

SPINNER Beta 1

Hello! Thank you for purchasing SPINNER, a scene layout tool for assembling VRML worlds in a realtime rendered environment. Using SPINNER, you will be able to import 3D objects in several formats and assemble them into a VRML world. Along the way, you'll be able to manipulate these models in many ways: scale, move, rotate, color, duplicate, modify textures, etc. . There are thousands of 3d files on the Internet. Download free object from our website: <http://www.3dweb.com>

No Uninstaller

1. Assuming you installed into: "c:\SPINNER", and your windows directory is : "c:\windows", here's how to uninstall
2. At a DOS prompt enter the following command: `deltree c:\SPINNER`
3. Answer 'y' at the prompt
4. At a DOS prompt enter the following command: `"del c:\windows\ig1*.*)"`
5. At a DOS prompt enter the following command: `"del SPINNER.ini"`

Conventions

Single menu items and multiple menu selections are represented with brackets as follows, respectively: [Key1] or [Key2] [Key3]. For example, [Object] [New Sphere] means click on the 'Object' menu option in the 3D View, drag the left mouse button to the submenu option 'New Sphere' then select that option. Keystrokes that should be pressed simultaneously are represented by brackets. For example, the bracketed items <Control> or <Select> indicate that you should hold down the Control key while selecting an object with your left mouse button. Also if we say <Control> click, this means hold the Control key while simultaneously clicking on an object with the left mouse button.

The term 'scene' refers to a SPINNER file containing objects. When you save a scene it is saved as my_scene.3dw. You can export a scene to a VRML format which becomes my_scene.wrl. Keep in mind that you must 'Export' to VRML format not just save a file as a my_scene.wrl under the [File] [Save] menu.

Whenever we say 'click on an object,' we mean, press the left mouse button then let go. So unless we specify a particular mouse button, we always mean the left mouse button. Right Mouse Click means to press the right mouse button.

When we say 'Drag' an object, we represent this action as clicking and holding the left mouse button while moving the cursor or an object around.

When we say 'Right and Left Mouse Click' we represent this action as simultaneously clicking on the left and right mouse buttons. Usually we use this action to climb and dive (pitch, roll, yaw for all you 3D buffs).

Words in quotations usually mean to enter them with the keyboard (such as enter, "Light1" as the new light object). Words in quotations could also imply an action to be performed at dialog boxes. For example, click on the "Y" radio button or Click "Apply." All other uses will use the 'single quotation marks.'

Overview Of Windows

The first two windows appear at the top of your monitor.

3D View From this window, you can view the current scene in a real time 3D solid-filled rendered window. modifying the viewpoint (see 'Fly Mode' under Options menu). The user may also pick objects in the world (see 'Pick Mode' under Options menu) and move objects around inside the universe (see 'Object Fly' under options menu). This is also the windows where you pick individual polygons for editing.

Object Master This window displays a tree of objects currently in the scene. The user may select different objects by clicking on the object name. If control is held down and you click on another object, multiple objects may be selected and modified. This is useful for using the alignment or moving multiple objects.

The next three windows appear on the bottom of your monitor.

Ortho Windows: The bottom set of windows are called Orthogonal or Ortho Views. These windows are useful for visualizing your objects in one plane at a time. You can not pick (select) objects from these windows (in Beta I) but you can move and rotate preselected objects (objects highlighted in blue) in any of these windows. You can only move objects which are selected. If you selected multiple objects from the Object Master, you can move them simultaneously in any of the Ortho Views.

- **Top View** A viewpoint looking down the scene (along the Y axis). This is also called the X-Z plane.
- **Front View** A viewpoint looking at the face of the scene in line (along the Z axis). This is also called the X-Y plane
- **Side View** A viewpoint looking at the side of the scene (along the X axis). This is also called the Y-Z plane.

Icon Bar

The icon bar at the bottom of the 3D View contains some of the more frequently used options in the File Menu bar. They are as follows:

<u>Icon</u>	<u>Alternate Key Stroke(s)</u>	<u>Description</u>
New Document	[File][New]	This icon creates a new scene; you will be asked to save your current one. You can not have more than one scene loaded in SPINNER.
Open Folder	[File][Open]	Opens a folder.

