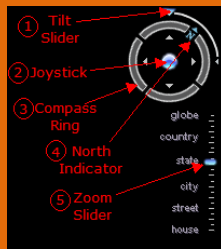




TerraExplorer Quick Start Guide

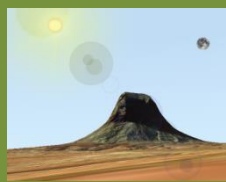
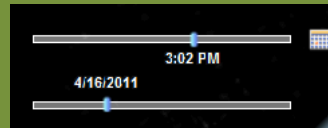
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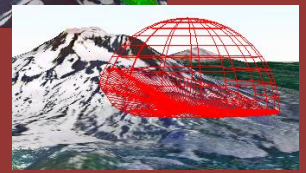
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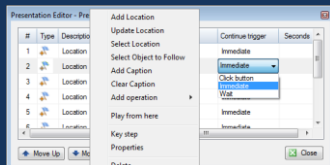
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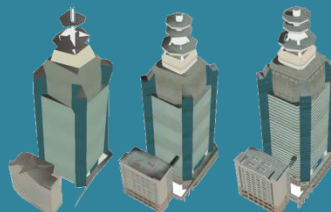
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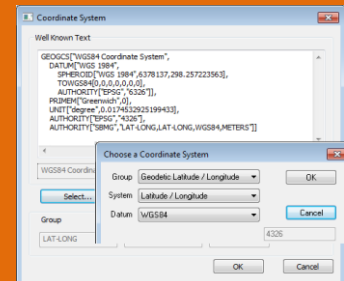
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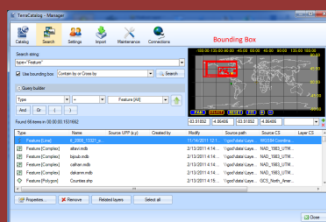
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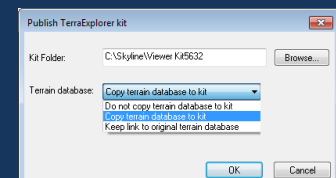
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Opening, Creating, and Saving a Project

TerraExplorer basic commands are available from the TerraExplorer button located at the upper-left corner of the application.

Opening an Existing Project

Click and then click **Open** > browse to an existing .Fly file. You can open a US demo project by clicking the link on the **Start** page.

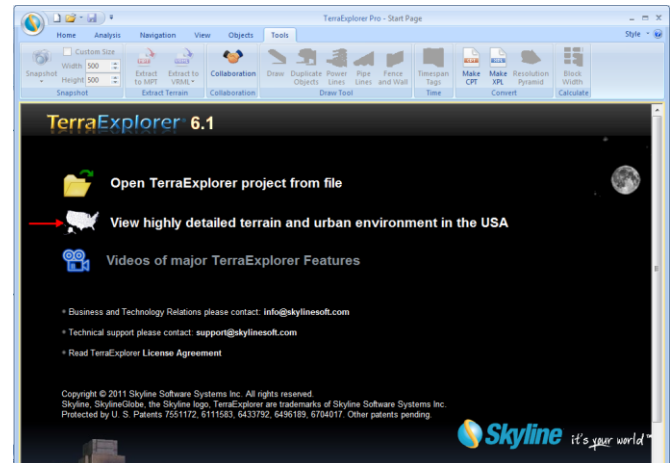
Saving a Project as a FLY File

A .Fly file is a compressed binary file that contains all the project settings and content, and pointers to terrain databases (MPT) or other loaded files.

Click and then click **Save or Save As...**

Creating a New Project

Click and then click **New** > In dialog, browse to required terrain database (MPT), and click **OK** > Define project settings.



Navigating in the 3D Window

Navigate through the 3D World in the way you find most natural and intuitive: navigate freely using on-screen Navigation controls or any of the three mouse modes, or fly to predefined locations or objects.

Viewing or Flying to a Location or Object (Using the Project Tree)

1. In the **Project Tree**, double-click the location or object, or right-click and select **Fly to**, **Jump to**, or **View**. If you view the object, you can select one of the pre-defined flight patterns that compass about the object.
2. To stop a flight to a location right-click in **3D Window**, and select **Stop** or press the **Spacebar**.

Free Flight

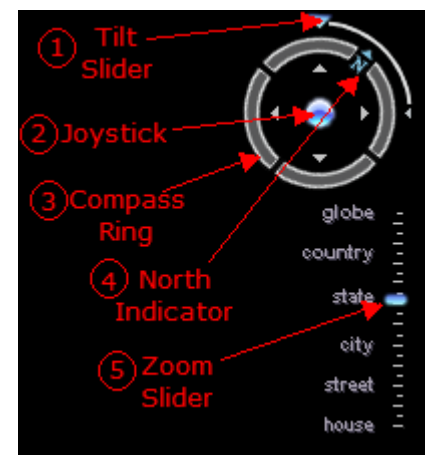
Using the mouse to navigate

- **Navigation** tab > > click a Navigation mode to determine how the mouse controls navigation. In **Drag** mode , do the following:
 - To **pan** – Click and drag the mouse to the sides, forward, or backward.
 - To **zoom** in and out – Roll the middle mouse wheel.
 - To change **direction and tilt** – Click and drag the middle mouse wheel.

Using HUD Navigation Controls:

1. **View** tab > select **Graphic HUD** to display.

① To change plane tilt - Click and drag tilt slider.	④ To look North - Click North indicator.
② To free fly in all directions- Use blue joystick.	⑤ To zoom in and out – Click and drag zoom slider.
③ To change plane direction - Click and drag compass ring.	To slide right, left, forward or back- Click corresponding arrows.



Underground Navigation

1. **Home** tab > **Underground Mode**.
2. Navigate in the 3D environment. You can freely go through the terrain surface in any direction.

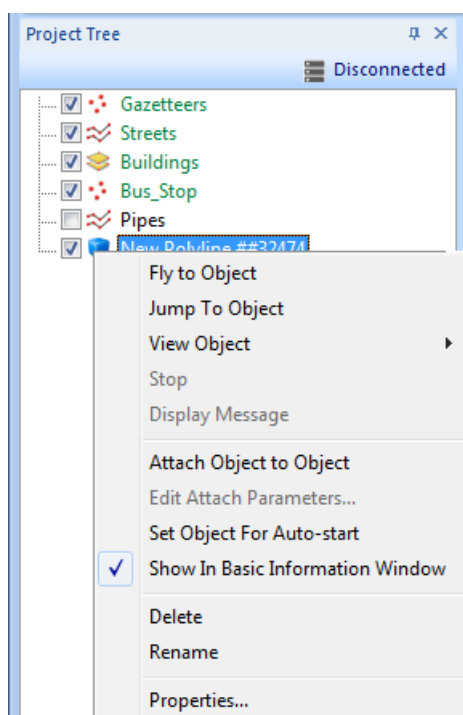
Following a Dynamic Object

- In the **Project Tree** > double-click the required dynamic object.

Managing Projects—Using the Project Tree

The Project Tree provides a list of elements in the terrain that can be sorted and arranged into groups. Using this list, you control the appearance of information in the 3D Window.

