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Interface Notes

Following is a summary of important points concerning the **Fountain** interface:

- To select a tool, click on it with the left mouse button. If the tool uses control panels to adjust settings, etc., they automatically open. Right-click on a tool to open its property panel, if it has one. These panels automatically go away when another tool is picked with the left mouse button.
- The tool icons themselves give indication of available mouse actions by using small triangles at the top left and top right corners of the icons. A small blue triangle in the top left corner of an icon indicates that a pop-up list of tool variants is available. A small red triangle in the top right corner of an icon indicates that there is a property panel available for this tool.
- Left click and hold brings up a menu of tool variant icons.
- If you select a tool, then decide not to use it, simply move the mouse away from the tool before releasing the mouse button. Active, highlighted tool icons and settings buttons appear blue and "pushed in." Also, tool icons that are not currently available, for example because no object is selected, are "grayed" and cannot be selected.
- Right click brings up a tool's property panel. To access a variant's property panel without invoking the variant, use the right mouse button, and drag to display the pop-up menu.
- When a tool's property or control panel is accessed, the panel itself may be moved anywhere in the workspace by clicking and dragging the panel away from the tool icons. The panel will remember its previous position when it is next opened.
- To close any panel manually, right click on in any gray area in the panel or on a panel button, and drag outside the panel. When you see an "X" appear across the entire panel, release the mouse button, and the panel will be closed.
- If the titles option is enabled (in the preference settings), you can close a panel by clicking on the close box in the top left of the panel. You can close all panels in the workspace by pressing the Close All Panels button .
- Control and property panels automatically open in a special left-to-right queue formation immediately above or below any displayed tool groups. If there is no more room for panels immediately next to the menu bar, the queue is continued immediately above (or below) the previous row. If a queued panel is closed or moved to a different part of the screen, the remaining panels close ranks (that is, those following the removed panel advance to fill in the gap).
- To place a panel at the end of the queue, drag it to within a few pixels of the menu bar or any groups thereon. To insert a panel at a specific location in the queue's first row, drag it to that location, placing the panel's bottom (or top) edge within a few pixels of the menu bar.
- To move a non-maximized (smaller than full-screen) view window, click on the text box near the lower left corner and drag the mouse.
- Initially the menu bar appears at the bottom of the screen; you can position it at the top by selecting the Top Menu item in the File menu's preferences panel. If the **Fountain** window is not at full-screen width, you may not be able to see all menu headings.

Wireframe vs. Solid Display

This tool determines how the scene is drawn while you work within **Fountain**. You can opt to work in wire mode for Point editing, etc... or use Intel [3DR](#) to render your scene in real time as you work. Right click on either variant to open the Render Quality panel where the smoothness maybe set for the solid mode as well as textures, enabling the solid grid, and displaying the background image in the workspace.

Render Wire

This tool serves two functions. It can be used to refresh wireframe display in the current window or to disable solid rendering. In wire mode, selected objects are white and unselected are blue.

Render Solid

Choosing this option switches the current display mode in the current window from wire display to real time solid rendering. A 3D cursor follows the currently selected object or group of objects but changes to the shape of a local axis when the hierarchy is navigated through to display the current hierarchical level.

Related Topics:

[Render Quality Panel](#)

[Draw Modes](#)

[3DR](#)

Render Quality Panel

Faceted

No smoothing is performed. However, shading within individual faces is performed. This mode is faster than smooth rendered.

Smooth

Smooth shades objects in the scene.

Textures

Enables the use of textures while shading objects in solid mode. This is the slowest mode of solid operation. The pop up labeled [Texture Res](#) allows you to set the maximum resolution textures displayed while rendering.

Solid Grid

Turns on the solid grid for the solid mode window. Solid grids are helpful for the placement of lights in your scene but will slow down redraw time if you don't have a 3D accelerator.

Display Lights

Toggles the display of lights in the workspace.

Display Cameras

Toggles the display of cameras in the workspace.

Related Topics:

[Texture Res](#)

[Scene Detail](#)

[Default Lights](#)

[Background](#)

Texture Res

This pop up allows you to set the maximum resolution textures displayed while rendering. The higher the resolution, the slower the render. Changing the display size of textures does not change the actual texture nor does it affect the quality of the final render. Please keep in mind that some hardware accelerators will not support textures.

Scene Detail

These settings affect the way the scene is redrawn. Render All is the most detailed representation but you can speed up your work significantly with complex scenes by choosing Always Boxes. More information can be found in the [Draw Modes](#) section.

Boxes

Unselected objects will switch to boxes while the selected object is manipulated.

Always Boxes

Unselected objects will always be displayed as boxes until a new selection is made.

Wireframe

Unselected objects will switch to wireframe while the selected object is manipulated.

Always Wire

Unselected objects will always be displayed in wireframe until a new selection is made.

Render All

All objects are rendered.

Default Lights

This pop up contains three choices for default lighting. Selecting a new light choice deletes all lights in the workspace and replaces them with the new default setup.

White Lights

These are four infinite lights pointing towards the center of the workspace. These lights provide sufficient illumination from all angles and are good for modeling.

Colored Lights

These are three local lights of different colors arranged in a triangle formation over the workspace. Colored lights give a better sense of depth while working in solid mode.

No Lights

No default lights are placed in the scene.

Background

You can set a solid background color or specify a background image for rendering.

Background Color

To set a color, select the Background Color button. An RGB dialog appears that allows you to set a color with the mouse and sliders, or click on the number boxes and set new values from the keyboard. The background color also applies to the workspace color while working with a solid mode view.

Background Image

To set a background image, click on the Background Image File Name button and select an image file from the file dialog. If the image is not the same size as the main view, **Fountain** automatically scales it to the proper size. Use the Background Image switch to enable and disable use of a loaded background image.

Draw Modes

Fountain has three ways of displaying objects:

Bounding Box Mode

Box mode temporarily displays bounding boxes for objects to greatly decrease redraw time and works within the other draw modes. The threshold for switching to bounding boxes is controlled in the preferences panel. A large number redraws all objects either in wireframe or solids during manipulation and a small number will temporarily switch unselected objects to boxes. The Preferences panel is found under the File menu.

Wire Mode

Objects are drawn as transparent wireframes consisting of vertices, edges, and faces. Wire mode is most useful for point editing.

Solid Mode

Objects are shaded and may also have textures displayed. The effects of lights on a scene are rendered in real time for production oriented design. **Fountain** takes advantage of Intel's [3DR](#) real time rendering technology.

3DR

3DR is a high-performance 3D graphics library, from Intel Corporation. 3DR is optimized for the Pentium processor. 3DR provides a fast, software-only rendering engine for the Windows* family of operating systems. Applications developed using 3DR enjoy transparent access to advanced features found in a wide variety of today's graphics subsystem hardware

Fountain uses 3DR to offer real-time Shaded Graphics Modeling. No specialized hardware is required. However, as newer (3D Accelerator) graphics cards are made available, with drivers that support the 3DR library, **Fountain** will be able to take advantage of them for increased performance.

View Tools

[View from Object](#)

[Perspective View](#)

[New View](#)

[Close All Panels](#)

[Look at Current Object](#)

[Reset View](#)

View from Object

This sets the main windows's point-of-view to that of the currently selected object. Generally, you would use this tool while a camera is selected, although you are not required to do this.

The icon for this tool is in a pop-up panel, along with the Perspective View icon.

Perspective View

This sets the main window back to a perspective view. This is done after you have switched the window to View from Object.

The icon for this tool is in a pop-up panel, along with the View from Object icon.

New View

This opens a smaller view window, showing the current scene in solid mode. **Fountain** can only have one such window open at any one time.

If you open the new view while in Browse Mode, the view will be from the current camera, if any.
If you open the new view while in Edit Mode, the view will be the standard perspective view.