Disk	[File][Save As]	Saves your current scene as my_scene.3dw
Airplane	[Options][Fly Mode] or <F2>	When this icon is depressed, you are in Fly mode which means you (the camera) are flying through the scene.
Pick	[Options][Pick Mode] or <F3>	When this icon is depressed, you are in pick mode which means you can “pick” or select objects from the View window. When objects are picked, a blue box (called a bounding box) encompasses the object. In addition, the object’s name in the Object Master window will be highlighted in red.
Four-way Arrow	[Options][Object Fly] or <F4>	When this icon is depressed, you are in object fly mode. This mode allows you to move the object in space while your viewpoint is stationary.
Magnifying Glass	[Options][Fly Mode] or <F5>	When this icon is depressed, you can zoom in (left mouse button) and zoom out (right mouse button) from within the 2D Ortho Views.
Block	[Object][New Block]	Launches a dialog box to create a block in your scene. The default is a 2X2X2 cube centered at the origin (x=0, y=0, z=0) with a default color of gray.
Cylinder	[Object][New Cylinder]	Launches a dialog box for creating a cylinder in your scene. The default is a cylinder 2 units high with 8 sides and a radius of 1 unit. This default cylinder object is really an octagon which is 2 units high.
Sphere	[Object][New Sphere]	Launches a dialog box for creating a sphere. The default is a sphere with five faces in the latitudinal direction, five faces in the longitudinal direction and a radius of one unit.
Cone	[Object][New Cone]	Launches a dialog box for creating a cone. The default cone is one with a radius of 1 unit, a height of 2 units and a tessellation (number of sides) of 8 units.
Light Bulb	[Object][New Light]	Launches a dialog box for creating a new light. The default light is a white directional light located at the origin and pointing in the x=0.5, y=0.2, z=1 direction. This default light source is an infinitely distanced light whose rays are parallel (i.e., the sun). This light points toward xyz=(0.5, 0.2, 1). SO, in effect this light shines over your left shoulder. Currently once you create a light, you can not edit it.
Letter “A”	[Object][New Text]	Launches a dialog box for creating 3D text. The default text is white lettering centered at the origin. You must enter text in the white area at the bottom of the dialog box.

3 Rectangles	[Object][Import]	Imports a 3D model (NFF, 3DS, DXF, etc.)
Open Blue Box	[Object][New Group]	Adds a group node. This is also the node you use for embedding WWWanchors links in objects.
Airplane with + sign	[View][New Camera]	Adds a new perspective camera node.

Keyboard Shortcuts

<Ctrl> <N>	Create New Scene
<Ctrl> <O>	Open Scene
<Ctrl> <S>	Save scene
<Ctrl> <J>	Show/Hide Object Master
<Ctrl> <A>	See All (alter viewpoint so that all objects are in view)
	Delete selected objects(s)
<Ctrl> <L>	Open Alignment window
<Ctrl> <T>	Toggle textures on/off
<Ctrl> <W>	Toggle wireframe rendering on/off
<Ctrl> <F>	Toggle wireframe fly on/off
<F1>	Enter help mode (implemented into Beta 2)
<F2>	Put view window into fly mode
<F3>	Put view window into pick mode
<F4>	Put view window into object fly mode

Overview of Pull-Down Menus

File Menu

This menu contains options to save your work, create a new file, open a new file, save your scenes as VRML files.

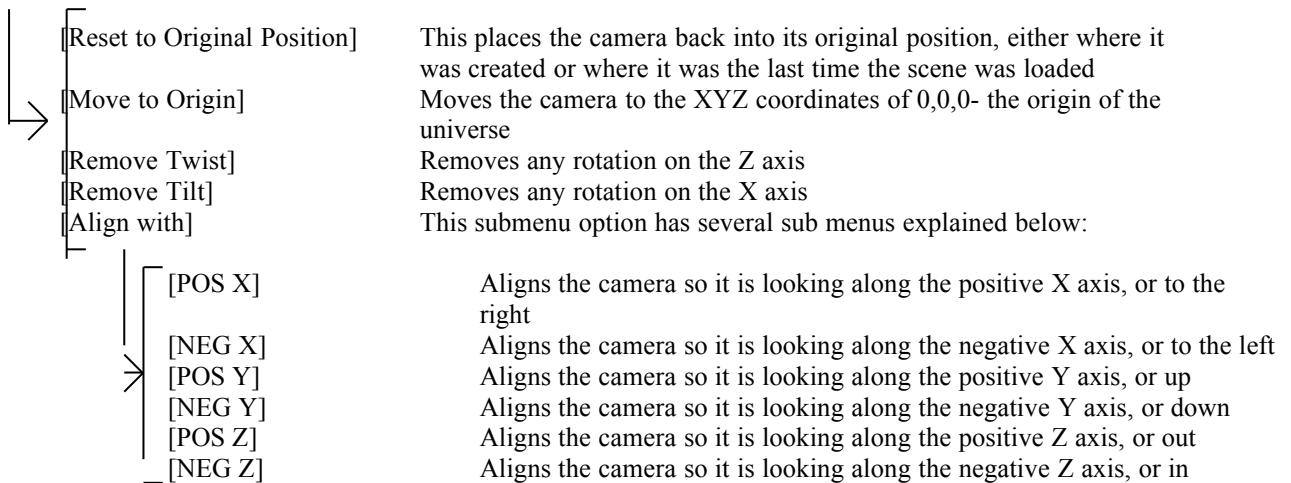
[New]	Create new SPINNER document, removing all previous work from memory
[Open]	Open existing SPINNER document
[Save]	Save the current SPINNER document
[Transfer to Browser]	Launches a VRML Browser and simultaneously loads the current scene into the browser; this option takes about 2-3 minutes to execute on Pentium 100mhz (i.e., be patient with this option). You must initialize SPINNER.ini with the VRML browser of choice
[Export to WRL]	Writes current document to a .WRL file