Showing and Hiding Objects or Layers in the 3D Window



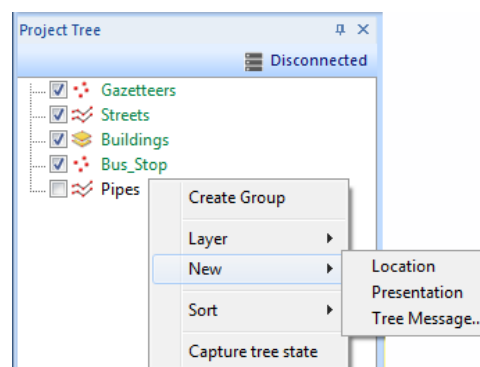
In **Project Tree**, click the object or layer's **show/ hide** icon ☒ to display or hide it in the 3D Window.

Selecting a Tree Item

In **Project Tree**, click the item. Double-clicking performs the item's activation action (fly to, jump to, circle/ oval/ line pattern, etc.) that was set in its property sheet.

Creating and Working with Groups

1. Right-click blank area (root) of **Project Tree** (for subgroup, right-click parent group) > select **Create Group**.
2. Type the name of the new group and press **ENTER**.
3. To move an item into a new group, click and drag it onto group folder.
4. To add a new element to a group, right-click group > point to **New** > select **Location**, **Presentation** or **Message**.
5. To set group properties, right click <group> > **Properties**. In **property sheet**, set parameters.



Creating Locations

1. In the **Project Tree** right-click > **New** > **Location**. Type a name for the location and click.
2. Open property sheet to set activation action or add a message: in **Project Tree** right-click location > **Properties**.

System Requirements

System requirements for installing and using TerraExplorer.

- **Operating System** - Windows® XP/ Vista/ 7.
- **System Memory** – 1GB of RAM (4 GB or more recommended).
- **Video Card** - 128MB of video memory (512 MB or more recommended). Pixel and vertex shader v3.0 is required for dynamic water effects, animated cloud map, and sky texture.
- **Processor** – Pentium IV or equivalent.
- **Internet Connection** - Broadband connection (recommended).
- **Browser** - Microsoft Internet Explorer 7 or higher.

Basic Project Settings

Project Settings, including general settings, terrain parameters, flight model, and application layout are saved in the .Fly file and applied each time this file is used.

To open Settings dialog: **Home** tab > click **Project Settings** > Click required tab.

Environment tab

- Select a **Sky Color** and **Fog Color**.
- Enter a **Visual Range** (largest visible distance to the horizon).
- Select **Sky texture** and **Clouds map** to apply. Select **Clouds speed** and if to enable water effects.

Terrain Database tab

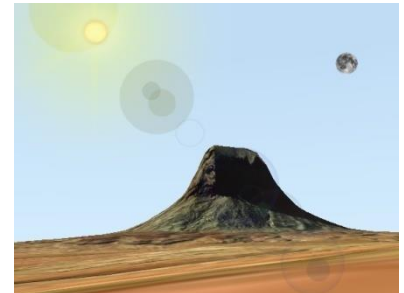
- Select the local or remote **Terrain (MPT) Database** currently used by this project.
- Enter the **Number of Terrain Imaginary (resolution) Levels** that are used to enhance the visual quality when the camera is close to the ground.
- Set the project's **Terrain Coordinate System**.

Date and Light tab

- Control the sun display and the **startup** date and time.
- Select the **Use Sunlight** check box if you want the sun to serve as the light source for the project.
- Select a range and **Date and Time** for the Startup Time Slider.




General tab

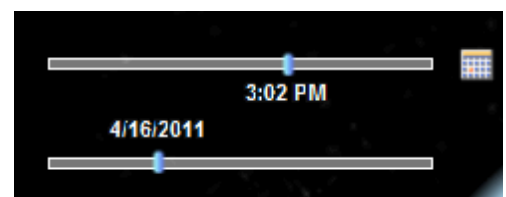
- Set basic parameters for the .Fly file, including startup message parameters.
- Click **Set as Home** to set the current camera location as the default startup position for this .Fly file.
- Click **Add Message** to determine the message to be shown when the project is opened.
- Click **Wait** to set the number of seconds TerraExplorer waits at the beginning of the session.




Controlling Date and Time

When the sun is used as a project's light source, displayed light on the terrain corresponds to the date/ time selected on the Time Slider. Project data containing timespan tags displays on the terrain according to the timespan set.

1. **View** tab > select **Time Slider**. The Time Slider displays in the 3D Window. Drag the blue marker and yellow arrow  together to the required date and time on the slider. If you want to display data whose timespans fall anywhere in a time range, drag the blue marker to the start point of the time range and the yellow arrow to the endpoint of the time range .
2. Click **Date and Time Settings**  icon to the right of the slider to select a time zone, and time slider range. (When a one year range is selected, two sliders display, one for the date, and one for the time of day).



Note: Project startup settings for the date and time can be set in the Date and Light tab in the Project Settings dialog box and are saved in the .Fly file. Any date and time settings made using the **Date and Time Settings**  icon are not saved to the .Fly.

Measurement and Terrain Analysis Tools

TerraExplorer measurement and terrain analysis tools deliver extensive topographical and strategic information, enabling a more accurate geospatial understanding of the terrain.

Measurement, Line of Sight, and Shadow Tools

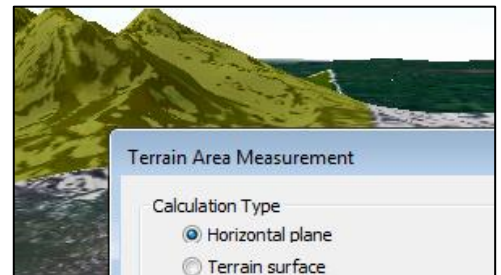
Horizontal/ Aerial/ Vertical Distance

1. **Analysis** tab>Click **Horizontal/ Aerial/ Vertical Distance**.
2. Click any point in the terrain or on an object to define the start point and other segments. Right-click to finish.



Terrain Area (and Perimeter)

1. **Analysis** tab>Click **Terrain Area**.
2. Click to define start point. Drag to additional points and click to define a region. Right-click to finish. > In open dialog select either:
 - **Horizontal Plane** (for horizontal projection).
 - **Terrain Surface** (for surface area)> enter Sample interval> click **Calculate**.



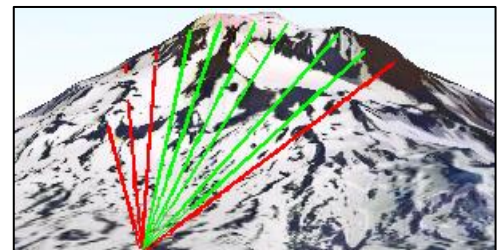
3D Plane Area and Perimeter (of a polygon on an arbitrary plane)

1. **Analysis** tab>Click **3D Plane Area**.
2. Click to define start point. Drag to additional points and click to define a region. Right-click to finish.