Close All Panels

All open panels are automatically closed.

The icon for this tool is in a pop-up panel, along with the [Look at Current Object](#) and [Reset View](#) icons.

Look at Current Object

In Perspective view, this tool centers the eye to point at the current object. Look At Object has no effect on a camera view. To use Look at Object select the object to which the view is to be oriented then select the Look at Object tool.

The icon for this tool is in a pop-up panel, along with the Close All Panels and Reset View icons.

Reset View

This tool let you return the main window's view to its default settings. In Perspective view, the default view is the one in which the program always starts, with the "eye" pointed diagonally down at the working grid, situated halfway between the X and Y axes. If the window is set to Camera view, this tool doesn't affect it.

The icon for this tool is in a pop-up panel, along with the Close All Panels and Look at Current Object icons.

Undo Tools

Undo

The Undo Tool reverses previous operations. Undo remembers not just the last operation, but several operations back. Repeated clicks on Undo lets you continue to "back up" as far as you like.

Redo

The Redo tool repeats the last operation undone by Undo. Repeated clicking on Redo after an Undo causes the operation to be applied cumulatively as many times as the button is clicked on. For example, move an object, then click on Undo. It moves back to its original position. Click on Redo. It moves back to where you placed it. Click on Redo again. It moves an equal distance past that point, and so on.

Preference Settings

Fountain has some program options that are available in the Preference Panel. The Preference Panel can be accessed from the File menu.

Settings:

[Dynapick \(Dynamic Pick\)](#)

[PitchSwap](#)

[LoadScene](#)

[Top Menu](#)

[Titles](#)

[SaveState](#)

[Tablet](#)

[Thold \(Threshold Time\)](#)

[Load Inlines](#)

[Home](#)

Dynapick (Dynamic Pick)

When Dynapick has been enabled, an object can be selected and manipulated with the current tool without having to release the mouse button. The benefit is that many objects can be manipulated quickly by simply clicking and dragging on each. If two objects are under the cursor, selection alternates between them with each successive mouse click. If more than two objects are under the cursor, selection is most reliable when the cursor is positioned over a specific object's edge or vertex. If no object is under the cursor, the currently selected object is used.

Turning off Dynapick can help avoid accidental selection of objects while manipulating a complex scene. When Dynapick is disabled, an object must be selected with a mouse click, then manipulated by a second mouse click (and hold). This mode is useful when you wish to work with one object that is positioned on top of others. With an object selected, the cursor need not be over the object to manipulate it.

PitchSwap

PitchSwap only applies in browse mode. By default, you can tilt your view up and down while browsing if you hold both mouse buttons while moving the mouse. If PitchSwap is checked (on), then you can tilt your view up as you move the mouse away from you.

LoadScene

If this switch is turned on when you quit the program, the last scene saved or loaded during the current session is automatically reloaded the next time you start **Fountain**.

Top Menu

The default position for **Fountain's** menu bar is at the bottom of the screen. Select this item to place the menu at the top of the screen.

Titles

When this toggle button is on, all program panels have standard Microsoft Windows title/drag bars across the top. These can be closed with a single click on the Close box in the upper left corner.

To close a program panel with no title bar, place the cursor over a blank area of the panel. Press and hold the right mouse button while dragging it outside of the panel. Release the button and the panel will close.

SaveState

SaveState determines whether workspace is "remembered" when you quit the current session. With SaveState on, **Fountain** saves everything when you quit. The next time you run the program, it starts in the same state as when you last quit the program, with all objects and motion automatically reloaded, and open panels right where you left them. With SaveState off, the program restarts in a default mode, with no panels open or objects loaded.

Tablet

Enables input from graphics tablets. **Fountain** does not have any special support for tablets (other than for proportional scaling) so they should be set up to run under windows in mouse emulation. With this option enabled, scaling with the left mouse button is proportional on all three axes. Disable one or more axes in the Coordinates property panel to scale objects non-proportionally. For proper tablet installation, refer to your tablet documentation.

Thold (Threshold Time)

As you transform objects in **Fountain's** workspace, the program attempts to maintain maximum feedback by continually redrawing wireframe or solid objects during manipulations. However, with complex objects, forcing everything to continually redraw can cause unwanted delays, in which case the program resorts to using bounding boxes during transformations.

This setting determines the maximum redraw time in milliseconds before a scene is simplified with bounding boxes while transforming objects. The lower the setting, the greater the likelihood that simplification will occur. If the small view window is open, the total redraw time in both windows is taken into consideration and the current window is simplified last. In other words, if you're dragging a complex object in the main Perspective view, it may appear as a bounding box in the small view window but as a wireframe in the Perspective view.

When working with hierarchical objects, there is an additional level of detail between wireframe and bounding box, which is hierarchical bounding box. This creates a bounding box for each member of the hierarchy, rather than a single one for the entire object.

Load Inlines

This pop-up list controls how Inlined objects should be loaded.

The default setting is "On Demand," which gives highest priority to loading the objects that are in your view. The remaining objects are loaded in the background or as you change your point of view. If you would like to see the inlined objects get displayed as they come in, you can change the setting to "In Background." "Immediately" effectively turns inlining off.

For additional information, see the [Inlines](#) section.

Home

You can enter in the path to a local VRML file or a URL to a network VRML file. This file will be accessed whenever you click on the Home icon, and as the default starting world.

File Menu

Scene: New

This clears all objects from the workspace, and leaves all other settings (e.g. Material) of program operation.

Scene: Load...

This restores set-ups saved previously with the Scene: Save As... command, including objects, lighting, and so on. When the Load Scene file dialog appears, select the .WRL file to load, then click on OK.

Scene: Save and Save As...

This saves to disk all aspects of the current scene, including objects, lighting, eye position, and so on. When the Save Scene file dialog appears, select the file to save over, or enter a new file name, then click on OK.

Object: Load...

This allows loading of 3D object files. Supported formats, automatically recognized by the **Fountain** loader, include VRML , **trueSpace**, DXF (AutoCAD), 3D Studio Binary, 3D Studio Projects, 3D Studio ASCII files, LightWave, Wavefront, Imagine, VideoScape, Caligari Amiga, and Postscript files. When the Load Object file dialog appears, select the file to load, then click on OK. If you don't see an object file you saved, select "All Files *.*" from the List Files of Type pop-up at the bottom left of the file dialog.

To restrict the listed files to a particular type, use the pop-up under "List Files of Type:" in the dialog. For specific information on the formats supported, see the File Formats section.

Preferences

Opens the [Preferences Panel](#) documented earlier in this section.

Exit

Quits the program. A confirmation dialog appears: Click "Yes" to quit, and "No" to return to the program.

Edit Menu

There are four tools related to modeling and authoring available within this menu: Undo, Redo, Erase, and Copy. These four functions are replicated as icons, and are covered in depth their own sections.

Help Menu

Help Bar

Use this item to toggle the display of **Fountain's** context-sensitive help feature covered earlier in the [Help Bar](#) section.

About

Displays basic program information, including the current display mode. To close the information box, right-click on it and drag outward, or if the Titles switch is enabled, select the Close box in its upper left corner. You can also close it with the Close All Panels tool. The About box also contains pertinent version information which maybe of use in case you require technical support.

Contents

This opens a standard Window's help file. It includes definitions, explanation and description of individual **Fountain** functions. It is much more extensive than the Help Bar, but is not context-sensitive.

Help Bar

By enabling the Help Bar option from the Help menu, you can take advantage of **Fountain's** context-sensitive help mode while learning the program and using unfamiliar tools. When the mouse pointer is positioned over any tool icon, the help bar displays its description plus a keyboard shortcut, used for accessing the tool from the keyboard.

