

## SkylineGlobe 6.5's New Developments

The SkylineGlobe Enterprise suite of applications was created to provide all of the necessary software tools for an organization to implement their own private, 3D virtual globe application or embed 3D visualization capabilities into enterprise applications. The SkylineGlobe tools have been deployed throughout the world in a wide range of markets for diverse applications, including military and public safety command and control, urban planning, large public geo-portals and tourism and real-estate applications. The robust API and flexible architecture allow the SkylineGlobe applications to be deployed as Skyline branded applications, white-labeled or integrated into enterprise applications.

SkylineGlobe has focused recently on incorporating new technologies that enable you to easily transform a standard virtual 3D environment into a stunning 3D visualization with high resolution, photo textured, and highly-optimized 3D models. These developments are complemented by enhanced customization capabilities, expanded editing options, and a new mobile TerraExplorer application.

What's New in TerraBuilder	Advanced Interoperability
City Builder – New Modeling Application	Increased Customization
PhotoMesh – Revolutionary Modeling Technique	API
OGC Web Map Tile Service (WMTS)	TerraExplorer Android App
What's New in TerraExplorer	What's New in TerraGate
New 3D Mesh Layer	Support for 3DML Layers
Improved Performance	OGC Web Map Tiling Service (WMTS)
Productivity Enhancements	What's New in SkylineGlobe Web Package
Enhanced Analysis	

## What's New in TerraBuilder?

### City Builder - New TerraBuilder Modeling Application

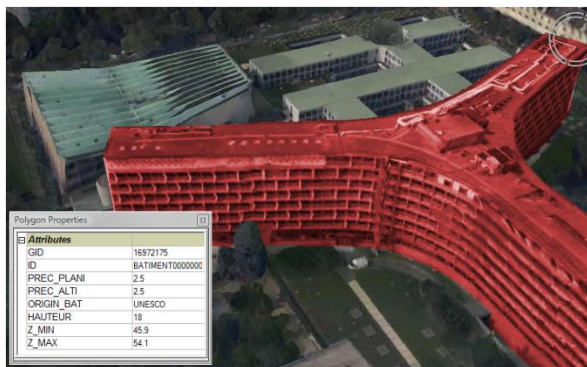
TerraBuilder 6.5 introduces a new application that dramatically accelerates the loading and streaming of 3D models, saving you time and enhancing the viewing experience. With TerraBuilder's CityBuilder, you can easily merge 3D mesh models generated by TerraBuilder PhotoMesh and/or layers with individually referenced 3D models into a stream-optimized and fully textured urban model. These layers are combined, in CityBuilder, with mesh layer classification information to create a 3D mesh layer database (3DML) that fully supports spatial and attribute queries. The 3DML database can be made available to local TerraExplorer clients or published to remote clients using the new TerraGate SFS 3DML service.



### PhotoMesh – Revolutionary Modeling Technique

Showcasing a brand-new graphical user interface and increased functionality, TerraBuilder PhotoMesh creates a set of high resolution textured 3D mesh models from standard 2D images. Featuring standard acquisition requirements (equipment and techniques) and entirely automated processing, PhotoMesh's technology offers a significant reduction in cost and time, compared to traditional modeling methods.

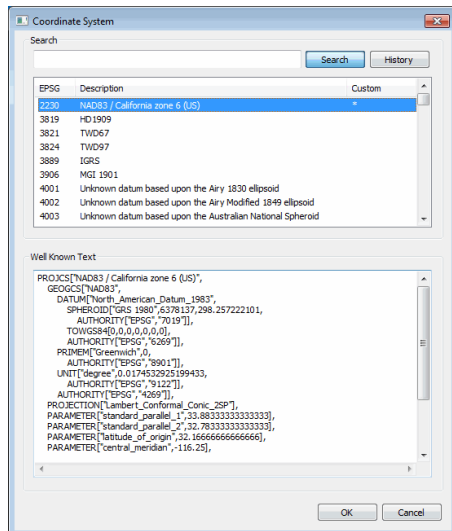
PhotoMesh supports a wide range of input formats and resolutions. Multi-core and multi-computer processing can be utilized to accelerate database creation and publishing of massive data sets. The resulting photo-realistic, consistent 3D model can be easily merged, in CityBuilder, together with classification and identification layers, and other individually-modeled layers, into a single stream-optimized 3D database (3DML) that can be viewed and queried in Skyline's TerraExplorer clients.