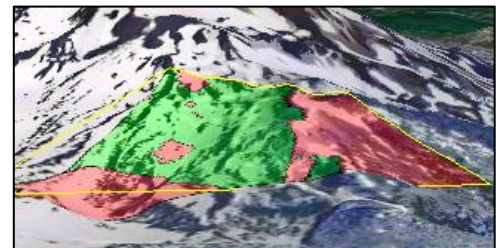
Line of Sight - Indicates whether specific locations in the 3D World can be seen (green line) from a selected position or not (red).

1. **Analysis** tab>Click **Line of Sight**.
2. In **property Sheet**, set parameters > In **3D Window**, click to define observer viewpoint, then click additional times for targets. Right click to finish.



Viewshed - Indicates which areas on the entire selected terrain are visible from the viewpoint (colored in green), and which areas cannot be viewed (red).

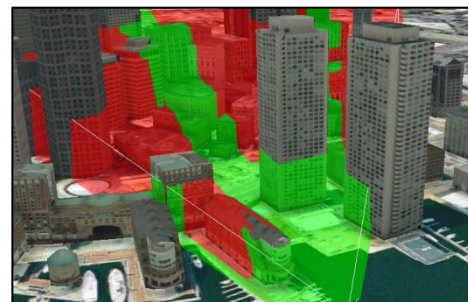
1. **Analysis** tab>Click **Viewshed**.
2. In **property Sheet**, set parameters > In **3D Window**, click to define observer viewpoint, then click for endpoint.



Measurement, Line of Sight, and Shadow Tools – cont.

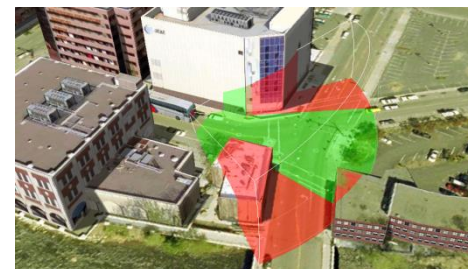
3D Viewshed – Create a 3D viewshed on buildings/ models and on bare terrain.

1. **Analysis** tab>click **3D Viewshed**.
2. In **3D Window**, click to define your viewpoint for the 3D viewshed, and then click again to define your desired end point.
3. In **property sheet**, set parameters such as visible/hidden area color and viewshed **Distance** and **FOV**.



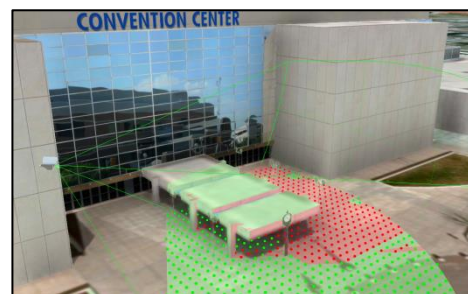
Dynamic 3D Viewshed - Create a graphical representation of the view from a moving object.

1. **Analysis** tab>click **3D Viewshed**>select **Dynamic 3D Viewshed**.
2. In dialog box, set the viewshed parameters, such as Speed and FOV.
3. Select a method of designating the area for the dynamic 3D viewshed (**Follow Line**, **Selected Group**, or **From Clipboard**).



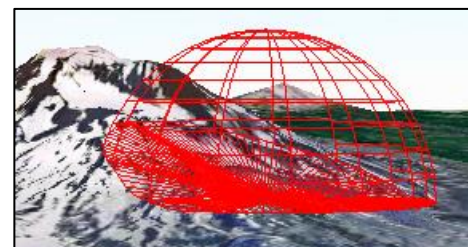
Viewshed Query - Analyze the visibility from multiple viewshed observer viewpoints to a selected area.

1. **Analysis** tab > click **3D Viewshed** > select **Viewshed Query**.
2. In the dialog box, set the **Query** parameter defining which viewsheds are taken into account, and all other parameters.
3. Select a method of designating the area for the viewshed query (**Follow Line**, **Fill Area**, **Selected Group**, **From Clipboard**, or **Viewshed Area**).



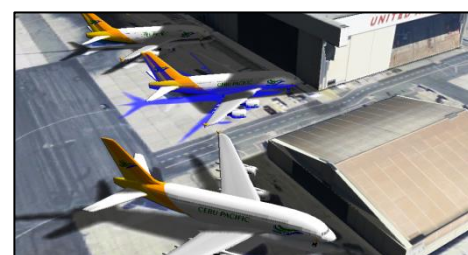
Threat Dome - Indicates the volume visible from a given point on the terrain.

1. **Analysis** tab > Click **Threat Dome**.
2. In **property Sheet**, set parameters > In **3D Window**, click to define pivot point.



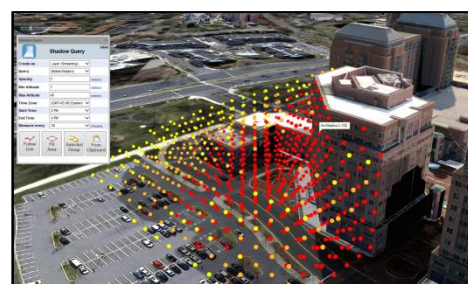
Selection Shadow - Display a shadow effect for selected objects.

1. Select the objects from which you want to cast a shadow.
2. **Analysis** tab > click **Show Selection Shadow**.



Shadow Query - Calculate and graphically represent overall shadow coverage or a particular object's shadow effect in a specified area.

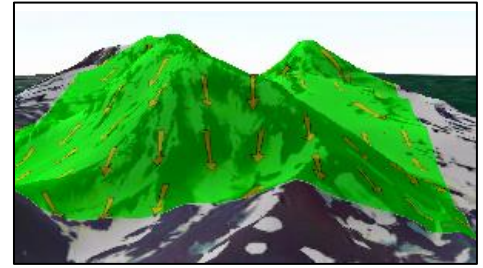
1. **Analysis** tab > click **Shadow Query**.
2. In the dialog box, set the **Query** parameter defining which objects' shadows are taken into account, and all other parameters.
3. Select a method of designating the area for the shadow query (**Follow Line**, **Fill Area**, **Selected Group**, or **From Clipboard**).



Analysis Tools

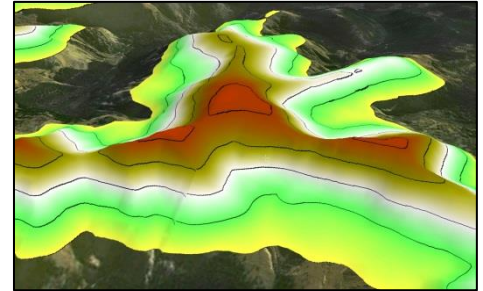
Slope Map - Apply palette colors according to degree of slope and slope arrows to indicate slope direction.

1. **Analysis** tab > click **Slope Map**.
2. Select **Slope Colors/ Slope Arrows**.
3. In **property sheet**, set parameters such as palette and coverage area,
4. Click in **3D Window** to add opposite corners of the coverage rectangle.



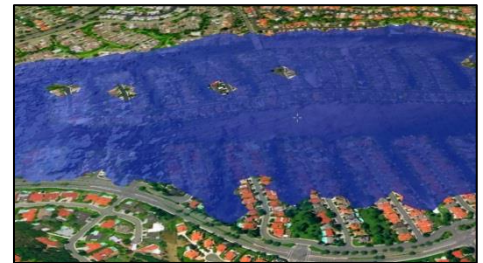
Contour Map - Apply palette colors to each elevation level and connect points of equal elevation with contour lines.