Also, when certain tools are active and the mouse pointer isn't over any other tools, the help bar displays brief directions for using the tool. For example, the Polygon tool's directions are: "Click to add points. Right-click to close polygon."

Keyboard Shortcuts

Keyboard shortcuts provide a way to create keyboard equivalents to on-screen icon buttons. By assigning keyboard shortcuts to frequently used tools, you can concentrate mouse actions on object manipulation, and keyboard actions on tool selection.

To assign a keyboard shortcut to a tool, place the cursor over the tool's icon then press the Ctrl and F1 keys at the same time. The Key Shortcuts dialog pops up. Once the dialog is up the cursor can be moved away from the tool's icon. Press the New Key button then type the keystroke to be used as the shortcut. Any combination of Ctrl, Alt, and Shift plus an alphanumeric, punctuation or function key is legal. Note that Ctrl, Alt, and Shift need not be used.

To find out what and if a shortcut is assigned to a particular function press Find, then the keystroke. If there is a tool assigned, it will show up in the dialog. If a tool has a keyboard shortcut assigned to it, the keystroke appears in the help bar when the cursor passes over the tool's icon. Many tools already have shortcuts assigned.

Primitives Panel

Primitives are the basic building blocks of 3D design. Left click once on the Primitives Panel tool to open the Primitives panel. Within the panel are six built in geometric primitives, cameras, lights, and text.

Related Topics:

[Geometric Primitives](#)

[Camera](#)

[Text](#)

[Lights](#)

Geometric Primitives

Each of the available six primitives has a property panel that is accessible by right-clicking on the icon of the primitive. Using large values for resolution, latitude or longitude will make the object more complex in terms of redraw response time during manipulation (for both wireframe and solid modeling), rendering time, and processor resources. Left-clicking on a primitive's icon creates an instance of it located at the center of the XY grid and just above it. Once created, a primitive can be manipulated in **Fountain** like any other object.

Plane

The plane primitive has a single property called resolution. The resolution value squared is the number of subdividing squares that make up the plane. The default resolution value is 1.

Cube

The cube also has the single resolution property as the Plane primitive which indicates the number of subdividing cubes that make up the object.

Cylinder

You can utilize the properties of this primitive to create not only cylinders, but also cut (truncated) cones. The cylinder has three properties, latitude, longitude, and top radius.

The latitude value indicates how many cross sections or floors there are along the length of the cylinder. This value may be as little as 2 (cylinder top and bottom) and as great as memory will permit.

Longitude indicates how many polygons make up the circumference of the cylinder. The greater the longitude value, the smoother around the cylinder will be. Longitude values can be as little as 3 (this will create a triangular prism) and as many as memory will permit.

Top radius values can range between 0.01, to create a (nearly) sharp cone, and 1.00, to create a cylinder.

Cone

The cone's latitude and longitude values work analogously to those of the cylinder. The cone primitive is perfectly sharp, sharper than a cylinder with a top radius of 0.01.

Sphere

Latitude is the number of horizontal circles that make up the sphere. Longitude is the number of vertical circles that make up the sphere. Larger values for both latitude and longitude create a finely divided sphere suitable for smooth sculpting, and precise point editing.

Torus

The latitude value determines the roundness of the torus cross section, its minimum value is 3. The longitude determines the roundness of the torus itself, its minimum value is 3. The outer radius of the torus is fixed so manipulating the inner radius changes the size of the cross section, thereby increasing or decreasing the thickness of the torus.

Camera

This adds a new camera to the scene. The camera can be moved, and rotated but not scaled. To change the zoom factor of the camera eye, select Object Scale and drag on the camera. Lights and cameras are always displayed in the workspace by default. This may be changed in the Render Quality panel.

Note: The eye of a camera can be automatically constrained to look at an object or to always look forward with the Look At Tool.

Fountain allows up to five cameras to be used at one time.

Text

The Vertical Text tool is used to create vertical 2D text objects for extrusion with the Sweep tool. Enter text from the keyboard, which instantly becomes polygons in the workspace. Vertical text stands at right angles to the ground plane. The text baseline is created at ground level, parallel to the current view plane and the axes for the object is placed at the position where text was first entered.

To change the cursor location and start a new text object, move the mouse and click the left mouse button. When finished entering text, select a different tool to exit the text tool.

When creating text, **Fountain** groups all the letters in a word as siblings so that they can be manipulated individually (for more on siblings see the section on hierarchies). Change fonts by right-clicking on either variant.

Changing the Font

To change the font, right-click on the Text tool. This opens a file dialog listing all TrueType fonts currently installed in Windows:

Select a font, style and size by clicking on the desired selections. Use the Sample window as a guide. Then click on OK to close the dialog. Click anywhere in the workspace and begin entering text from the keyboard.

Lights

These are the two different types of lights that can be used in **Fountain**. Before adding any lights, the default lighting in the workspace consists of several default light sources which can either be colored or not (set the default lighting in the Preferences panel). To add a light source select on the desired light type and release the mouse button. Adding or selecting a light opens its control panel with settings for color and intensity. Lights and cameras are always displayed in the workspace by default. This may be changed in the [Render Quality](#) panel.

Fountain allows up to five lights to be used at one time.

Infinite Light

The infinite light source's only controllable setting is direction or rotation. It can be moved and scaled for viewing purposes in the workspace, but neither has any effect on lighting. The rays of light from this source cover a scene uniformly, all moving in the indicated direction. Its wireframe representation looks like a straight line with a four-sided cone at one end. The tip of the cone indicates the light's direction.

Local Light

A local light, also known as a point source or omni, has position but no direction or size. It radiates light uniformly in all directions. Its wireframe representation resembles a star.

Related Topics:

[Light Control Panel](#)

Light Control Panel

Light Color

Set the light color by clicking on the color hexagon. Right click on the Light control panel to set the hue numerically.

Light Intensity

Set the light intensity by clicking and dragging on the slider. Drag upward to increase the light's intensity, or downward to decrease its brightness. To set the intensity numerically, select the panel with the right mouse button.

Point Editing

The Point Edit tool lets you select and manipulate individual faces and groups of faces. When one or more faces are selected, you can immediately move, rotate, and scale them using the Point Navigation controls. While in Point Edit, a small "P" is attached to the cursor as an indication.

Selecting the Point Edit selection tool automatically opens the Point Edit control panel. The panel contains navigation tools for moving, scaling, and rotating faces. To exit Point Editing and return to editing objects, select the Object tool.

To select a face, click near its center. Multiple faces can be selected that share vertices and edges. This is done by holding down the Shift Key while left-clicking on each additional face.

Related Topics:

[Point Edit Control Panel](#)

Point Edit Control Panel

When in Point Edit, an additional panel appears with three buttons for Point Navigation functions. The Navigation buttons are used to move, rotate, or scale selected faces separately from entire objects, but in the same way. With this additional navigation tool, you can switch instantly between manipulating an object and manipulating its faces. This makes it convenient to work in different areas of the object at the same time.

Point Move

Click on this button to move the selected faces in the current coordinate system. The left button controls movement along the X and Y axis. Using only the right mouse button controls movement along the Z axis.

Point Rotate

Click on this button to rotate selected faces in the current coordinate system. The left button controls rotation around the X and Y axis. Using only the right mouse button controls rotation around the Z axis.

Point Scale

Click on this button to scale faces in the current coordinate system. The left button controls scaling on the X and Y axis. Using only the right mouse button controls scaling on the Z axis. If both buttons are depressed the scaling is uniform in all three axes.

Sweep

This tool enables the user to repeatedly extrude 2D and 3D shapes with optional manipulation of interim stages. Sweep works by first copying selected polygons and edges, then moving them away from the original along the local Z axis (perpendicular to the polygon surface) or the specified path. Finally, it creates new polygons to connect the sides. This function is similar to Extrude in other 3D programs, but is superior in that multiple faces can be extruded in different directions simultaneously. Each Sweep operation can have a user defined number of intermediate segments plus a floor, which is the outermost new polygon.