[Exit] Exits SPINNER

View Menu

This pull-down menu controls cameras, lights and viewpoints. If a check mark appears before each entry, then that camera, viewpoint or light is on; no check mark means it is off. A detailed description follows:

- [Toolbar] Selects whether or not the toolbar is displayed at the top of the view window
- [Status Bar] Selects whether or not the status window is displayed at the bottom of the view window
- [Object Master] Shows or hides the Object Master. The Object Master displays a tree of all objects, lights and cameras in the current universe. You can select different objects and if the CTRL key is held down, multiple objects may be selected.
- [Crosshairs] Shows or hides the crosshairs displayed in the center of the view window
- [New Camera] Generates a new camera at the current position of the view window with an option of forcing the new camera to be the current camera (viewpoint)
- [Change Camera] Launches a window of all cameras in universe. Clicking on a camera moves the viewpoint to the selected camera.
- [See All] Switches viewpoint to a perspective where all objects in universe are in view
- [Cameras Visible] Toggles all cameras in universe visible or invisible
- [Reset Camera] This option has several sub menus:



[Ambient Light] Launches a window with a slider that changes the intensity of the ambient light in a scene.

[Background Color] Launches a window that allows you to select the background color in the view window. If Strict VRML is not checked under the options menu, Webspace will recognize the background color when it reads in the .WRL file.

[Lights Visible] Toggles whether or not graphical objects representing lights are visible in the universe. Note this doesn't actually turn off the lights.

[Default Window Arrangement] Resets all windows to the position they are when the program is started.

Object Menu

[New Group] Launches a dialog box for defining a group node. Useful for clustering related objects; for example, you would want to put all the furniture objects in House Group node. Options for this feature are defined below:

Name: Define the name of the group

Location: Modify the XYZ location of the group

Link: Define the group as a URL anchor and type the name of the URL

Description: Allows you to enter a text description of the group

[New LOD] Defines the ranges for loading in different levels-of-detail for faster rendering when complex objects are far away from the viewpoint:

Name: Defines the name of the LOD group

Center: Defines the center of the LOD group

Ranges: Defines at what range from the center point objects are loaded;

[New WWWInline] Defines the inline bounding box center and size for downloading an inline file

Name: Name of the WWWInline Node

Center: Defines the Inline center point

Size: Defines the size of the bounding box in the X, Y and X direction

Link Name: Name of the file to load in when the viewpoint crosses the bounding box

[Comment Node] Adds a VRML "Information" node

[Import] Launches a window with several options used to import external 3D geometry; Valid object types include DXF, 3DS, OBJ, NFF and GEO

Name: Defines the name of the new object in the universe.

Scale Factor: Defines the scale factor of the object in the universe once it is imported; this number can be a fraction or a whole number: putting 0.5 in this field scales the object half the size as the original; 2.0 in this field doubles it.

Location	Defines the XYZ coordinates of the object in the universe once it is imported
Path	Allows you to define the location of the file in standard DOS format
Fast Merge	Checking this box increases the frame rate on the object, but rendering quality will decrease when objects intersect.
Visible	Checking this box makes the imported object immediately visible
Browse	Launches a window allowing you to browse through storage devices for the geometry file that you want imported.

[Import VRML] Not fully implemented as of October 8, 1995; Import VRML will replace [File][Save] as my_scene.3dw and instead you will save all SPINNER files as VRML file types.