1. **Analysis** tab > click **Contour Map**.
2. Select **Contour Colors/ Contour Lines**.
3. In **property sheet**, set parameters such as contour palette and coverage area.
4. Click in **3D Window** to add opposite corners of the coverage rectangle.



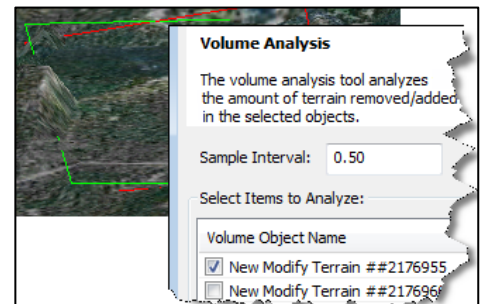
Flood Tool - Calculate land covered by flooding.

1. **Analysis** tab > click **Flood**.
2. In **3D Window**, click center of coverage area.
3. In **property sheet**, set **single instance** of water level rising or **continuous** and related parameters.
4. Drag mouse to required radius size and click.



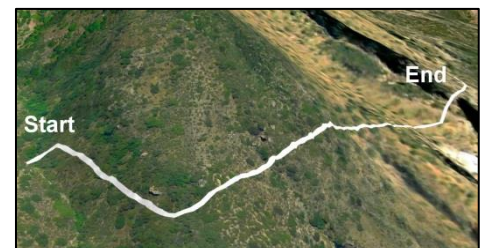
Volume Tool - Analyze amount of terrain removed from or added to the terrain surface.

1. **Analysis** tab > click **Volume**.
2. **Objects** tab > click **Modify Terrain** > Draw a polygon in the **3D Window** to define the terrain area for which you want to modify elevation values.
3. On **Analysis** tab click **Volume** Tool. In dialog box select checkboxes of objects to analyze and click **Calculate**.



Best Path - Calculate best path without exceeding definable climb and descent slope limits.

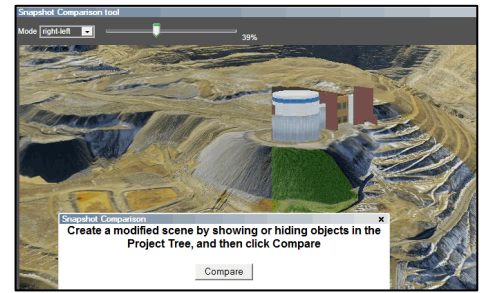
1. **Analysis** tab > click **Best Path**.
2. In **property Sheet**, set parameters > In **3D Window**, click to define start and end point.



Comparison Tools

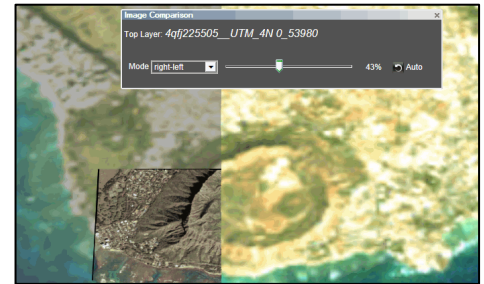
Snapshot Comparison - Create and compare snapshots showing different versions of the area in view in the 3D Window by showing or hiding objects in the Project Tree

1. Navigate to required area and click **Snapshot Comparison**
2. Show/hide objects in the Project Tree, and click **Compare**.
3. **Mode selection** – Choose between four clipping modes and Transparency mode.
4. **Slider control** – Define the clipping or transparency level extent.



Imagery Comparison - Compare 2 imagery layers or an imagery layer to the base terrain by dynamically clipping or modifying transparency of an overlaying layer.

1. Zoom in on an area with a visible imagery layer.
2. **Analysis** tab>Click **Imagery Comparison**.
2. **Mode selection** – Choose between four clipping modes and Transparency mode.
3. **Slider control** – Define the clipping or transparency level extent.



Creating and Editing a Presentation

Easily share your 3D visualization with others by creating a multi-step presentation that can be replayed, in which you combine a customized flight route with a particular display of the project.

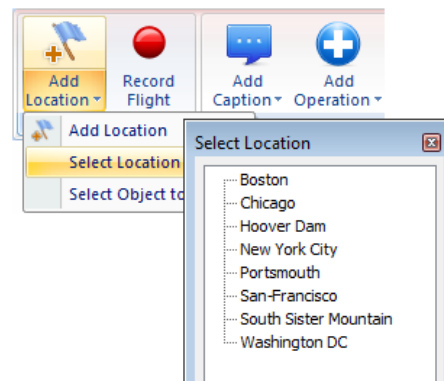
Step 1: Create a flight route – Animate movement over the terrain by recording your navigation or by adding locations

Creating a Recorded Route

1. **Presentation tab > Record Flight.**
2. Navigate freely in the **3D Window** to any location or point of interest. Adjust zoom, tilt, etc.
3. **Presentation tab > Stop Record.**

Creating a Locations Route

- Fly to the required location, and then **Presentation tab > Add Location** OR
- **Presentation tab > Add Location > Select Location.** Select a location from the list of project locations.



Step 2: Animate what is displayed on the terrain

Add presentation steps to:

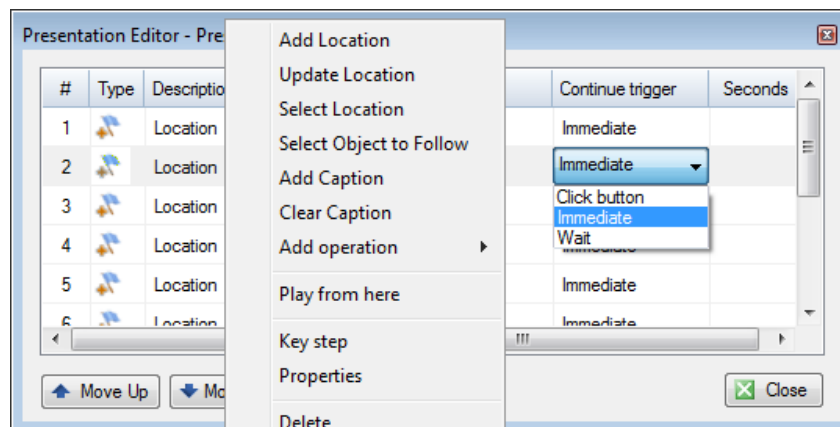
- Determine what is visible on the terrain and in the 3D Window – **Show** or **Hide**: objects, groups, TE tools, and messages.
- **Animate data through time** - Visualize time-based data over time, so that you can see a pattern or trend emerge (e.g. flood progression or city growth). You can also set the Presentation time or Adjust Time Slider Range to Group to affect the visibility of objects and groups with timespan tags.
- Change the speed of the presentation steps or launch a different presentation from the current one.

In **Presentation Editor**, right-click step > click **Add Operation** > select an operation.