## OGC Web Map Tile Service (WMTS)

The new TerraBuilder release increases OGC support to now include the OGC Web Map Tile Service (WMTS). WMTS serves georeferenced map tiles (for increased speed and reduced bandwidth requirements).

## New Coordinate System Dialog Box



New dialog box makes it easier to search for and select a coordinate system as well as create a custom system, when necessary.

## TerraExplorer Android App

With Skyline's TerraExplorer Android App, Skyline extends the reach of 3D GIS from the office to the field itself. The current v 1.0 release with touch screen navigation and mobile-optimized user interface, offers basic tools and capabilities. With this App, you can navigate freely through local and remote terrain databases and 3DML city layers, fly to favorite locations, search SkylineGlobe address server and locate the camera according to your GPS position.



## What's New in TerraExplorer?

### New 3D Mesh Layer (3DML)



The new 3D Mesh Layer (3DML) technology supported by TerraExplorer allows users to load and query fully textured urban models that have been compressed and stream-optimized to accelerate loading speed and efficiently handle memory. 3DMLs are created in TerraBuilder CityBuilder by merging 3D mesh models generated by TerraBuilder PhotoMesh and/or layers with individually referenced 3D models.

The generated 3DML layers are integrated seamlessly into the terrain, and using TerraExplorer's analysis tools, users can perform spatial and attribute queries as well as complex measurements and analysis operations including: distance and surface measurement and line of sight and 3D viewshed analysis.

### Make 3DML Tool

TerraExplorer Pro also offers a set of powerful tools for creating a simple 3DML from point layers with individually referenced 3D models. This allows you to transform your current project in one easy step into a vibrant 3D visualization with high resolution, photo textured, and highly-optimized 3D models.

### Improved Performance

#### Optimized Loading of 3D Models

TerraExplorer 6.5 features several developments that improve performance. 3D model files are now automatically converted into a memory-efficient format to XPL format when loaded, creating a set of files where each file contains data for one Level of Detail (LOD). This ensures stable memory usage even when working with non-optimal formats (e.g. 3DS, DAE etc). To further improve performance, cache files are dynamically created for the files, allowing faster reloading of the model.

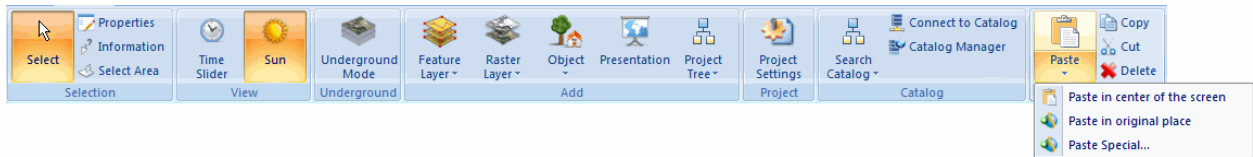
#### Enhanced KML Support

With the new release's enhanced support for KML layers, KML layers loaded into a project are now always read directly from the local or remote data source, instead of being imported and stored in the FLY file. This allows you to easily get the latest source updates by refreshing the layer as well as save edits directly to the KML source file. Automatic refresh events are also now executed on a separate thread, allowing continuous operation and navigation.

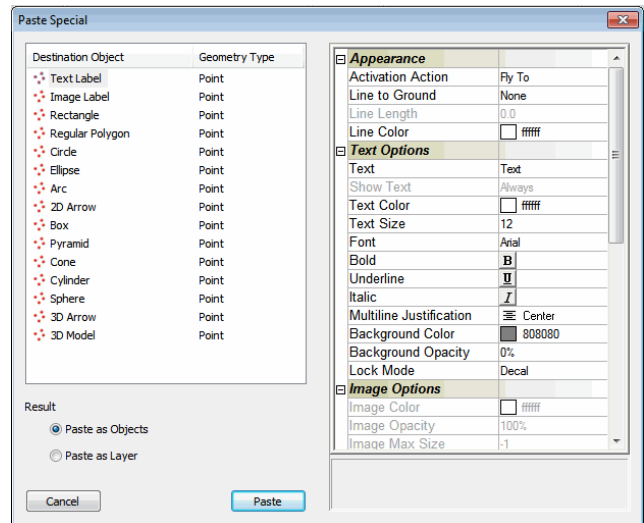
#### Lower Memory Utilization

TerraExplorer 6.5's reduced memory usage shortens rendering times and improves graphics quality and detail, especially for model-rich projects.