[New Block] Launches a window with several options used to define the parameters of a new block:

Name:	Defines the name of the new block in the universe
Size:	Defines the XYZ size of the new block
Location:	Defines the XYZ location in the universe of the new block
Backface:	Toggles whether or not the inside of the block will be visible and calculated by the renderer.
Fastmerge:	Checking this box increases framerate on the object, but rendering quality will decrease when objects intersect
Visible:	Checking this box makes the object immediately visible
Color:	Launches a window allowing the user to define the color of the new object

[New Cylinder] Launches a window for defining the parameters of a new cylinder

Name:	Defines the name of the new cylinder in the universe
Size:	Defines the XYZ size of the new cylinder
Location:	Defines the XYZ location in the universe of the new cylinder
Backface:	Toggles whether or not the inside of the cylinder will be visible and calculated by the renderer.
Fastmerge:	Checking this box increases frame rate on the cylinder, but rendering quality will decrease when objects intersect
Visible:	Checking this box makes the cylinder immediately visible
Color:	Launches a window allowing the user to define the color of the new cylinder
Smooth:	Checking this box defines the new cylinder as smooth shaded in the universe

[New Sphere] Launches a window for defining the parameters of the new sphere:

Name:	Defines the name of the new sphere in the universe
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Size: Defines the XYZ size of the new sphere
Location: Defines the XYZ location in the universe of the new sphere
Backface: Toggles whether or not the inside of the sphere will be visible and calculated by the renderer.
Fastmerge: Checking this box increases framerate on the sphere, but rendering quality will decrease when objects intersect
Visible: Checking this box makes the sphere immediately visible
Color: Launches a window allowing the user to define the color of the new sphere
Smooth: Checking this box defines the new sphere as smooth shaded in the universe

[New Cone] Launches a window with several options used to define the parameters of the new cone:

Name: Defines the name of the new cone in the universe
Size: Defines the XYZ size of the new cone
Location: Defines the XYZ location in the universe of the new cone
Backface: Toggles whether or not the inside of the cone will be visible and calculated by the renderer.
Fastmerge: Checking this box increases framerate on the cone, but rendering quality will decrease when objects intersect
Visible: Checking this box makes the cone immediately visible
Color: Launches a window allowing the user to define the color of the new cone
Smooth: Checking this box defines the new cone as smooth shaded in the universe

[New Terrain] Launches a window with several options used to define the parameters of a new terrain

Name: Defines the name of the terrain in the universe
of Patches: Defines the number of 2 color XZ patches created on the new terrain
Patch Size: Defines the XZ size of each individual patch the array
Patch Color: Launches a window allowing the user to define the color of a terrain patch, which patch defined depends on which patch color button was pressed
Location: Defines the XYZ location of the terrain in the universe
Backface: Checking this box makes the terrain visible on both sides. This decreases framerate in the view window as twice as many faces are calculated
Visible: Checking this box makes the terrain immediately visible in the view window

[New Light] Launches a window with several options used to define the characteristics of a new light.
Right now there only directional lights are viewable in SPINNER. However, you can export all three: directional, point and spot. In SPINNER, lights must appear before the objects they intend to illuminate. For example, you must have light source at a higher point into the Object Master tree. The examples below, we will use a house to illustrate the differences between a point, directional and spot light.

Name: Defines the name of the new light in the universe
Location: Defines the XYZ location of the new light in the universe
Direction: Defines the XYZ tilt, roll and facing of the new light in the universe
Visible: Checking this box makes the light immediately visible in the universe
Intensity: This slide bar defines the overall brightness of the light- sliding it to left creates a dimmer light, to the right is brighter.
Directional: Checking this circle defines the light as illuminating outward in the direction set under the 'Direction' option. The default for a directional light illuminates from the origin and points toward $x,y,z = (0.5,0.2,1)$. This is analogous to a sun hovering over your left shoulder. The location of the directional light (the origin) is irrelevant; only the direction matters. We include the location coordinates so that you can locate or place it in a

convenient spot. A direction light straight downward (normal to the roof) illuminates both the top of the roof (assuming the roof is flat) and the top of the floor. This really does not make sense in our world (i.e., a roof on earth will shade the floor). To “correct” this behavior

- Point: Checking this circle defines the light as illuminating outward from all directions similar to a light bulb. So if you have a point light in a house, the floor and ceiling will be illuminated. The closer objects are to the light source, the brighter they will appear; but the relationship between brightness of light and distance from objects depends on the VRML viewer you are using. The direction of a point light is irrelevant; the location is relevant.
- Spot: Checking this circle defines the light as shooting a beam outward from the direction set under the ‘Direction’ option. Right now, according to the VRML spec, the cutoff angle in a spot light is 141 degrees. You will be able to control the “cone” of the light source in Beta 2. The direction and location of a spot light is relevant.
- Color: Launches a box allowing the user to set the color of the light; default is white