Step 3: Edit the presentation

1. **Presentation tab > Edit Presentation.**
2. Add captions when required: right-click step > **Add Caption.**
3. Use **Move Up** and **Move Down** commands to reorder steps.
4. To delete a step, select it and click **Delete.**
5. For each step, select mode for advancing the step: **Continue trigger** >
 - **Immediate** - Next step follows immediately.
 - **Click Button** – Next step follows when **Next** command on the Ribbon is clicked.



Step 4: View Presentation

Click **Presentation tab > Play.** Use the



toolbar to start, stop, pause, rewind, and fast forward.

Creating Movies

Share your 3D visualization even with people who do not have TerraExplorer installed, by creating a movie in AVI format from any presentation in your project. Your movie can then be shown using any standard AVI Viewer.

1. Create a presentation.



1. **Presentation tab > Movie group** > set frame size and number of frames per second.
2. **Presentation tab > Movie group > Create Movie.**
3. Browse to location for movie file.
4. Set **Video Compression** properties.

Basic Objects

Add and edit graphic entities, each with its own styling properties. Objects include: labels, lines, polygons, 2D/ 3D shapes, 3D models, and buildings. Available objects depend on TerraExplorer level. Objects can be organized in Project Tree groups.

Creating an Object

1. **Objects** tab > click <required object>.
2. Click and draw the object in the **3D Window**. Right-click to finish. For 2D and 3D shapes, left-click to finish.

Selecting an Object

After selecting a single object, a yellow frame surrounds the object and the object's property sheet opens. When selecting multiple objects, a yellow frame surrounds each of the selected objects and the Multi Edit property sheet opens.

Selecting a Single Object





- **From Project Tree:** In the **Project Tree**, select the object > On the **Home** tab, click **Properties**. OR
- **From 3D Window:** On the **Home** tab, click **Select** > In the **3D Window**, select the object.

Selecting Multiple Objects

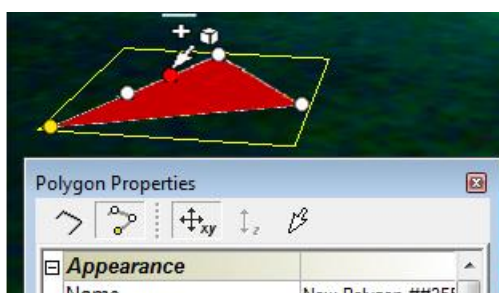
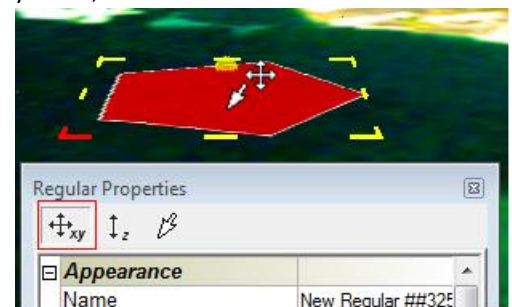
- **From Project Tree:** In the **Project Tree**, select the required objects (Use SHIFT and CTRL to select sequential and non-sequential tree items) > On the **Home** tab, click **Properties**.
- **From 3D Window:** On the **Home** tab, click **Select** > Press and hold the CTRL key > In the **3D Window**, select each of the objects you want > On the **Home** tab, click **Properties**.
- **From 3D Window (all objects in a selected area):** On the **Home** tab, click **Select Area** > In the **3D Window**, draw the area polygon by clicking the mouse (at least three points) and right-click to finish > On the **Home** tab, click **Properties**.



Editing an Object

1. **Project Tree** > Right-click object and select **Properties**. On the top of the property sheet, click:

-  To edit the entire object. Then:
 -  To move object. Then drag to required location.
 -  To change the object's altitude. Then drag to required height.
- To edit **object nodes**, click . Then:

Note: Only polylines, 2D polygons, and 3D polygons (added in TE Plus or Pro) have object nodes.



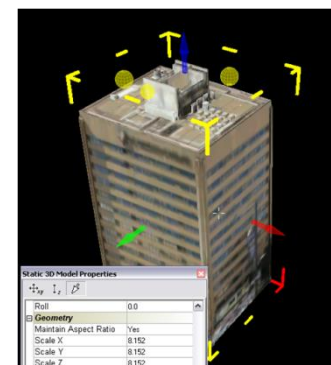
-  to move a node. Then click required node and drag to new location.
-  to change node's altitude. Then click required node and drag to new height.
- To delete a node, point to the node, right-click, and select Delete.
- To add a node, point to one of the object's lines, and click anywhere a red node appears.

Note: Object position and nodes can also be modified from object's property sheet.

2. Set properties such as color, altitude, timespan, tooltip, and texture in the object's property sheet.

Adding 3D Models

1. **Objects** tab > click **3D Model**.
2. In dialog, browse to the required file to load.
3. In **3D Window**, click mouse to define position of model's pivot point on terrain.
4. Adjust the model's position and size in the 3D Window or from property sheet. See: "[Editing an Object](#)."
5. Using the **property sheet**, set the parameters of the 3D object.
6. Drag any of the three arrow resizers in/ out to adjust any of the model's dimensions.



Advanced Objects

Create advanced objects: dynamic objects, modify terrain objects, video, buildings, and 3D models.

Creating and Editing Dynamic Objects

1. **Objects** tab > **Video**, **3D Objects**, or **Dynamic Objects** group> click <required object >.
2. **Property sheet** > **File Name** field > browse for a model file.
3. In the **property sheet**, set **Motion Style** and other properties.
4. In **3D Window**, click mouse to define waypoints. Right-click to finish.
5. For editing, see: "[Editing an Object](#)." Note that object nodes correspond to object's route waypoints.

Creating Buildings

1. **Objects** tab > click **Building**.
2. In **3D Window**, click the mouse to define roof polygon. Right-click to finish.
3. If there is no horizontal offset between roof and base, right click to finish. If there is an offset, drag base to place and left-click.
4. In **property sheet**, set building's properties including height, texture, and roof style.

Video on Terrain and Video Billboard

Play a video file on an area of the terrain or on a floating billboard.

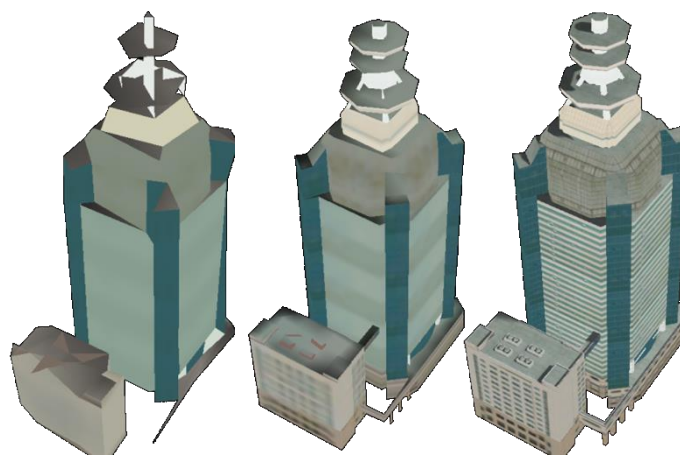
1. **Objects** tab > **Video on Terrain/ Video Billboard**.
2. Browse to a video file. For a streaming video, click **Cancel**, and in **property sheet**, type the **URL**.
3. Set location of video:
 - In **property sheet**, set **Use Telemetry File** to **Yes**, and browse to file
 - In **property sheet**, set **Use Telemetry File** to **Yes**, and in **3D Window**, click to define location.
4. In **property sheet**, set projector properties and other video parameters.
5. To play, pause, and stop video, right-click in **Project Tree** and select required option.



