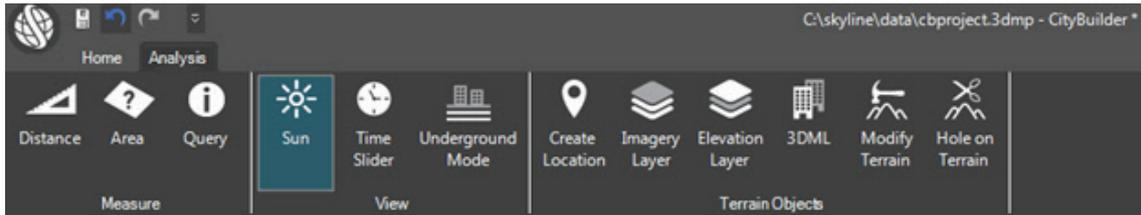
# What's New in CityBuilder?

## BIM Layer Integration

The new CityBuilder release expands layer support to include industry standard, FBX Building Information Models (BIM) files. BIM layers can be imported into CityBuilder along with all their geometry and attribute data and merged with mesh and model layers into a stream-optimized and fully textured urban model.

## Modern GUI

CityBuilder's redesign not only provides a new updated look, but is also better organized so that you can easily find the command or tool you need.



New Ribbon

## Added Support for Terrain Objects and Raster/3DML Layers

The Analysis tab has been vastly expanded to include commands for adding terrain objects and layers to a CityBuilder project, enabling you to visualize how a model will appear in relation to other layers and objects in TerraExplorer's 3D World.

## Model Partitioning

Release 6.6.1 further optimizes streaming and memory usage of large 3D models by splitting them into smaller sub-models.

## Added Support for Skyline's PhotoMesh Models

The new CityBuilder release supports mesh model files (LODTreeExport.xml) created in Skyline's all-new TerraBuilder PhotoMesh application.

# What's New in TerraGate?

## Support for SQLite

TerraGate SFS Web Feature Service can now stream feature layers from SQLite files. This further expands an already significant list of supported data sources that includes Shape files, and ArcSDE, Oracle, SQL Server, and PostGIS databases.

## Cross Origin Requests (CORS) Enabled

The 6.6.1 release's support for Cross Origin Requests increases interoperability by enabling requests from pages hosted on domains other than the SFS domain.

## Updated External Libraries of the DirectConnect Fuser

- ECW 5.2.1
- GDAL 2.0.0 (with GeoPackage support).
- LizardTech MrSID Decode SDK 9.0.0.

## SFS Bug Fixes

Release 6.6.1 includes bug fixes, and increased stability and performance.

# Requirements

## TerraExplorer for Desktop / Web

**Operating System:** Windows® 7 / 8 / 10 - 64 bit recommended

**Processor:** Dual-Core (4 / 8 cores recommended)

**System Memory:** 2 GB of RAM (4 GB or more recommended)

**Video Card:** 512 MB of video memory (1024 MB or more recommended).  
Pixel and vertex shader v3.0.

**Web Browser:** Microsoft Internet Explorer 7 or higher

## TerraExplorer for Mobile

**Operating System:** Android 4.0 and above / iOS 7.0 and above

**Processor:** Dual-Core and higher

**System Memory:** 1 GB of RAM (2 GB or more recommended)

## TerraBuilder - TerrainBuilder

**Operating System:** Windows® 7 / 8 / Server 2003 / Server 2008

**Processor:** Dual-Core (4 / 8 cores recommended)

**System Memory:** 2 GB of RAM (8 GB or more recommended)

**Video Card:** 256 MB of video memory (1024 MB or more recommended).  
Pixel and vertex shader v3.0.

## TerraBuilder - PhotoMesh

**Operating System:** Windows® 7 / 8 - 64 bit required

**Processor:** 4 cores (8 cores recommended)

**System Memory:** 8 GB RAM (16 GB recommended)

**Video 1 GB of video memory (2 GB or more recommended).**

**Pixel and vertex shader v3.0.**

## TerraBuilder - CityBuilder

**Operating System:** Windows® 7 / 8 - 64 bit required

**Processor:** Dual-Core (4 / 8 cores recommended)

**System Memory:** 8 GB RAM (16 GB recommended)

**Video Card:** 256 MB of video memory (1024 MB or more recommended).  
Pixel and vertex shader v3.0.

## TerraGate

**Operating System:** Windows® Server 2003 SP2 / 2003 R2 SP2 / 2008 SP 2 / 2008 R2 / 2012

**Processor:** Dual-Core (4 / 8 cores recommended)

**System Memory:** 2 GB of RAM plus additional 2 MB per concurrent user

**Additional Software:** Microsoft Internet Information Services IIS6, IIS7, IIS8 with .Net 4.0.



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