

# Leica Virtual Explorer™ Pro Client

## Overview

Not only is Leica Virtual Explorer Pro Client the gateway to the Leica Virtual Explorer digital world, but it also allows geospatial users to further sculpt 3D scenes into their own personal virtual perception. Whether accessing 3D scenes streamed over the Internet or accessed from CD/DVD, Leica Virtual Explorer Pro Clients can independently modify their visualization experience by meshing their own local geospatial content to Leica Virtual Explorer scenes. This includes the local addition of satellite images, geographic terrain layers, GIS vector data and 3D georeferenced models. Leica Virtual Explorer Pro Clients can then remotely navigate and fully analyze spatial relationships of the 3D scene using a comprehensive array of geospatial analytical tools:

- Customize your personal viewing environment by adding local geospatial content and by independently toggling raster layers, terrain layers, vector layers and any other feature layer on and off.
- Smoothly explore the 3D scene controlling speed, altitude and viewing angle using mouse and keyboard controls using five different navigation modes.
- Analyze spatial relationships using a complete array of analytical tools such as measuring slope distances in air space and measuring linear ground distances along 3D surfaces, intervisibility domes and flood layers.
- View / identify feature attribute information and open hyperlinks.
- Play and create movies of predefined flight paths and animations.
- Query feature attribute information by mouse click in 3D scene or using a cell array with attribute filters.
- Record an index of Favorite Locations for quick future access.
- Use the Geocoding feature to quickly find locations around the globe by searching street addresses and area codes.
- Use the Database Search tool to query vector databases and find specific features.
- Join Leica Virtual Explorer Collaboration sessions to collaborate with other users in real-time.

Its added ability to remotely customize 3D scenes and compatibility with the Leica Virtual Explorer Collaboration extension makes Leica Virtual Explorer Pro Client suitable for higher level logistical applications.

- when it has to be **right**

**Leica**  
Geosystems

## Key Features

### Visualize 3D Geographic Data

- Remotely access Leica Virtual Explorer 3D scenes via Internet streaming or CD/DVD distribution.
- Catalog Leica Virtual Explorer Servers, login information and associated scenes for easy future access.
- Reproject geospatial information on-the-fly.
- Define surrounding-cube images to provide an encompassing environment.
- Support for VirtualGIS Projects and Flight Paths
- Leica Virtual Explorer scenes can be quickly and easily customized at any time using the Layer tree:
  - Add and customize the display order of a wide variety of geospatial layers.
  - Independently toggle any layer on and off.
  - Customize the appearance and properties of each layer.
  - Perform routine commands on each layer.
  - "Jump to" each layer.
- Terrain geometry or topographic surface:
  - Add topographic elevation data to any Leica Virtual Explorer scene
  - Any other raster data in the ERDAS IMAGINE image file format (.img)
  - Other raster formats supported directly through raster DLLs (GIF, GRID, GeoTIFF, etc.)
  - Multi-resolution morphing helps render greater terrain detail seamlessly as it comes closer
  - Access terrain in its native format through VirtualDEM technology that enables multi-resolution and multi-source DEMs to be rendered seamlessly without the need to pre-process
- 3D raster drape:
  - Display raster images over any Leica Virtual Explorer scene.
  - Support of aerial photography, satellite imagery, scanned maps and thematic images.
  - Accent raster layers by applying image masks.
  - Customize the pyramid layer behavior of each individual raster layer.
  - Customize each raster's band combination.
  - Enhance raster images by applying histogram stretches.
  - Dynamically apply cut/crop/feather operations to raster surfaces upon scene creation or independently applied to streamed scenes.
  - Adjust contrast/brightness/color of individual raster layers on-the-fly.
  - Distance toggling automatically controls the visibility of each raster surface depending on their distance from the observer.
- 3D vector drape/overlay:
  - Overlay vector features over any Leica Virtual Explorer scene.
  - Drape vector features on any Leica Virtual Explorer scene.
  - Supports ESRI shapefile format GIS feature data.
  - Customize the display colors of each individual vector feature.
  - Automatically label vector features with a user-selected attribute.
  - Create buildings by extruding 2D vector GIS feature sources in the "Z" direction using a user-selected attribute as the height and defining texture images to apply to the sides and roofs of extruded polygons.
  - Open 3D shapefiles, such as those produced by ERDAS Stereo Analyst® and the Leica Geosystems range of GPS surveying instruments.
  - Automatically place symbols along or using vector features.
  - Control the level of detail for vector features through distance-based thinning and generalization for faster rendering.
  - Layer based symbology support for vectors.
  - Retain vector attributes with streaming geometry.
  - Scripted vector attribute querying.
  - Attach hyperlinks to vector features enabling local files to be launched or to link to a web page.
- 3D Textured Models:
  - Load realistic textured 3D models (3D Studio Max, Multigen Openflight and IMAGINE VirtualGIS model layers) onto any Leica Virtual Explorer scene.
  - Use Model Optimizer to optimize fully textured georeferenced models for speed or quality for efficient Web streaming.
  - Interactively place models on 3D terrain using point and click style tools:
    - Model Placer: Place a single 3D model with user specified size at a digitized point or precise, keyboard entered location.
    - Model Coverage – Linear: Place a user specified quantity and size of 3D models uniformly along a digitized line with a customizable height variation.
    - Model Coverage – Polygonal: Place a user specified quantity and size of 3D models randomly within a digitized polygon with a customizable height variation.
    - Bush: Create a user-digitized, closed wooded area with customizable height.
    - Fence: Create a user-digitized extruded, linear feature.
  - Attach hyperlinks to 3D models enabling local files to be launched or to link to a web page.