Multi-Resolution City Model – Make XPL

Creates a set of files where each file contains data for one Level of Detail (LOD). TerraExplorer dynamically loads and displays the LOD file based on the viewer position in relation to the object, improving performance and download rate.

1. **Tools** tab > click **Make XPL**.
2. Browse to required **Source** directory and **Output** directory.
3. Select the required settings, including the following:
 - To save all the textures of each of the model's faces in a single file, select **Merge textures to a single texture**.
 - To create LOD files for model geometry in addition to textures, select **Create multi-resolution models**.
4. To create a single XPL file for multiple models (good for small models) > a. Select the **Enable grouping** check box. Then browse to the required **Shape input file** and select a **File name attribute**.
 - b. In the **Output shape file** type a path to a file that will store new models' coordinates.
 - c. Select required check boxes.
 - d. Select a **Maximum group size**. TerraExplorer will create an XPL file that groups the maximum number of models together in each area without exceeding the designated group size.
5. Click **Go**.



Loading Raster Layers

Raster layers include imagery layers containing geo-referenced, satellite or aerial images that overlay the terrain imagery, and elevation layers containing geo-referenced elevation raster that replaces the elevation data of the terrain.

1. **Home** tab > click **Raster Layer** > select **Elevation/ Imagery Layer** from file or from server.

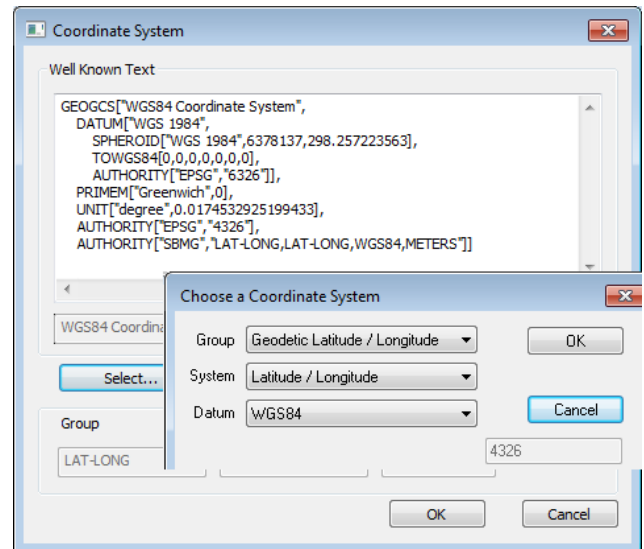
2. In the dialog, browse to the required file, and click **Open**.

3. If loading from server, select the required server, and click **Select**.
In the dialog that displays, enter the information required for the selected server, and select the required layer.

Note: If the source file is geo-referenced it is positioned accordingly on the terrain. Otherwise, it is placed at the center of the 3D Window. You can then manually edit its position, or reproject it.

4. If the source file does not include coordinate system information or TerraExplorer cannot read it from the file, the **Coordinate System** dialog box opens. Specify the coordinate system of the layer. TerraExplorer then reprojects (converts) the layer data to the project's coordinate system. Although the source file retains its original coordinate system, it is placed on the terrain according to the reprojection parameters.

5. After the object has been placed on the terrain, you can change its properties using the property sheet. To clip a subsection of the raster, click the **Draw** button in the **Imagery/ Elevation** section of the property sheet. Place at least three polygon points in the 3D Window by clicking in the desired location. Finish by right-clicking.



Creating Resolution Pyramids

To enable the display of a layer at different altitudes, TerraExplorer requires a number of resolution levels per layer, also known as a resolution pyramid. If a layer does not have sufficient resolution levels, TerraExplorer can create them.

1. In **Project Tree**, select layers that require a resolution pyramid.

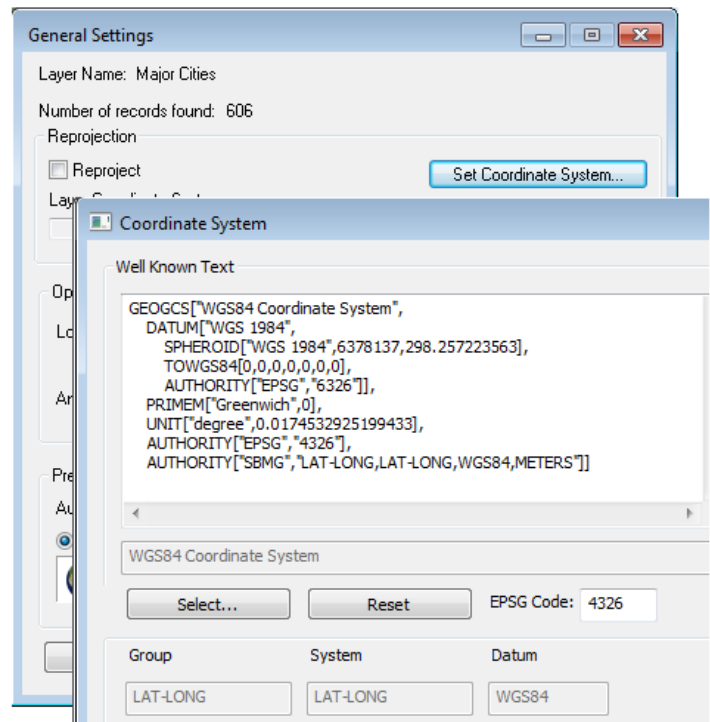
2. **Tools** tab > click **Resolution Pyramid**.

3. In dialog, select layers, and click **Create Pyramid**.

Loading Feature Layers

A feature layer is a visual representation of a geographic data set using geographic features such as points, lines, and polygons. In contrast to objects, all the features in a layer share the same properties and behavior. These properties can be modified from the layer's property sheet.

1. **Home** tab > click **Feature layer**.
2. If loading from file, in dialog, browse to required file and click **Open**.
3. If loading from server, select the server type, and click **Connect**. Fill in the required Connection parameters for the specific server or database, and click **Connect**.
4. Select a layer from the **Select Layer** dialog box and click **Next**.
5. Set the layer's **General Settings**. Then click **Next**.
 - a. If the layer's coordinate system is different from the terrain's, select the **Reproject** check box. Then click the **Set Coordinate System** button to open the **Coordinate System** dialog page to specify the coordinate system of the layer.
 - b. Select **Stream** to retrieve layer information dynamically based on the camera's position. Select **Entire Layer** to load the entire layer when the .Fly file opens.
 - c. Select the **Annotation Symbol** check box to automatically add a point annotation object in the center of each layer feature.
 - d. In the **Predefined Visibility** section, select the viewer altitude from which visibility distance and scale is set to optimum.
5. Select the attribute fields to load. In the **property sheet**, set layer parameters, and apply different properties such as line color or cylinder height, based on the attribute field values of the objects.