After the Sweep operation, the new floor is selected and highlighted and the program is placed in Point Editing, which lets you immediately move, rotate, and scale the floor, and then re-sweep. If a floor is re-swept, then any transformation done to it originally is added on to the next floor. For example, if you scale a floor 50% and then re-sweep, the next floor will be 50% smaller or 1/4 the original size. You can also re-select previous floors, indicated by their dark green color, and transform them as well. While Sweeping, each of the floors can be scaled, moved, and rotated affecting the over-all shape of the object as spline nodes. After exiting the sweep with the Object tool, the shape is frozen and can no longer be manipulated in such a fashion.

If you create a polygon with any polygon tool or text with the Text tool, you can use Sweep immediately.

Default Mapping of Swept Objects

When you use Sweep to create a 3D object, a special type of default UV mapping is automatically applied. Flat UV mapping is applied to the object's flat ends, while its length is mapped with a special type of cylindrical mapping that conforms to the object's shape. For more details, see the UV Mapping tool.

Tip

This tool sweeps a selected polygon, face, or group of faces to a point, creating a cone-shaped object. The Tip tool uses the same property panel as the Sweep tool. After execution, a tip can be moved with Point Move but not rotated or scaled.

If you create a polygon with any polygon tool or text with the Text tool, you can use Sweep or Tip immediately.

Lathe

This tool sweeps a shape along a modifiable circular or spiral path. Lathe is a true 3D tool because all parameters can be set by direct manipulation of the path. No numeric entry is required, although it is possible.

When you select this tool, a circular path of white line segments with a green segment at the end appears. At the end of this path is a perpendicular straight green line (handle) and connected to that is a crossbar. The crossbar represents the lathing axis, around which the lathed outline is spun.

The path can be manipulated interactively in three dimensions by clicking and dragging on different parts. A second click on the Lathe tool executes the lathe with the current settings.

As with the Sweep tool, immediately after lathing, the program goes to Point Editing. Each copy of the swept polygon or polygons is outlined in green, meaning that they are now available for standard Point Edit navigation functions. Until another object is selected, the whole object consists of polygons connected by splines, so a change to any polygon affects the entire shape. Select a polygon by clicking on it, then use Point Move, Rotate or Scale functions as described in the [Point Edit](#) section.

Default Mapping of Lathed Objects

When you use Lathe to create a 3D object, a special type of default UV mapping is automatically applied. If you lathe a shape 360 degrees, which means the object has no ends but is a continuous circle, the default UV mapping is applied cylindrically, but is then bent around to match the object's circular shape. If the lathed shape has ends, a flat UV mapping space is applied to each end. For more details, see the [UV Mapping](#) tool.

Regular Polygon

This tool automatically creates a polygon all of whose sides are the same length. The more sides you use, the closer the shape resembles a circle.

Use the numeric setting to determine the number of sides of subsequently drawn regular polygons. This is set in a control panel, brought up by right-clicking on the Polygon tool. To change the setting, click on the double-headed arrow and drag left and right, or click in the number box, enter a new number from the keyboard, and hit return.

To draw the polygon, click the left mouse button on the work area, and drag outward to specify the polygon's maximum radius. Release the mouse button to finish the polygon. Finished polygons can then be manipulated with other modeling tools.

New polygons are always created parallel to the ground plane. These polygons can be used as is, combined with other objects using Glue and can be extruded into three-dimensional shapes with the Sweep tool.

To change the type of polygon to be drawn, click on the tool, then drag the mouse slightly, until a pop-up appears. Drag the mouse to the type of polygon desired on the pop-up, then release the mouse button.

Freehand Polygon

The Freehand Polygon tool allows the user to create polygons by defining each vertex of the finished shape. To draw a freehand polygon, define vertices by left clicking in the workspace. To finish the polygon, click the right mouse button, which connects the last point with the first. Finished polygons can then be manipulated with other modeling tools.

New polygons are always created parallel to the ground plane. These polygons can be used as is, combined with other objects using Glue and can be extruded into three-dimensional shapes with the Sweep tool.

To change the type of polygon to be drawn, click on the tool, then drag the mouse slightly, until a pop-up appears. Drag the mouse to the type of polygon desired on the pop-up, then release the mouse button.

Introduction

When you first launch **Fountain**, you will be placed in browsing mode. To access the authoring functions of Caligari **Fountain**, click on the Build Mode button. You will find a whole new set of tools at your disposal. The ones that apply to VRML Authoring are discussed here. The [3D Modeling](#) features of Caligari **Fountain** are discussed in a separate section.

Object Editing

Erase

Copy

Glue Tools

Look At

Erase

Normally, selecting this tool deletes the currently selected object. However, if you're working with the Point Edit tool, Erase exits the selected tool first and upon a second click, deletes the current object.

Copy

This tool makes an identical yet independent copy of the currently selected object. The new copy initially occupies the same space as the original, and should be moved to distinguish the two.

Glue Tools

Glue as Sibling/Glue as Child

These tools are used not just for grouping together objects but they define relationships between objects in a hierarchy format. Once constructed, a hierarchical object can be edited as a whole with other tools of **Fountain** (point editing, painting, etc...) but can also be navigated through to edit individual sub-objects. Hierarchies can be dismantled with the Unglue tool.

Each simple object (those having no sub-objects) has a symbolic node associated with it.

The glue tools differ in the way they attach a sub-object to an existing hierarchy.

You can glue a sub-object to any part of the complex object's hierarchy.

Unglue

To unglue parts of a hierarchy, the desired members must be first isolated by scrolling through the hierarchy either with the hierarchy navigation tools or with the up and down arrow keys on your keyboard. When working in wireframe display, selected hierarchical objects are white and unselected are brown. In solid mode, the 3D cursor changes to local axes only for the selected parts of the hierarchy. Once a member or group of members is isolated, select the Unglue tool and they are detached from the hierarchy.

Look At

This command is used to make an object or camera realign itself to point at another object. To use Look At, select the object that is to be constrained, select Look At, then select the target object. When an object is under Look At's influence, it is constrained and cannot be rotated manually.

Material Editing

Material Library

Paint Tools

Material Property Panels

UV Projection Tool

Material Library

Once created, materials can be stored in a special graphic list called a material library, which can be saved to and loaded from disk.

Selecting this icon opens the Material Library. It automatically loads the Material Library named simple.mlb if it is present. Otherwise the Material Library panel is empty when first opened.

The panel displays up to eight at a time of the current library's materials in a horizontal graphic list as sample spheres or planes. If there are more materials in the library than can fit in the panel, use the scroll bar to scroll through the rest. To set the current material used by the Paint tools to one in the panel, select the new material from the panel with the mouse (a red bar indicates the current material in the panel). To rename a material, select it, then enter a new name in the material name field in the lower right corner and press return.

Add

Clicking on this icon adds the current material to the library.

Delete

Clicking on this tool deletes the currently selected material from the library.

Related Topics:

[File Functions](#)

File Functions

If a Material Library was loaded or saved previously during the current session, this box shows the file name of the current library. Click on the box to display a pop-up menu of file functions:

New

This tool clears any materials from the current library.

Load

Permits loading of a Material Library previously saved. When the Load Material Library file dialog appears, select the file to load, then click on OK.

Save

This command saves the Material Library currently in memory to the file from which it was loaded or last saved. If no library was loaded or saved previously during the current session (that is, the File Functions box is blank), this command works the same way as Save As.

Save As...

Save As permits saving the current library to disk. When the Save Material Library file dialog appears, select the file to save over, or enter a new file name, then click on OK.

