Skyline it's your world™

SkylineGlobe Pro

Version 2.2

Datasheet

www.SkylineGlobe.com

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Overview

SkylineGlobe Pro is an extension to **SkylineGlobe WebViewer**, a free 3D web application included in the **SkylineGlobe Web Package**. SkylineGlobe WebViewer enables users to navigate through high resolution 3D landscapes created by fusing aerial and satellite photography, terrain elevation data and other 2D and 3D information layers. Only basic measurements and annotation capabilities are available in SkylineGlobe WebViewer.

SkylineGlobe Pro offers users advanced tools for editing, analyzing, and annotating photo-realistic interactive 3D environments. With SkylineGlobe Pro, the user can import feature, imagery, and elevation layers from a variety of sources. SkylineGlobe Pro also enables the user to create terrain overlay information such as text and image labels, buildings, point cloud models, 2D and 3D entities, and predefined routes from standard GIS files and databases. By overlaying unique or proprietary information onto a 3D map, the user creates an exciting, interactive application that can highlight specific features of an area, showing function, relation and proximity along with a distinct view of the area.

SkylineGlobe Pro also provides advanced tools for terrain analysis. This enables a user to easily calculate the best path between two locations and determine all visible segments or areas from a given viewing point.

Product Main Features

SkylineGlobe Pro has the following features:

- Extends the SkylineGlobe 3DExplorer application
- Loads standard online and offline feature layers
- Loads standard online and offline imagery layers
- Loads standard online and offline elevation layers
- Provides all the tools necessary to create rich, 3D terrain visualizations
- Includes interactive drawing tools to create and add geometric shapes, user-defined objects, buildings, text, Point Cloud models, and video clips on a 3D terrain model
- Generates static and dynamic 2D or 3D objects
- Provides a robust set of tools for measurement and terrain analysis

Adding Layers

SkylineGlobe Pro can import the following layer types:

Feature Layer

Feature layer is a visual representation of a geographic data set like roads, national parks, political boundaries, and rivers using geographic objects such as points, lines, and polygons.

SkylineGlobe Pro can import all supported feature layers.

Streaming: SkylineGlobe Pro can load the entire content of the feature layer or stream the data directly from a server or local file. Information from the remote layer server or file is retrieved, added to the terrain, and then removed dynamically based on the camera's position. This option enables you to explore the area without waiting for the entire layer to load.

Styling: SkylineGlobe Pro can perform layer level operations. On this level, the Properties Sheet can be set for appearance and behaviors of the geographic objects contained within the layer with various other layer parameters. For an imported feature layer with a set of attributes containing object level data, advanced layer information can be displayed in the 3D Window.

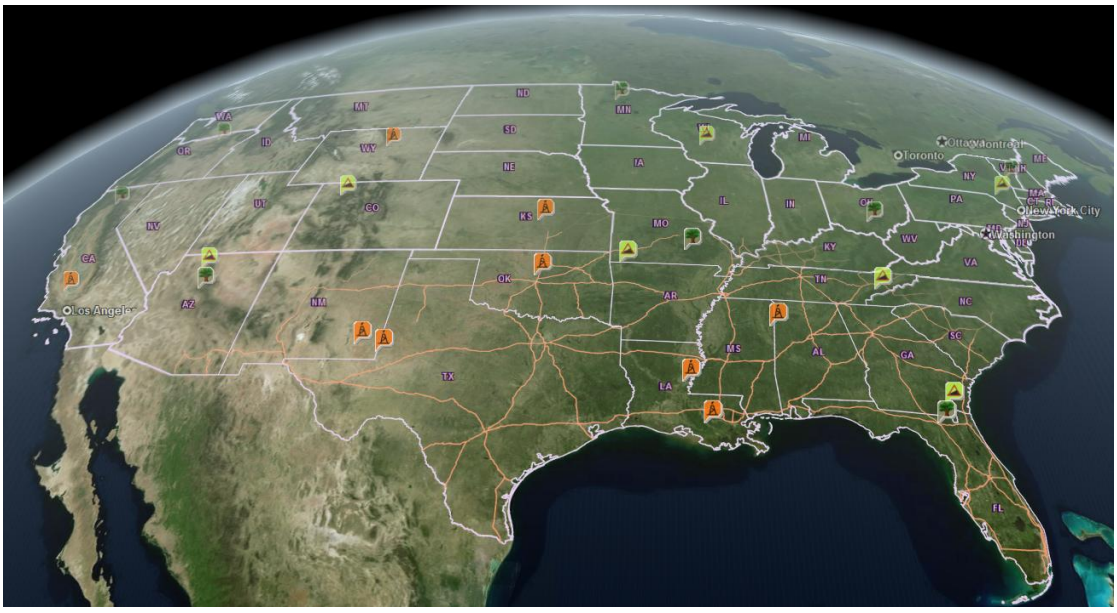

Figure 1: Feature Layers

Layers from the following feature files can be loaded:

- TerraExplorer Project: .fly

- Google Earth: .kml .kmz
- ESRI Shape: .shp
- ESRI Personal Geodatabase - .mdb
- Microsoft Access: .mdb, .accdb
- Excel: .xls
- Text: free format
- AutoCAD DXF: .dxf
- OpenFlight Reference

Feature layers from the following servers can be loaded:

- Web Feature Server (WFS)
- Skyline Feature Server (SFS)
- ESRI ArcSDE Server
- Oracle Spatial Server
- Oracle Database
- SQL Database
- ODBC Database

SkylineGlobe Pro can **save** groups of objects to the following file formats:

- ESRI Shape: .shp
- TerraExplorer FLY Projects: .fly

Imagery Layer

Imagery layer is a geo-referenced, satellite or aerial image that overlays the terrain imagery. The Imagery Layer feature enables the user to add **unlimited size**, geo-referenced, satellite and aerial images directly to a SkylineGlobe Project. A source file that has multiple resolution levels (e.g., Skyline MPU, MrSID, etc.) is visible from any altitude. The layer can be of better resolution than the area on which it is placed. Automatic morphing between the terrain imagery and the Imagery Layer is performed.

Imagery Layers from the following files can be loaded:

- Skyline Image MPU (.Ii.mpu)
- MrSid (.sid)
- ER-Mapper (.ecw ,.jp2, .j2k)
- Erdas Imagine (.img)
- Image files (.bmp, .Tiff, .iTiff, .gif, .Jpeg, .Jpeg200)
- NGA formats (.CIB, .CADRG, .ADRG, .Nitf)
- Tile Text file (.tlt)
- Intergraph MFM raster (.MFM)

- Local Skyline terrain database (.MPT)

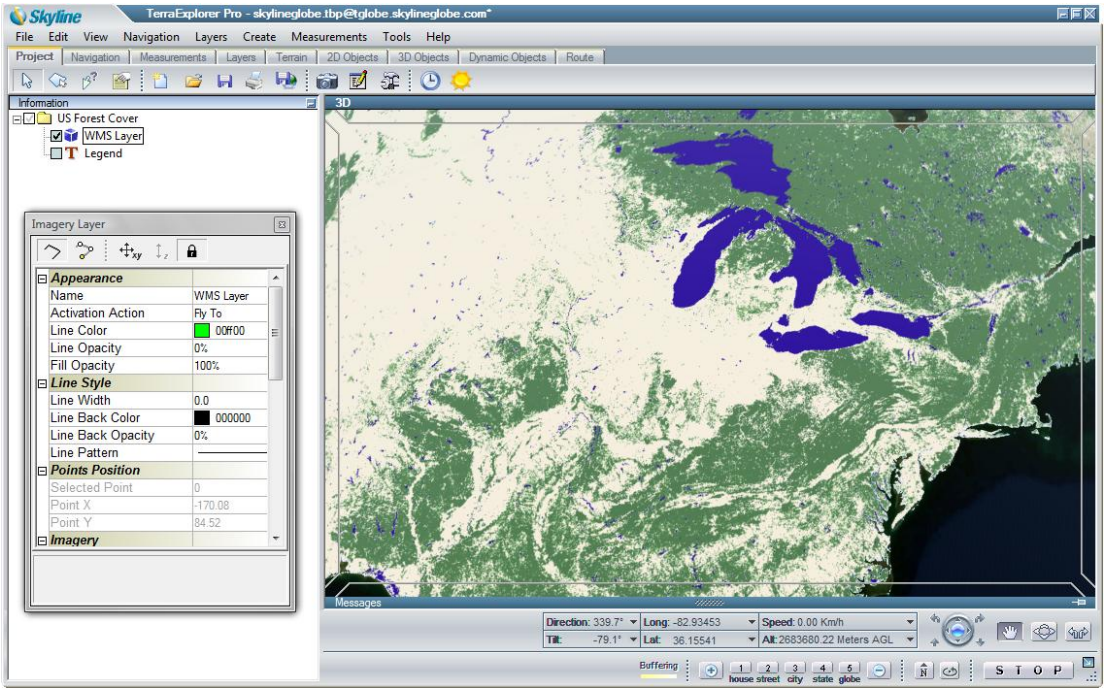

Figure 2: Cloud Coverage Layer from WMS Server

Imagery Layers from the following servers can be loaded:

- Skyline TerraGate Server
- ER-Mapper IWS Server
- Web Map Server (WMS)
- Oracle Image SDO_Raster
- ArcSDE Server

Elevation Layer

Elevation layer is a geo-referenced elevation raster that replaces the elevation data of the terrain database. The Elevation Layer feature enables the user to add **unlimited size**, geo-referenced elevation data directly to a SkylineGlobe Project. The file can be of better resolution than the area on which it is placed. Automatic morphing between the terrain imagery and the Imagery Layer is performed. A source file that has multiple resolution levels (e.g., Skyline MPU, WMS etc.) is visible from higher altitudes.

Elevation Layers from the following files can be loaded:

- Skyline Image MPU (Ii.mpu)
- Window Bitmap (BMP)

- Dted (DT?)
- USGS ASCII Dem (DEM)
- USGS SDTS Dem (DDT)
- Arc/Info Binary Grid (ADF)
- Erdas Imagine (IMG)
- NGA DTED (DMED)
- Tiff Format (TIF)
- Projection Text File (PRJ)
- Intergraph MFM Raster (MFM)
- Local MPT (MPT)

Elevation Layers from the following servers can be loaded:

- Skyline TerraGate Server
- ER-Mapper IWS Server
- Web Map Server (WMS)
- Oracle Elevation SDO_Raster
- ArcSDE Server

Adding Objects

SkylineGlobe Pro provides a set of tools to manually add 2D, 3D, dynamic and terrain objects to the project. The user can create new objects, edit single or multiple objects' parameters using the properties sheet, edit objects directly in the 3D window, and copy /move/delete objects in the 3D window. The objects are organized in the Information Window's tree structure.

Add 2D Objects to the Terrain

The 2D Objects Draw option enables you to add different types of 2D drawing objects to your terrain. You can add text labels, image labels, polylines, polygons, rectangles, regular polygons, arrows, circles, ellipses, arcs and video clips.

Add 3D Objects to the Terrain

The 3D Objects Draw option enables you to add different types of 3D drawing objects to your terrain. You can add 3D Models, Point Cloud Models, Buildings, Boxes, Cylinders, Spheres, Cones, Pyramids, and 3D Arrows.

Add Dynamic Objects to the Terrain

The Dynamic Objects Draw option provides an easy-to-use way to add movement to 3D objects as well as text and image labels. The Draw tool features a set of ground and air vehicles you can add to the project. The route of a ground or air vehicle is set by manually placing way points in the 3D View, or by importing routes from external sources. You can associate a predefined route with a 3D object, image label, text label or virtual object. With virtual objects, a dynamic route is created with no object assigned to it. The user can then attach any object to the Virtual Dynamic object, and it follows the route set for it. Alternatively, the camera can be set to follow the Virtual Dynamic object route.

Add Terrain Objects to the Terrain

The Terrain Draw option enables you to make changes to the terrain model. You can modify the terrain or cut holes in the terrain based on a polygon's shape and elevation. You can also play a video file onto a selected area of the terrain.

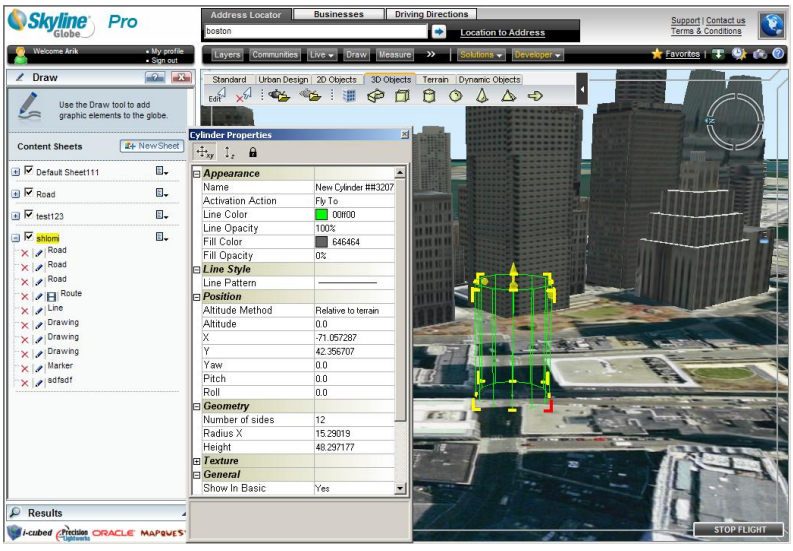

Figure 1: Advanced Editing

Measuring and Analyzing Terrain

SkylineGlobe Pro adds advanced analyzing capabilities to the Measurement tool.