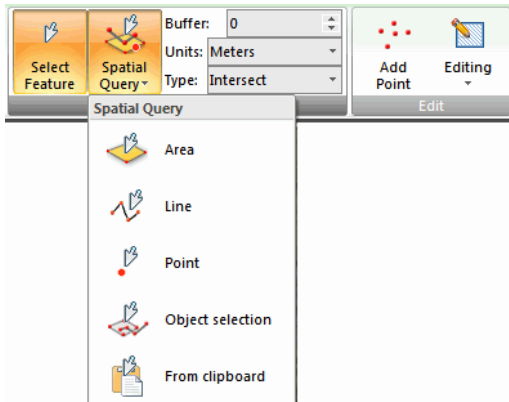
## Productivity Enhancements



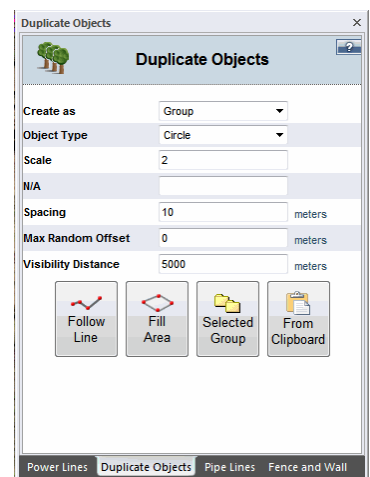
TerraExplorer 6.5's improved clipboard mechanism promotes more efficient methods of creating a 3D visualization, by providing greater flexibility in editing methods. A new Paste Special command enables you to generate any 2D or 3D object based on the geometry of objects in the clipboard (e.g. generate buildings according to properties of selected polygons).



The geometry of objects in the clipboard can also be used as the input for advanced spatial queries, providing you with yet another means of designating the selection area without needing to manually draw it.

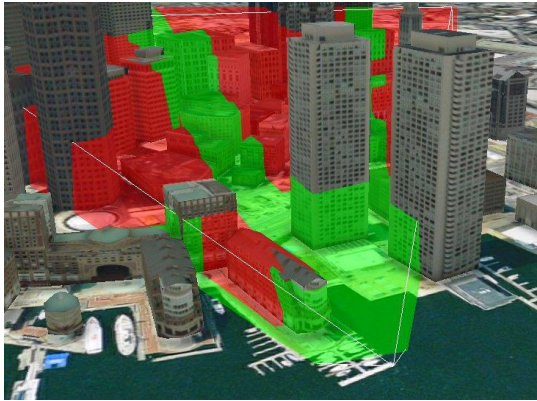


With the improved clipboard mechanism, you can designate the clipboard geometry as the region where you want to duplicate a specific object, making it easier to lay pipelines and power lines, or create fences exactly where you want them. All these clipboard mechanisms are also available from the API.





## Enhanced Analysis and Realistic Rendering



### 3D Viewshed Analysis

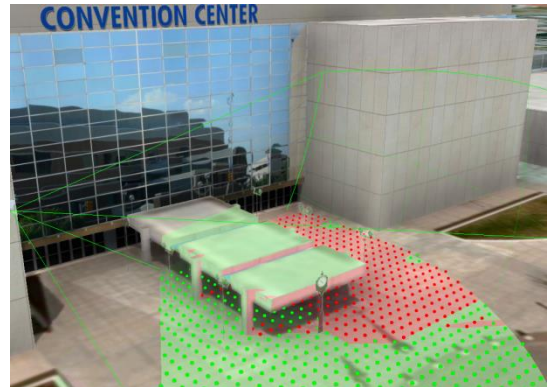
The new release offers expanded 3D viewshed capabilities, enabling results to be analyzed and displayed not only on the bare terrain, but also on buildings and models. This allows users to more easily determine and visualize the optimum location for a look out station, or alternatively the views that would be obscured by a planned building

### Dynamic 3D Viewshed Tool

The Dynamic 3D Viewshed tool provides a graphical representation of the view from a moving object, dynamically changing the 3D viewshed as the object moves. As the object's position changes, the tool precisely marks the sections of terrain, buildings, and 3D models visible from the perspective of the moving object.

### Viewshed Query

The Viewshed Query tool enables you to analyze the visibility from multiple viewshed observer viewpoints to a selected area. The output of the analysis is exported to a point feature layer that graphically represents the visibility of different points in the selected area.