Paint Tools

The Paint tool variants let you create and modify Materials and apply them to objects. Materials determine a surface's color, texture, shininess, and other attributes. When you select any Paint tool except Paint Object, all Materials panels -- Material preview, Color, Attributes and Shader Attributes -- open automatically. These panels can also be opened with a right click on any Paint tool variant.

Related Topics:

[Paint Face](#)

[Paint Vertices](#)

[Inspect](#)

[Paint Over](#)

[Paint Object](#)

Paint Face

The Paint Face tool applies the current material to a face on an object. To paint a face, select the Paint Face tool then select on desired faces. Each painted face is rendered instantly. The precision of the paint face tools depends on how finely the object is subdivided. The more subdivisions, the greater the control. When you select the Paint Face tool all Materials panels open automatically so that settings may be changed while painting. To temporarily change the Paint Face tool to the Inspect tool, press and hold the Shift or Control key before clicking. The mouse cursor changes to a lens to indicate Inspect mode. While the cursor is still in Inspect mode, click on a face to make its material settings current. Paint Face does not paint over a material rectangle. If you hold down the Shift key while painting, then the painted face colors will be removed.

Paint Vertices

The Paint Vertices tool paints a radial gradient centered on a face's vertex. Like the Paint Face tool, the precision of the Paint Vertices tool depends on how finely the object is subdivided. The only property inherited from the current material is its base color and all other attributes like texture, smoothing, shininess, etc... are ignored. To paint vertices, select the Paint Vertices tool then select on each vertex in turn. To remove the paint on a vertex, hold down either the Shift or Control key and click on each vertex with the Paint Vertices tool.

Inspect

Like Paint Face, Inspect works on a polygon-by-polygon basis. But instead of applying color, it determines the face's color, attribute and texture values and sets them to current in the Material property panels. To use the Inspect tool, select the tool then click on any object. The current Material is set to that of the polygon under the mouse pointer when you clicked. All Material panels change to show the new material settings.

Paint Over

The Paint Over tool applies the current material over a target material which may cover all of an object or just faces. To use Paint Over, select a new material to replace an old one, select the Paint Over tool, then click on the material to be replaced. The object is rendered instantly to show the changes to the object. Paint Over does not change the material of a material rectangle nor does it change the areas painted with the Paint Vertices tool. To temporarily change the Paint Over tool to the Inspect tool, press and hold the Shift or Control key before clicking.

Paint Object

The Paint Object tool paints all of the selected object with the current material. To paint an object, click on the Paint Object tool. The selected object is rendered instantly to show the new material.

Material Property Panels

Painting objects and faces uses the current material, which defaults to a dull white. Newly created objects also use the current material. Once created, a material can be saved to a materials library (see the Libraries Group section) for later use. When you select any Paint tool except Paint Object, all Materials panels -- Material preview, Color, Attributes and Shader Attributes -- open automatically. These panels can also be opened with a right click on any Paint tool variant.

Note: For **Fountain** to be able to render the material properly, the necessary image files must be in the same directory as the scene file.

Related Topics:

[Material Preview](#)

[Color Property Panel](#)

[Attributes Panel](#)

[Texture Map](#)

Material Preview

This panel lets you instantly view the results of material changes. Whenever you change a material setting with the other material property panels, this material preview is automatically re-rendered with the new settings. By default the material is displayed rendered on a sphere but to see the effects on a square, click once on the material preview. Click on the rendered square again to return to a sphere. When saved to a material library, the material will be displayed in the same mode as when it was saved.

Color Property Panel

The base color for the material can be chosen with either RGB or HSV color systems. HSV stands for Hue, Saturation and Value. In the HSV color property panel, the color spectrum ROYGBIV (red-orange-yellow-green-blue-indigo-violet) is spread around the sides of a hexagon. The colors around the edges represent hues at full saturation, with saturation decreasing as you travel toward the center. As saturation decreases, the amount of white added to the color increases. The slider bar next to the hexagon determines the Value for the color. Right click on the property panel to open the RGB sliders. The RGB color system works by combining red, green, and blue color values ranging from 0 to 255 for each component. If the material has a texture map, then the base color will be hidden by this texture.

Attributes Panel

The Attributes property panel lets you set material properties other than color. The first column sets smoothing, the second sets the textures.

Smoothing

Object surfaces in **Fountain** are made up of flat polygons. Normally this causes rendered objects to have a facet-like appearance. While this may be preferable in some cases, such as with a cube, in most cases, such as with a sphere, a smoothed surface looks better. Part of a Material's specification includes whether the surface is to be faceted, fully smoothed, or auto-faceted. The three smoothing choices, only one of which may be active are found in the left-most column in the Attributes property panel.

Faceted

No smoothing is performed. However, shading within individual faces is performed.

Auto-Facet

Smoothing is performed only when the angle between two polygons is less than a user-specified threshold, while faces that meet at a greater angle retain a sharp appearance. This works best when an object's surface contains smooth as well as faceted parts, such as the example above. AutoFacet works well for most cases.

To change the threshold for AutoFacet, right-click on the AutoFacet icon. The default threshold, 32, is best for most purposes. Higher values produce more smoothing, and lower values produce less smoothing.

Smooth

Smoothing is performed on all polygon intersections. This works best if the object does not have any sharp edges.

Ambient Light

This setting simulates indirect lighting by setting the amount of illumination on an object not provided by actual light sources. It thus determines the degree of shading on the object's surface. Low ambient illumination is used for stark, dramatic shading effects. For most objects, about 10% ambient lighting, near the bottom end of the scale, is adequate. The bottom end of the scale represents 0% ambient lighting, and the top end of the represents 100% ambient lighting.

Shininess

This setting determines the intensity of specular reflections when used with the Phong and Metal Shaders. It also determines reflectivity when ray tracing or the intensity of environment maps. When used with the Phong Shader, it also determines diffuse illumination, or the amount by which light spreads out on the surface. The bottom end of the represents 0% shininess, and the top end represents 100% shininess.

Roughness

This setting determines the relative size of specular highlights on Phong and Metal shaded faces. The bottom end of the scale represents low specularity with large highlights, and the top end of the scale represents high specularity with small highlights. The smaller the highlight, the glossier the surface appears. The larger the highlight, the rougher the surface appears.

Transparency

This setting determines how much light passes through an object. Possible values range from fully transparent at the top to fully opaque at the bottom. The transparency value does not affect a material with a texture map or procedural materials. Procedural materials have their own control panels for transparency. For a texture to have transparency, it needs either an alpha channel or a conversion through the Image Utilities (see Image Utilities).

Texture Map

An image is mapped onto the object surface according to the object's UV space (see [UV Projection](#)). To enable texture mapping click on the Texture Map icon. To select an image file, right-click on the Texture Map icon to open the Texture Map panel.

To load an image for texture mapping, select the box in the panel's upper left corner, then use the file selector that appears to select an image file. Currently the program can use files in these formats: .BMP (Windows bitmap), .TGA (Targa), .TXR (Rendition antialiased Mipmap texture), and .JPG (JPEG). The new texture is immediately mapped onto the example sphere in the Material preview panel.

U Repts

Sets the number of times the image is repeated in the horizontal direction up to 100 times. Click on the white box and enter a new value from the keyboard, or click on the double-headed arrow to its left and set a new value by dragging the mouse sideways. Images can be repeated by fractional amounts.

V Repts

Sets the number of times the image is repeated in the vertical direction up to 100 times. Click on the white box and enter a new value from the keyboard, or click on the double-headed arrow to its left and set a new value by dragging the mouse sideways. Images can be repeated by fractional amounts.

U Offset

Sets the amount by which the image is offset horizontally from the start of the UV mapping space. Click on the white box and enter a new value from the keyboard, or click on the double-headed arrow to its left and set a new value by dragging the mouse sideways. The U offset value ranges from 0 (left edge) to 1 (right edge).