Terrain Profile Tool

The terrain profile tool displays the terrain elevation profile along a path, and related information on this profile such as maximum and minimum elevation values and slopes.

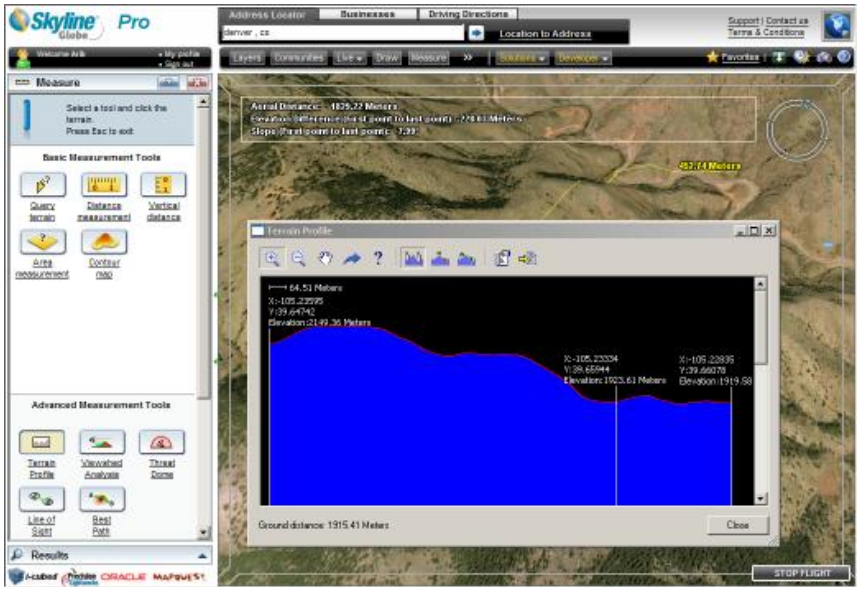

Figure 2: Terrain Profile tool

Viewshed Analysis Tool

The Viewshed Analysis tool provides you with a graphical representation of the view from any defined viewpoint, along a line or a sector, to an end point. This feature takes into account the viewpoint, direction of sight and distance of sight, to portray which areas of the terrain are visible from the viewpoint, and which areas cannot be viewed. The viewpoint can be set at any altitude above the terrain.

Threat Dome Tool

The Threat Dome tool analyzes and displays the area that is visible from a given point in the 3D View.

You can set various parameters, like the Scan field and elevation angle, and analyze different areas for visibility. The tool creates a 3D shape resembling the top half of a sphere that accurately describes the areas viewable from the defined point. In addition, the Threat Dome object is added to the Information Window. Any point inside the Threat Dome can be viewed from the dome's pivot point.

Line of Sight Analysis Tool

The Line of Sight Analysis tool provides a visual indication of whether specific locations in the 3D World can be seen from a selected position. The tool displays a visual marker for the existence of a line of sight from a single observer position to multiple positions in the world.

This feature takes into account the observer's viewpoint, direction of sight and distance of sight, to portray which locations can be viewed from the viewpoint, and which locations cannot be viewed. The observer and target positions can be set at any altitude above the terrain.

Best Path Tool

The Best Path tool calculates the best path between two locations on the terrain without exceeding definable climb and descent slope limits.

The tool creates a line object marked on the ground representing the calculated path. The calculation takes into account the elevation values of the terrain, and implements a heuristic algorithm. The parameters available for the search determine the time and probability of finding the best path.

Sharing Information

SkylineGlobe Pro enables you to freely share the unique 3D worlds you create with others. All layers and terrain overlay information that you add to create your distinct realistic 3D environment can be shared with others. You choose precisely what content to share and with whom to share it. Those individuals can then view that content with the free SkylineGlobe web application. If you want to make your 3D environments available to all SkylineGlobe users, you can easily publish them on the SkylineGlobe public site.

System Requirements

Operating System - Windows 98/2000/Me/XP/Vista

System Memory - 512MB RAM (1024MB or more recommended)

Video Card - 64MB of memory (128MB or more recommended)

Internet Connection - Broadband connection (recommended).

Browser - Microsoft Internet Explorer 6 or higher.

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