## Visual Navigation

- Mouse-operated 3D angular pan, zoom and flight control.
- Five unique navigation modes including interactive pivoting around a defined target point.
- Customize each navigation mode (speed scale, minimum height, maximum height) or create new navigation modes with different properties.
- Enter keyboard location parameters for precise positioning.
- User-defined flight paths:
  - Manual digitizing in a 3D view.
  - Keyboard entry of precise flight path vertices.
  - 3D editing and update in the 3D view.
  - Record and playback path flown.
  - View in directions independent of user flight direction.
- Automatically “fly to” selected raster images, vector layers or individual vector features and other GIS features in scene.
- Automatically “fly to” animated objects or follow animation flight paths.
- Save unlimited Favorite Places in a catalog for future return.

## GIS Analysis

Leica Virtual Explorer allows GIS users to fully analyze their data with its broad array of tools useful for GIS analysis:

- Investigate attributes of any GIS data layer or individual feature:
  - Display attribute information on screen by selecting features with mouse.
  - Display attribute information of GIS features in tabular form.
  - Query attribute information using custom filters or script filters.
  - Automatically “fly to” queried GIS features.
  - Change the display color of queried vector features in 3D view.
- Quickly find a location of interest using a built in geocoding service or by adding a custom geocoding service.
- Perform vector database searches for attribute information on several files at once.

## Animation

- Play unlimited number of separate animations.
- Play controls, including play, pause, increase play speed and decrease play speed.
- Render animation to a movie format.

## Custom Scripts and Events

- Create custom scripts to:
  - Create custom objects.
  - Customize the behavior of new or existing objects.
  - Call actions.
- Use Events for the easy and assisted creation of scripts.
- Activate user defined scripts and Events with a variety of triggers:
  - Start up of Leica Virtual Explorer scenes.
  - Upon rendering the 3D view.
  - Shutdown of Leica Virtual Explorer scenes.
  - Entry of a proximity box.
  - Exit of a proximity box.
  - Upon clicking the proximity box.
  - Upon double-clicking the proximity box.

## Analysis Tools

- Intervisibility:
  - Interactively perform intervisibility and threat analysis.
  - Point and click to determine which observers have line-of-site to a particular location.
  - Define single or multiple observation or signal initiation points.
  - Precisely define position, viewing range and color.
  - Generate viewshed domes interactively within the 3D viewer.
  - Attach hyperlinks enabling local files to be launched or to link to a web page.
- Flood analysis:
  - Add water layer(s) to the scene with customized color.
  - Fill depression in the DEM to differing heights.
- Interactively place “billboarded” labels using mouse click or precisely configure position, pointer size and text scale using keyboard entry.
- Interactively place “billboarded” symbols using mouse click or precisely configure position and size using keyboard entry.
- Interactively measure slope distances on the 3D terrain configuring the number of intermediate points used in the distance calculation.
- Interactively measure ground distances along the 3D surface.
- Mark up the 3D terrain with Overlay Tools (filled circle, wire circle, line, polygon and freehand pencil).
- Attach hyperlinks to all analysis tools enabling local files to be launched or to link to a web page.

## Annotation Tools

Customize the appearance of the 3D window:

- Logo:
  - Paste a 2D image over the 3D view.
  - Useful to give credit for movie by giving company's logo or name.
  - Use to create "foregrounds", such as cockpits.
- Paste a 2D Pointer over the 3D view labeling spatial feature that come into view.
- Place a Text Box over the 3D view to display information with customizable text properties.
- All annotation tools are highly customizable:
  - Modify the size and position even after the object is placed.
  - Personalize the background properties of opacity, background color, border color and background image.
  - Customize entrance and exit effects including delay and duration.
  - Play movies in background.
  - Customize text size, position, font, color, display style and marquee speed.

## Supports Leica Virtual Explorer Collaboration

Leica Virtual Explorer Pro Clients have full access to all benefits of Leica Virtual Explorer Collaboration:

- Create, remove and manage public or private collaboration sessions.
- Join and leave collaboration sessions.
- Two way collaboration communication with Leica Virtual Explorer Server to collectively:
  - Add vector and 3D model layers and stream to other collaboration session participants.
  - Measure ground and slope distances, add symbols and labels and calculate intervisibility.
  - Mark up the 3D terrain with filled and wire circles, lines, polygons and freehand pencil.
  - Annotate 3D view with Text Boxes, Logo Layers and 2D Pointers.
  - Digitize bush, fence and texturized building models along with single point, linear and polygonal model coverages.
  - Cut/crop and blend raster layers in 3D scenes.
  - Attach to other collaboration session participants.
  - Chat to other participants in collaboration session chat rooms.