V Offset

Sets the amount by which the image is offset vertically from the start of the UV mapping space. Click on the white box and enter a new value from the keyboard, or click on the double-headed arrow to its left and set a new value by dragging the mouse sideways. The V offset value ranges from 0 (top edge) to 1 (bottom edge).

UV Projection Tool

When you use images as components of materials, the images are mapped to the object according to the UV space assigned. UV space is assigned to an object by different modes of projection: planar, cylindrical, and spherical. The term UV space comes from a mathematical way of describing any point on an object's surface with the parameters U (horizontal distance around the object from a given point) and V (vertical distance around the object from a given point). Objects made in **Fountain** are assigned default UV space but imported objects usually lack projection so textures do not apply correctly. When you select the UV tool, a new UV space, depicted as a wireframe, appears over or around the object and the UV Projection panel opens with the various choices. Note that this is not the object's current or default space, which can't be depicted once set. The brown edge on the projection is the seam where the texture wraps around. UV projection can be rotated with Object Rotate. Cylindrical and Spherical projections can also be moved with Object Move. To exit UV mapping mode and save the current mapping space, click on Apply. If any textures were previously applied to the object, they are automatically remapped using the new UV space.

Planar

Specifies a rectangular image space. Use Object Rotate to reposition the mapping plane, which is squashed and stretched to match the object's cross-section as it is rotated about the object. The image is projected "through" the object, and appears on the "front" and "back" sides.

Cylindrical

Specifies a cylindrical mapping space, much like the label on a can of food. This space can be moved as well as rotated.

Spherical

Specifies a spherical mapping space. This space can be moved as well as rotated.

Default UV Mapping

Default UV space can be replaced with a new UV projection but cannot be manipulated. An object cannot be re-assigned to its default UV space.

When you use Sweep to create a 3D object, a default UV mapping is automatically applied. Flat UV mapping is applied to the object's flat ends, while its length is mapped with a type of cylindrical mapping that conforms to the object's shape.

When you use Lathe to create a 3D object, a different type of default UV mapping is automatically applied. If you lathe a shape 360 degrees with Helix set to 0, which means the object has no ends but is a continuous circle, the default UV mapping is applied cylindrically, but is then bent around to match the object's circular shape. If the lathed shape has ends, a flat UV mapping space is applied to each end.

A primitive cube has a planar projection that is bent around the six faces to cover the shape properly.

Navigation

[Eye Move](#)

[Eye Rotate](#)

[Eye Scale](#)

[Object Tool](#)

[Object List](#)

[Object Move](#)

[Object Rotate](#)

[Object Scale](#)

[Hierarchy Navigation Tools](#)

[Grid Snap](#)

[Coordinates Panel](#)

Eye Move

The eye can be moved within all three coordinate systems.

In the WORLD system, clicking the left mouse button and dragging causes the eye to "fly" over the XY reference grid. Clicking the right mouse button and dragging, causes the eye to change altitude over the XY reference grid.

Eye movement in the SCREEN system gives you the easiest way overall of navigating in the workspace. Eye movement is simplified to horizontal and vertical screen movement (left mouse button) plus a straight in and out (SCREEN Z-axis) direction using the right mouse button.

Eye Rotate

Though the coordinate system controls for eye rotation appear the same as for other navigation tools, they have different meanings. Regardless of which coordinate system is chosen, eye rotation (turning about its own axis) and revolution (orbiting) is based on the SCREEN coordinate system.

By selecting the WORLD coordinate system, the eye will orbit the world center, even if the eye does not directly point at it.

By selecting the OBJECT coordinate system, the eye will orbit the active object's center (see below) even if the eye does not directly point at it. If no object is active, the eye will orbit the world center.

By selecting the SCREEN coordinate system, the eye will rotate (pan and tilt) about its own axes which are congruent to the screen axes.

Eye Scale

Zooming in a perspective or camera view is analogous to changing the focal length of a lens. You can zoom from fish-eye to super-telephoto. The photographic effects of the eye's real-world counterparts are apparent in **Fountain**. For example, when the eye is zoomed to telephoto ranges, objects will appear to be crowded together.

Eye zoom is independent of any coordinate system; it moves along an axis perpendicular to the screen. Within a perspective view, the amount of zoom on the eye is limited. To "pull out" of a scene, use the Eye Move tool in the SCREEN Coordinate system.

Object Tool

Select the Object tool to enter object selection mode and to exit other modes like painting, point editing, etc... It is not necessary to use the Object tool to pick new objects while working in different modes as the selection can be made simply by clicking on a new object. When the Object tool is active, select it with the right mouse button to open the Object Info panel.

Note: An alternate way of picking objects is to use the left and right arrow keys on the keyboard.

Related Topics:

[Object Info Panel](#)

Object Info Panel

The Object Info property panel displays some basic information for the currently selected object.

Name

This shows the object's name and lets you change it. Objects other than primitives, cameras, and lights are automatically called NoName when created. Click on the field next to Name and enter a new name from the keyboard, then press Enter.

Vertices

This shows the number of vertices in the current object. Since the only way to change this value is by interactive editing, it cannot be changed in the property panel.

Faces

This shows the number of faces or polygons in the current object. Since the only way to change this value is by interactive editing, it cannot be changed in the property panel.

Class

This shows VRML-specific information about an object, such as Inlined groups and LODs. For more information on this, see the sections on [Inlining](#) and [Levels of Detail](#).

LOD Dist.

You can enter a numeric value into this box and then hit Return to set the LOD distance. For more information, see the [Levels of Detail](#) section.

Inlined

This check-box indicates if the object should be Inlined or not. For more information, see the [Inlines](#) section.

Object List

This tool opens a window, listing all objects, cameras, and lights by name. This is a standard window, and can be dragged and resized. A scroll-bar on the side of the window will allow scrolling through the list.

The current (selected) entity is shown in white text, while all others are in black text. Clicking on the name of an object, camera, or light will make that one the current entity. This affects both the list and the workspace.

Objects can be named using the [Object Info](#) panel, which is opened whenever the Object List is opened.

Object Move

Select this tool to move an object or a group of glued objects in the current coordinate system. The left button controls movement along the X axis by mouse movement parallel to the X axis, and movement along the Y axis by mouse movement parallel to the Y axis. Using only the right mouse button controls movement along the Z axis.

Object Rotate

Select this tool to rotate an object or a group of glued objects in the current coordinate system. The left button controls rotation around the X axis by mouse movement perpendicular to the X axis, and rotation around the Y axis by mouse movement perpendicular to the Y axis. Using only the right mouse button controls rotation around the Z axis, by mouse movement perpendicular to the Z axis.

Object Scale

Select this tool to scale an object or a group of glued objects in the current coordinate system. The left button controls scaling on the X axis by mouse movement parallel to the X axis, and scaling on the Y axis by mouse movement parallel to the Y axis. Using only the right mouse button controls scaling on the Z axis. If both buttons are pressed, the scaling is uniform on all axes.

Hierarchy Navigation Tools

These tools, available from a pop-up, are used for navigating vertically through hierarchical objects and are disabled when the current object is not a hierarchical model. See [Glue](#) for information on creating hierarchical objects.

Use the up arrow for moving to higher levels, and the down arrow for moving to lower levels of a hierarchical model. Selected sub-objects are drawn as white wireframes, while unselected sub-objects are drawn as brown wireframes. Keyboard equivalents are the up and down cursor keys, usually marked as arrows.

While maneuvering through hierarchies, you can select siblings, or parts at the same level as the currently selected object, by clicking on them. You can also maneuver horizontally through hierarchy levels by pressing the left and right cursor keys.