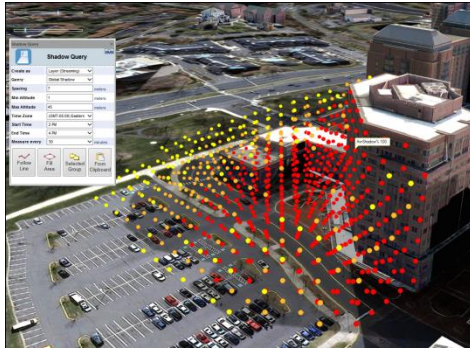


### Shadow Effect

TerraExplorer 6.5 features a new shadow mechanism that can display a shadow effect for an entire scene (including terrain and all 3D models, objects, and buildings), for a more realistic visualization that takes far less time to create than shadow generation per individual object. New shadow settings also let you select the precise color of the shadow to more accurately simulate the actual lighting conditions.

### Selection Shadow

With the new Selection Shadow, you can display a shadow effect for only selected objects so that you can easily visualize the shadow effect of a particular building on surrounding buildings or objects.

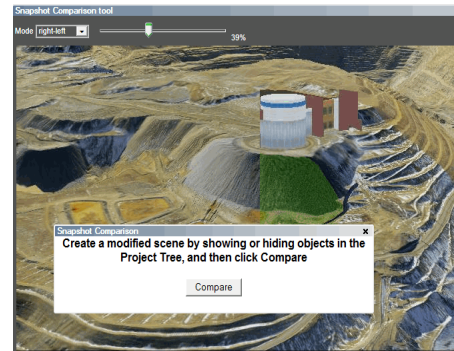


## Shadow Query

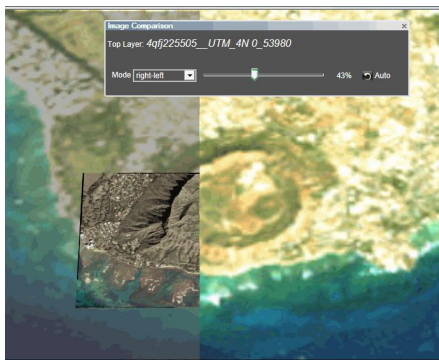
The Shadow Query tool enables you to calculate the shadow effect of a particular building on surrounding buildings or objects, or alternatively, the overall shadow coverage in a specified area over a certain period of time. The output of the analysis is a point feature layer that graphically represents the sun-shadow ratio at different points in the specified area.

## Snapshot Comparison Tool

The new Snapshot Comparison tool allows you to create and compare snapshots showing different versions of the same area by showing or hiding objects in the Project Tree.



## Imagery Comparison Tool



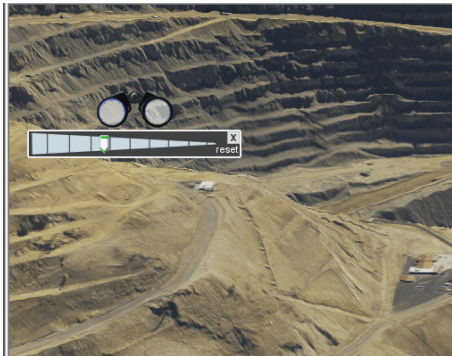
TEP 6.5's new Imagery Comparison tool supports enhanced spatial and visual analysis, allowing you to dynamically clip or modify the transparency of an overlaying imagery layer. This enables you to carefully compare an imagery layer to the base terrain or two images of the same location.

## Slope Query Tool

The Slope Query tool makes it easy to access and visualize valuable slope data about any point in the 3D View. You can easily customize which slope details (maximum slope values, heading slope, coordinate distance) are displayed and display slope alerts and warnings based on your slope requirements.



## Look Around Tool



This new tool serves as a virtual stationary observation deck, enabling you to analyze the view from a specific position. Intuitive controls enable you to easily adjust your yaw and tilt and zoom in and out.

## Advanced Interoperability

TerraExplorer 6.5 has added support for new feature formats, including SQL Server spatial, SQLite, and Office 2010 file formats (.xlsx , .accdb). The new release also increases OGC support to now include the OGC Web Map Tile Service (WMTS).

## TerraGo GeoPDF Extension

The GeoPDF extension allows importing and exporting to and from TerraGo GeoPDF, a geospatial PDF format that conforms to Adobe's PDF standards, while also including georeferencing metadata. Upon importation, the imagery from the 2D TerraGo GeoPDF is visible in the 3D Window as an imagery overlay.