Loading 3D Mesh Layers (3DML)

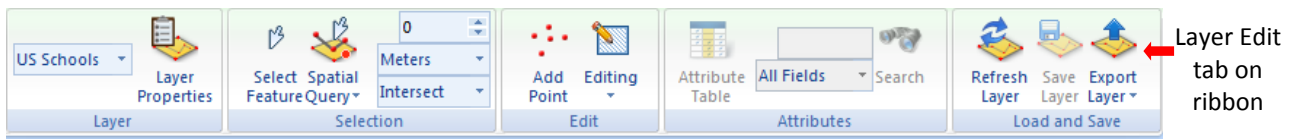
A 3D mesh layer (3DML) is a fully textured urban model that has been compressed and stream-optimized to accelerate loading speed and efficiently handle memory. 3DMLs are created in TerraBuilder CityBuilder by merging 3D mesh models generated by TerraBuilder PhotoMesh and/or layers with individually referenced 3D models.



1. **Home** tab > click **3D Mesh Layer**.
2. If loading from file, in dialog, browse to required file and click **Open**.
3. If loading from SFS, TerraCatalog or CSW, select the server type, and click **Select**. Fill in the required Connection parameters, and click **Connect**.
4. After the layer has been placed on the terrain, you can change its properties using the property sheet.

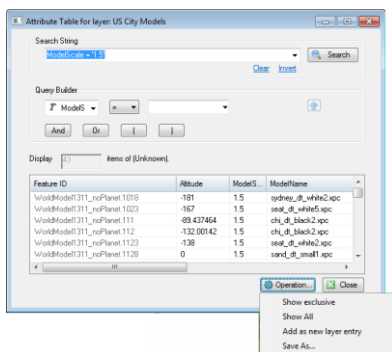
Feature and 3DML Layer Operations

Spatial operations on a layer's features include: merging features into a single feature, clipping one polygon from another, exploding a multi-part feature into its individual component features, and exporting selected features to a new file. Feature layer operations are only enabled for TerraExplorer Pro users. Most operations are also available for 3DML layers.



Selecting Features (Individual Selection or by Spatial Query)

1. In **Project Tree**, select required layer.
2. Select the individual features required:
 - a. **Layer Edit** tab > click **Select Feature**.
 - b. In the **3D Window**, select the required feature. To select multiple features, press and hold the CTRL key. **OR**
3. Select features based on their spatial relationship with a polygon, line or point you draw, or with an existing object:
 - a. **Layer Edit** tab > click **Spatial Query**. Select **Area** (polygon), **Line**, **Point** or **Object**.
 - b. In the **Type** dropdown list > select **Intersect** to select all features whose geometry intersects at any point with the selection geometry. Select **Completely Within** to select only features whose entire geometry falls within the selection geometry.
 - c. In the **Buffer** dropdown list > enter a buffer radius outside the selection.
 - d. In the **3D Window**, click to draw a polygon, line or point or select the required object for feature selection.



Using the Attribute Table: Searching for Features and Editing Feature Attributes

1. In **Project Tree**, select required layer. Then **Layer Edit** tab > **Attribute Table**.
2. In the **Query builder** section, enter an attribute, condition, and value and click **Insert String**.
3. If you want to include additional strings in your search expression, click one of the connector buttons: (And, Or, ()) and repeat step 2 for the next condition. Then click **Search**.
4. To display on the terrain only filtered features, click **Operation** > select **Show Exclusive**.
5. To create a new layer of filtered features, click **Operation** > **Add as new layer entry**.
6. To save the selected features to a new .Shp or .Fly file, click **Operation** > select **Save As**.
7. To modify attribute properties, double-click the attribute value and modify as required.

Exporting Selected Features to a New File

1. Select the required features. See: "[Select Features](#)."
2. **Layer Edit** tab > click **Export Layer** > select **Save Selected Features As**.
3. In dialog, type a **File** name. Browse to the required Save location and click **Save**.

Adding a Feature to a Layer

1. Select the layer. Then **Layer Edit** tab > click **Add** [Polyline, Point, or Polygon].
2. In **property sheet**, set the parameters of the geographic feature. In **3D Window**, place the object's points. Right-click to finish.

Editing Features (Merge, Clip, Intersection, Explode)

1. Select required features (**Merge**: Only polylines/ polygons, **Intersection**, **Clipping**: Only polygons).
2. On the **Layer Edit** tab > click **Editing** and select one of the following:
 - To **merge** features into one feature: select **Merge** > in **3D Window**, click feature whose attributes should be used for merged object.
 - To **clip**: select **Clip** > in the **3D Window**, click the polygon to clip from the other polygons.
 - To create a new feature from **intersection** of features: select **Intersection** > in the **3D Window**, click the polygon that should determine the attributes.
 - To explode a multi-part feature into component features: **Layer Edit** tab > click **Editing** > To explode all features: select **Explode All**. To separate out only specific features: select **Explode**. Then, in **3D Window**, select features to separate out.



Saving a Layer

- On the **Layer Edit** tab, click **Save Layer** to save changes to original layer or Click **Export Layer** > **Save As** to save to a new file.

Working with TerraCatalog

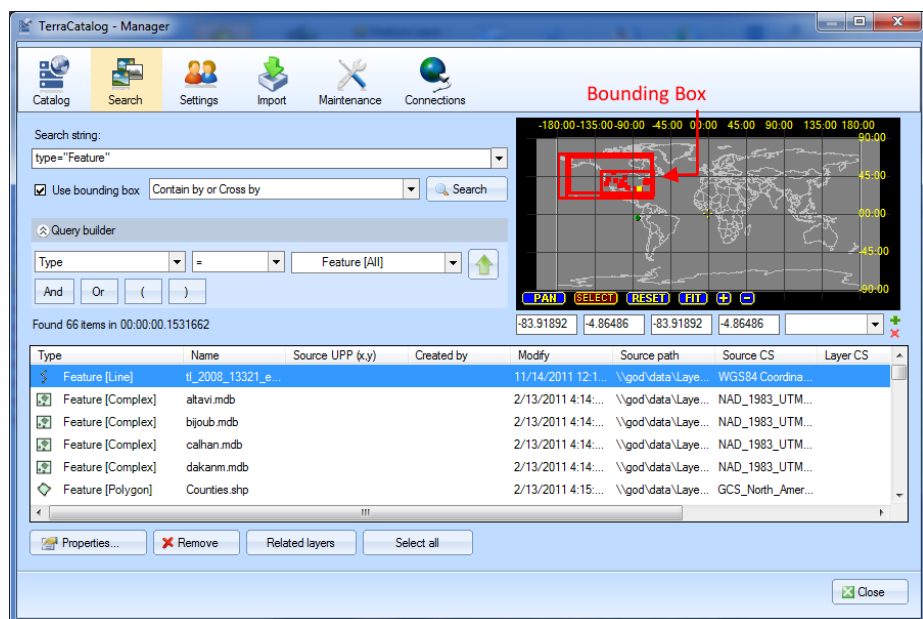
TerraCatalog is a catalog database that enables you to easily locate geographic data and load it into a TerraExplorer Project. When a project is bound to TerraCatalog, any modifications to this layer within the TE project update the catalog.