Grid Snap

The Grid Snap tool sets navigation constraints for moving, rotating and scaling objects in adjustable increments and can be set for each different type of navigation action: movement, rotation, and scale. Select the Snap Grid tool once to enable constraints, select the tool again to disable constraints. Right click on the Grid Snap tool to open the Grid Snap property panel and to change settings. Switching from one type of navigation tool to another will update the Grid Snap property panel to reflect the different constraint settings for movement, rotation, and scale.

The grid constraints are according to the World system. Rotation functions are always displayed as degrees. To disable constraints on individual axes, deselect either X, Y, or Z in the Snap Grip property panel.

Coordinates Panel

The Coordinates panel is at the right end of the Help Bar. There are three buttons for enabling and disabling the X, Y and Z axes, and to the left of these, a pop-up for setting Object, World or Screen coordinates. Together, these show and allow control of the settings for the navigation tool currently in use.

Transformations can take place within three possible coordinate systems: Object Coordinates, World Coordinates, and Screen Coordinates.

Object Coordinates

Navigation operations in the Object coordinates system are constrained to the local axes of the selected object or entity.

World Coordinates

Navigation operations in the World coordinates system are constrained to the orientation of the World Axes: the World X axis runs along gridlines from the top-right to the bottom-left of the screen, the Y Axis runs from the top-left to the bottom-right, and the Z axis runs at ninety degrees from the XY reference grid.

Screen Coordinates

The Screen Coordinates system is oriented relative to the plane of the screen: the X axis run horizontally, the Y axis runs vertically, and the Z axis runs perpendicular to the plane of the screen.

Hyperlinks

To add a link to an object, just select an object with the Object Select tool and then click on the Attach Link tool. In the Attach URL Link dialog, you can type any valid URL. You can even type in the path name of a local HTML or VRML file.

Caligari **Fountain** objects can contain hierarchies, so you can link sub-objects as well. You should always link objects lower in the hierarchy last since sub-objects inherit links when you assign a link to hierarchical objects. Please refer to [Hierarchy Navigation Tools](#) to learn about how to select sub-objects.

Inlines

Through inlining you can break up large VRML scenes into lots of little files that can be loaded incrementally. This works even better than in 2D. To mark an object for inlining, select the "Inline" option in the [Object Info](#) panel, which you can access by clicking on the [Object List](#) tool or by right-clicking on the [Object Select](#) tool. Whether this object actually gets saved in a separate file depends on the options that you choose in the "[Export VRML File](#)" dialog. Sub-objects of a hierarchical object can be inlined the same way as non-hierarchical objects. Please refer to [Hierarchy Navigation Tools](#) to learn about how to select sub-objects. The "Class Field" in the [Object Info](#) panel identifies groups as regular or inline groups. An inline group is a hierarchical object the children of which are inlined.

Levels of Detail

By creating several levels of detail (LODs) of an object and grouping the individual LOD children into an LOD group object, complex 3D objects are represented at lower resolutions when they are far away from you. As you move closer towards LOD objects, they will reveal additional detail on the fly. By creating several levels of detail for each object, you can create complex scenes, but still maintain decent frame rates because the LOD technique keeps down the number of polygons that have to be rendered in real time.

To group the LOD children you have created for an object, you first have to select the object that is where you want all objects to appear. Then you select the LOD Group tool and click on the other LOD children. Each additional object you click on will be translated to the position of the original object and its switching distance will be calculated based on its relative complexity. If an LOD child is not the right object to be displayed given its distance from you, it will automatically disappear from your view. You can fine-tune switching distances by modifying the value of "LOD Dist" in the Object Info panel. LOD Group objects will be marked as such in the "Class Field" of the Object Info panel. As you move towards an LOD object and increasingly complex LOD children get displayed, the polygon count gets updated in real time. To edit LOD children, you have to break up the LOD group with the LOD Ungroup tool.

Note: You should try to keep each of the LOD children as close in overall size to each other as possible.

Saving VRML Files

To save the environment you have created, select "Save VRML Scene" from the File menu. Choose the drive and directory to where you want to save the scene and enter the file name. Caligari **Fountain** will automatically add the .wrl extension. After you click OK, you will be presented with the "Export VRML File" dialog where you can accept or modify the default settings.

Export VMRL File

If you don't choose particular directories for where inline objects and textures get saved, they will be placed in the same directory that you chose for the main file. If you do not choose a special name for the inlined files, **Fountain** will use the first five characters of the name you chose for the main file and add three digits for each inlined file starting from 000.

If you want to make your VRML file more compact, you may want to turn the "Pretty Formatting" and "Preserve Hierarchy" options off and decrease the precision to one or two digits. If you would like people to jump to camera views other than the default view, you should turn on the option for generating camera files.

Under "Inlining" you can choose what should be saved in the main file and what should be broken out into separate files. If you marked any objects for inlining and created LOD objects, chances are that you want to turn on the first two options. You should inline all textures unless they are very small or you are using textures in a format other than JPEG.

By default, Fountain writes DOS pathnames into the WRL files for textures and inline file information. Since DOS uses backslashes and most servers will expect foreslashes, you can use the "Unix Paths" option to write out the foreslashes instead.

2D and 3D Import Formats

All supported formats except PostScript and DXF employ the use of a standard settings panel which comes up each time an object is imported.

Object Unit Scale

Converts the object to either a desired unit system, no unit system, or to fit on screen.

Center Object

Places the object at the World center (0,0,0).

Fix Normals

Reverses the normals for the object. Use this option if objects appear to import inside out.

Formats:

[COB Import](#)

[SCN Import](#)

[WRL Import](#)

[Amiga Caligari Import](#)

[3D Studio Binary Import](#)

[3D Studio ASCII Import](#)

[DXF Import](#)

[Imagine Import](#)

[LightWave Import](#)

[PostScript Import](#)

[VideoScape Import](#)

[Wavefront Import](#)

COB Import

This is the native object format for **trueSpace**.

SCN Import

This is the native scene format for **trueSpace**.

WRL Import

This is the VRML world (object and scene) format.

Amiga Caligari Import

All of the information present in the Amiga Caligari .SOB file will be converted including hierarchy, color and smoothing.

3D Studio Binary Import

Separate objects within a .3DS file will be loaded as sub-objects of a single parent, lights and cameras are not currently supported. Hierarchy information is not currently maintained. Object colors are taken from 3DS diffuse color. All materials default to auto-facet. Texture mapping coordinates are preserved and texture formats supported will also transfer. When loading 3DS objects that have texture maps, the directory where the 3DS object is stored is now the first one searched for texture maps. If a requested texture cannot be found there, then **Fountain** will search in any directories specified in the user selected 3DS.SET file. It will prompt you for the location of the 3DS.SET file if it is not found.

3D Studio ASCII Import

Separate objects within a file are loaded as sub-objects of a single parent. There is no hierarchy information in the file, so it cannot be correctly converted. There is no material information in ASCII files beyond simply labeling different polygons with different material group names. Polygons which are supposed to have different materials are recognized and each different material group in the file will be represented as a different shade of gray. Texture mapping coordinates are preserved.

DXF Import

Certain DXF entities and options are not currently supported as follows: lines with no width, extrusion vectors, bulges in polylines, polyarcs, 3Dlines, traces, text, shapes, and types.

Extract One Layer

Only a desired layer is imported. The layer name is to be typed into the Layer name field. Objects not associated with any layers are always imported. Subsequently, layers are preserved as separate objects.

Center Object

Places the object at the World center (0,0,0).

Resolve Holes

Properly imports holes associated with some variations of .DXF files. If holes are not imported properly, enable this option.

Close Arcs

Any arc entities in the file will become solid polygons with edges that go around the arc and to its center point.

Fix Normals

Reverses the normals for the object. Use this option if objects appear to import inside out.