When exporting to a GeoPDF, the resulting 2D GeoPDF will contain toggleable layers accessible from Adobe Acrobat Reader with the TerraGo plug-in. The export includes all imagery and feature layers presently visible in the 3D Window as distinct layers whose visibility can be turned on and off.

The GeoPDF tool available to all Skyline users provides free import functionality, whereas export functionality requires an additional license.



## Increased Customization Options

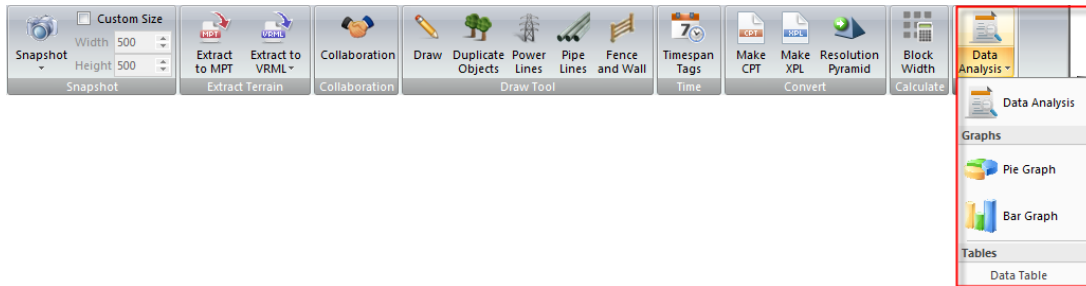
### Enhanced Ribbon Customization

TerraExplorer 6.5's advanced ribbon customization options allow external developers to integrate new custom tools into the TerraExplorer ribbon. Developers can add, delete and reorder ribbon entries, as well as add a range of tool types ranging from floating tools to tools with no user interface and auto-start tools, to create a user interface tailored to their specific requirements.



## TEZ – TerraExplorer Add-on Mechanism

The 6.5 release also offers TerraExplorer developers a new mechanism that simplifies the process of installing add-on tools. The tool can be easily zipped into a .TEZ zip file, and distributed to TerraExplorer users. The TEZ can also be used to provide an alternative Start page or to simply reorder or otherwise modify the ribbon.



## API

### New ObjectID Mechanism

API v6.5 supports all new TerraExplorer capabilities, with new interfaces, properties, and methods for:

- Interacting with 3DML feature layers and 3d mesh model objects (created by TerraBuilder PhotoMesh)
- Calculating and creating 3D viewsheds
- Loading KML layers
- Using expanded clipboard capabilities

In addition to these new capabilities, API v6.5 features an improved ID system. While in the previous API, there were two ID systems, one for items in the project tree (*ITreeItem61.ItemID*) and another for objects in the 3D world (*ID*), in the current API, there is a single object ID that is the sole means of identifying an object. This ID is unique and its value is maintained between TerraExplorer sessions, allowing it to be used for item persistence.

### New Features in Release 6.5.1

#### Publish to Mobile

New functionality enables publishing and immediate uploading of TerraExplorer kits to a mobile device.

#### Spherical 3D Viewshed

3D Viewshed capabilities have been expanded to enable creation of a full 360 degree spherical viewshed for more comprehensive viewshed calculation.

## WMS PNG Transparency Support

PNG **transparency** is now supported for raster layers loaded from WMS, allowing them to be used as overlay layers.

## Bug Fixes

This release improves overall stability and performance.

## What's New in TerraGate?

### Support for 3DML Layers

With TerraGate's new 3DML service, TerraGate can now stream optimized 3D mesh layer databases (3DML) to remote TerraExplorer clients. 3DML Service can stream from 3DML files and from the Oracle Spatial, SQL, and PostgreSQL servers. 3DML databases can be created either in TerraBuilder CityBuilder by merging layers of 3D mesh city models (generated by TerraBuilder PhotoMesh), together with classification layers, and other model layers or in TerraExplorer using the Make3DML tool on point layers with individually referenced 3D model files.

### OGC Web Map Tiling Service (WMTS)

The new release increases OGC support to now include the OGC Web Map Tile Service (WMTS). WMTS serves georeferenced map tiles for increased speed and reduced bandwidth requirements.

### New Coordinate System Dialog Box

New dialog box makes it easier to search for and select a coordinate system as well as create a custom system, when necessary.

## What's New in SkylineGlobe Web Package

Skyline Globe Web Package has been upgraded to support nearly all of the 6.5 TerraExplorer features, including 3D mesh layer (3DML) loading, analysis, and spatial querying and all the new TerraExplorer analysis tools.

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