Connecting to a Catalog

1. **Home** tab> click **Connect to Catalog**.
2. In dialog, browse to **Connection file**, and type **User name** and **Password**. Click **Connect**.

Searching the Catalog

1. **Home** tab> **Search Catalog**. Select the layer type you want to search for.
2. To search according to geographic location, in dialog:
 - a. Select **Use bounding box**, and then select a geographic region by: selecting from drop-down, typing its coordinates, or selecting it on map.
 - b. Select **Intersect** to search for any sources that intersect with defined region.
 - c. Select **Contain or Cross by** to search only for sources that are entirely contained within defined region, or whose border intersects with region's border.
 - d. Click **Search**.
3. To search by query, in dialog:
 - a. Click **Query builder** button.
 - b. Enter attribute, condition, and value and click **Insert String**.
 - c. Click **Search**.



Loading a Layer from Catalog

Search > In dialog, select required layer and click **Open**.

Viewing and Modifying Layer Information

Search > In dialog, select required layer and click **Properties**.

Importing Sources into Catalog

1. **Home** tab > click **Catalog Manager**.
2. On **Manager** page > Click **Load**.
3. On **Load** page, browse for required file or folder, enter required information, and click **Load**.

Collaborating over the Network with Other TerraExplorer Users

Connecting over the internet/intranet, multiple users can work together in the 3D environment: chat, annotate the terrain with text labels and free hand drawing, synchronize flight, and share content by dragging any object/layer to a shared folder. One user serves as the manager of the session, while the rest connect to the session as clients.

The collaboration server can run on a local computer of one of the session members, or as part of an existing TerraGate server (to enable better management and control and to solve security problems when accessing end-user computers behind firewalls).

When a collaboration server is activated, using the Start Local Session request, it serves the current session on a local machine and after the termination of the session the server shuts down. When the collaboration server is set up as part of the TerraGate server it is always up and running.

Joining or Opening a Session

1. **Tools** tab > click **Collaboration**.
2. Select a connection type:
 - **Local session**—To start a communication server on your local computer, and serve as manager and leader of the session.
 - **New session on server**—To create a new session on a TerraGate server of which you are the manager and leader. Then type the **Server host name** (name or IP address of the server).
 - **Join session**—To join an ongoing session opened by another user on a local computer or on a TerraGate server. Then type the **Server host name** (name or IP address of the Manager's local computer or the TerraGate server).
3. In the **Choose Session Name** field, type the session's name. If you join an ongoing session, type the session name that was given by the manager.
4. In the **Choose User Name** field, type a user name.
5. If you started a local or a server session, from the **On User Connection** drop-down list, select whether to send the Fly project or link to users who join the session.
6. Click the **Start Session** button to create the session or **Join Session** to join an ongoing session. A second Collaboration dialog box opens.

Managing a Session

If you created the session:

- To appoint a different leader, in **Participants** list, select name >click **Set as Leader**.
- To send your camera position to other participants, select **Broadcast location**.

If you joined a session:

- To attach your 3D Window to leader's view, select **Follow leader** check box. Clear to navigate freely.
- To invite participants to session, click **Invite** button. Then in the **Enter Email(s)** field, type the e-mail address. Click **Invite**. Follow the instructions in the message body and send the mail.

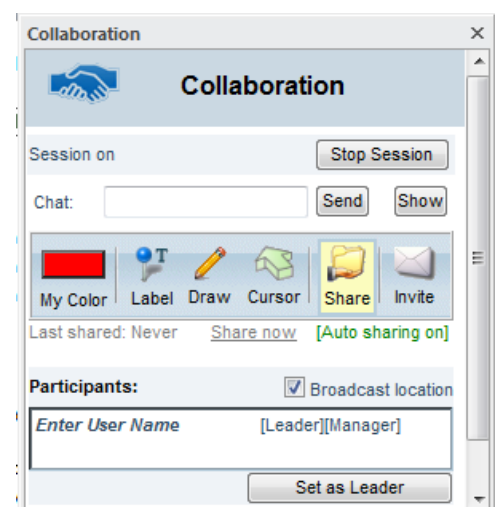
Collaborating with Other Session Participants

You can chat, point, draw freehand, add and place text labels, and share content with other participants in the session.

Loading .Fly and KML/ KMZ Files

When another TerraExplorer project (.Fly layer) or KML/KMZ file is loaded in TerraExplorer, the geographic content is read and put in the Project Tree as a group.

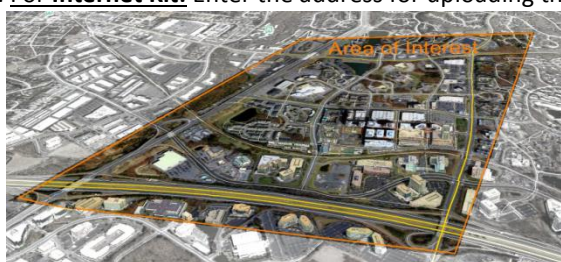
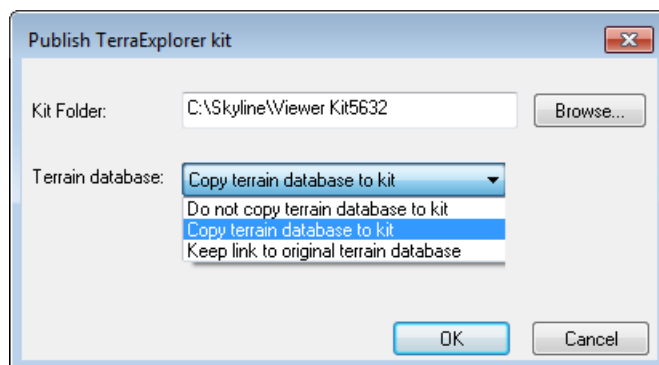
1. **Home** tab > click **Feature layer** > select **.fly** or **kml/ kmz**.
2. In dialog, browse to required file and click **Open**.



Creating Projects for Distribution—Publishing TerraExplorer Kits

The Publish TerraExplorer Kit process collects all the files that are used in the project and stores them in the target directory.

1. Save project.
2. **Home** tab> click **Publish** > select one of the following: **Local Kit/ Internet Kit/ Extract and Publish as Offline Kit**.
3. In the dialog that opens, in the **Kit Folder** field, enter or browse for the name of the folder that is to contain the kit files.
4. For **Local Kit**:
 - a. In the **Terrain database** field, select whether to copy the terrain database to kit, to keep a link to database, or not copy (to save space).
 - b. Select the **Include TerraExplorer install kit** check box for user who doesn't have TE installed > Click **OK**.
5. For **Internet Kit**: Enter the address for uploading the header file and data.



6. For **Extract and Publish Area as Offline Kit** (Create a directory for offline use that contains the terrain, layers, objects, and resources of a selected subset of the TerraExplorer project).
 - a. In the **Properties** section of dialog, click **Set Polygon** and mark area of interest by drawing a clip polygon in **3D Window**.
 - b. When updating existing offline kit, if want to accelerate process by skipping terrain and layer extraction for existing files, select relevant check boxes.> Click **Publish**.



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