Object Scale

Converts the object to either a desired unit system, no unit system, or to fit on screen.

Arc/Circle Segments

Sets the resolution of arcs and circles when they are converted to polygons.

Line/Arc/Point Width

Sets the size of polygons when DXF entities are converted from 2D to 3D.

Imagine Import

As with 3D Studio binary files, each different object within an Imagine file will be loaded as a sub-object of a single parent object. Although there is hierarchy information in the file, it is not currently converted. Colors are converted. All materials are set to auto-facet.

LightWave Import

Surface details and one- and two-point polygons are not converted. All surface information possible including smoothing, glossiness and color are converted.

PostScript Import

Fountain can import .EPS, .PS, and .AI files. This includes both .EPS and .AI files.

Curve resolution

This allows you to control the quality of the conversion from curves to **Fountain** polygons. Set according to your needs, but Low should be adequate for most anything unless your artwork/text is extremely small (i.e. 12 point text).

Data types to convert

Controls what sort of PostScript entities will be loaded:

- Standard Text is the kind you get when you type in a word processor. This is different from the kind of text that you generally type in a structured drawing program. With this turned off, you can, for example, read in a page containing text and graphics and only have the graphics converted.
- Filled curves are generally solid colored regions like circles and other closed curves.
- Stroked curves are generally outlines and thin, maybe unclosed curves or lines.

Inter-object step

This allows you to "layer" the different curves, characters, text, etc. as they are loaded. Larger values can be used to exaggerate the spacing between shapes and create some interesting special effects.

Inter-page step

This is similar to Inter-object step but is the amount of space that will be put between all of the shapes in one page and all of the shapes in the next page in multi-page PostScript documents. In addition each PostScript page will come in as a separate **Fountain** object.

Center object

This will cause the PostScript graphics to be centered about the origin of the World.

VideoScape Import

Surface details and one- and two-point polygons will be ignored. All VideoScape material numbers (including 2.0 additions) are correctly converted.

Wavefront Import

Since Wavefront files can have object groups which conflict with **Fountain** hierarchies (this is typically the case), grouping information is not preserved. Material names will be run through a name parser with associated color information in an attempt to convert well named materials to actual colors with transparency (e. g., "light blue" will be recognized and result in a color of R173 G216 B230 A100, as will "ltblue" and many other variants).

2D Image Formats

Fountain allows images to be mapped onto objects. For specific information, see the [Texture Map](#) section.

Bitmap (.BMP, .DIB)

This is a standard Windows bitmap file and contains 24 bit color depth information.

JPEG (.JPG)

This is a compressed 24 bit file.

Introduction

When you first launch **Fountain**, you will be placed in browsing mode. In this mode, you can access VRML worlds all over the World Wide Web and then navigate through them. However, unlike other VRML tools, **Fountain** allows you to do much more than just browse 3D environments. Caligari **Fountain** allows you to do VRML authoring and even to create 3D objects and spaces.

Getting VRML files

You can load a VRML file either by clicking on a link or specifying a URL in the URL field between the menu bar and the tool strip. Several of the objects in the scene that loaded when you first launched **Fountain** already have links. Just try clicking on some of them, and you will see in the status line that **Fountain** is loading the linked VRML file. Based on the speed of your connection and the size of the file, the loading time can be as little as a few seconds or as much as a couple of minutes. Caligari **Fountain** allows you to load in-lined files, which means it can load and display properly structured VRML files in pieces. This has the advantage that you can start exploring right away while **Fountain** fetches more detailed objects and those that are not currently in your view. Please see the [Inlining](#) and [Preferences](#) sections on how to in-line files and how to tell **Fountain** how to load and display in-lined files.

As you move the cursor over an object that is linked, you should see it change to a chain link. If it says "3D" on the link cursor, then you know that this link goes to a VRML file and that **Fountain** can display it (if it is a valid VRML file).

Getting HTML files

If it says "2D" on the link cursor, then you know that this link goes to an HTML file. Caligari **Fountain** can still load this file, but it will pass it on to a 2D browser such as Netscape Navigator or Enhanced Mosaic to display the 2D data. The first time you encounter such a link, you will have to let **Fountain** know which HTML browser you would like to use and where it is on your hard drive. Caligari **Fountain** will then launch your HTML browser for you and provide it with the necessary data to display the content linked to the object on which you clicked. From your HTML browser, you can get back to **Fountain** by clicking on a link that leads to a VRML object or by entering the URL for a VRML file. All valid VRML files should end with .wrl. Please check the configuration instructions for Netscape and Enhanced Mosaic to make sure that your HTML browser will launch **Fountain** when you try to access a VRML file.

Configuring HTML Browsers

Configuring Netscape

- Step 1: Select the "Preferences..." item in the "Options" menu.
- Step 2: Select the "Helper Apps" tab.
- Step 3: Click the "Create New Type. . ." button.
- Step 4: In the Configure New Mime type dialog enter:
 - For Mime Type: *x-world*
 - For Mime SubType: *x-vrml*
- Step 5: In the "File Extensions" field enter: *wrl*
- Step 6: Under "Actions" choose "Launch the Application" and specify where **Fountain** is on your hard drive.
- Step 7: Select the "Save Options" item in the "Options" menu.

Configuring Enhanced Mosaic

- Step 1: Select the "Helpers..." item in the "Edit" menu.
- Step 2: Click on "Add."
- Step 3: Enter *VRML World* into the "Description" field.
- Step 4: In the "MIME Type" field enter: *x-world/x-vrml*
- Step 5: In the "Suffixes" field enter: *.wrl*
- Step 6: Choose *Text* under the "Encoding" options.
- Step 7: Specify where **Fountain** is on your hard drive to select it as your helper application to display VRML files.

Navigating

When you first launch **Fountain**, you will be placed in Fly Mode, which works like the navigation controls for many popular action games. As you move the mouse forward and back (away from you and close) while keeping the left mouse button pressed, you will move forward and backward in the scene. As you move the mouse to the left and right while keeping the left mouse button pressed, you will turn to the left and right. If you keep the right instead of the left mouse button pressed while moving the mouse to the left and right, you will move to the left and right while continuing to look straight ahead. If you keep the right mouse button pressed while moving the mouse forward and back, you will move up and down while continuing to look straight ahead. Finally, if you keep both mouse buttons pressed while moving the mouse forward and back, your view will tilt down and up. If you would prefer to tilt up as you move the mouse away from you, you can check the [PitchSwap](#) option in the [Preferences panel](#).

Once you feel comfortable with the Fly Mode, you can also try the Auto-Pilot. The directions of your mouse movements generally have the same effect as in Fly Mode, but once you are moving, you no longer need to move the mouse to keep going in the direction you were headed. The only exception is when you tilt your view up and down. Since it is easy to get disoriented when tilting too much, you will need to continue moving the mouse while keeping both mouse buttons pressed.

Loading Files

To the right of the Undo tool, there are four tools that should seem familiar to you if you have used other Web browsers. The Backward tool will let you go to VRML scenes that you previously loaded during the same session. Once you have moved back, you can click on the Forward tool to get to more recently loaded VRML files. The Home tool will load the default scene. If you ever want to terminate the loading of a VRML file, you can click on the Stop tool.

Looking at Objects

You can constrain a camera to look at an object of your choice even if you move around the camera. If you click on a camera, then on the Look At tool and finally on the object you want to look at, the camera will always look at this particular object no matter where you move the camera in the scene. After constraining a camera, you will automatically be placed in authoring mode so that you can move the camera around. When an object is under Look At's influence, it is constrained and cannot be rotated manually.

If you do not see any cameras in your scene, you should make sure that you have turned on the option to see cameras in the Render Quality panel.

Other Tools Available in Browsing Mode

Undo

Solid Render Display

View from Object

New View

Close all Panels

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