The chart below may be helpful in understanding the differences between a point, spot and directional light:

	<u>Location Matter?</u>	<u>Direction Matter?</u>
Point	yes	no
Direction	no	yes
Spot	yes	yes

[New Text] Launches a window with several options used to define new text in the universe

- Name: Defines the name of the text in the universe
- Location: Defines the XYZ location of the text in the universe
- Save as Polygons:
- Visible: Checking this box makes the text immediately visible in the universe
- Color: Launches a window allowing the user to define the color of the text in the universe
- White Box: Allows the user to input text that will be converted into a 3D object in the universe

[Deselect All] Deselects all selected objects in the universe

[Duplicate Selected] Makes a new exact duplicate of the object(s) selected

[Modify Selected] Launches a sub menu of several options:

- Color: Launches a window that allows the user to modify the selected object(s) color

Scale:	Launches a window that allows the user to modify the selected object(s) XYZ scale in the universe
Name:	Launches a window that allows the user to modify the selected object(s) name
Texture:	Launches a window that allows the user to change the selected object(s) texture
Location:	Launches a window that allows the user to change the selected object(s) XYZ location in the universe

[Delete Selected] Deletes the selected object(s) from the universe

Tools Menu

[Path] This feature allows you to create a path for a camera or an object for adding animations and motion to you 3D Scene. The VRML spec does not currently support this tool, but once it does you will be able to quickly add object motions (an actual solar system) or animations based on triggers.

Name:	Name of the path
Number of Tweens:	Determines how smooth you want the path. The more tweens, the smoother the path.
Type of Interpolation:	Determines the shape of the pat.
# of Nodes:	
Current Node:	
Reverse	
Oscillate	
Repeat:	
Visible:	

[Align] This feature is useful for aligning objects with each other. For example, you may want to “drop” a lamp EXACTLY on top of a table. With this tool you can align multiple objects along any axis. You can also control where the objects are aligned with respect to one another. For example you can align two object so that their center points share the same X value or you can align two objects so that their sides share the same X value. In the first case one object is inside the other; in the second case the two objects are side-by-side. Launches a window that of several options used to define the type of object alignment. An explanation of each.

Axis:	Defines which axis the user wants to align the selected objects along
Center:	Checking this circle makes selected objects align along the center of the anchor object
Touch:	Checking this circle makes selected objects touch each other along the selected axis of the anchor object
Top:	Checking this circle makes selected objects align along the top of the selected axis of the anchor object
Bottom:	Checking this circle makes selected objects align along the bottom of the selected axis of the anchor object

Anchor: Allows the user to define the anchor object from the currently selected objects
Apply: Applies the align routine to the selected objects
Spacing: xxx

Speed Menu

[Textures-] Selecting this item toggles whether or not textures are visible and rendered in the universe. If off, frame rate increases
[Smooth Shaded] Selecting this item toggles whether or not smooth shading is applied to all objects in the universe. If off, frame rate increases
[Wire Frame] Selecting this item makes all items in the universe defined as wireframe. If on, frame rate increases
[Wire Fly] Selecting this item makes all objects in the universe rendered as wireframe only while the user is flying. As soon as flying stops, the objects are rendered as solid fill. If this option is on, frame rate increases
[Constraints / Sensitivity] Launches a window with several options in it:
[Rotational Constraints] These three boxes may be checked to stop any rotation attempted along the X Y or Z axis.
[Linear Constraints] These three boxes may be checked to stop any 'movement' or 'flying' attempted along the X Y or Z axis.
[Linear Sensitivity] This bar may be moved to adjust the 'step size' and 'speed' of any movement made in the View window.

Options Menu

[Auto Sensitivity] Selecting this item makes the step size of the viewpoint correspond with any object that is created or imported
[Auto See All] Selecting this item relocates the viewpoint everytime a new object is created or imported, placing the viewpoint in a position where all objects are in view. This option is useful when importing objects that may "swallow" your camera (viewpoint). For example, if you import an object that is very large, then the new object will surround your camera. If this option is enabled (checked), then your active camera will "back up" enabling you to automatically "see all" of your scene. Or if you import an object which is behind you, your active camera will position itself so that all objects are in view.
[Fly Mode] Places the 3D View into fly mode. When you are in object fly mode, your cursor appears as an airplane. There are six degrees-of-freedom when flying your viewpoint (modifying the active camera) in SPINNER. These six degrees-of-freedom are controlled by positioning and holding down either the left mouse button, the right mouse button or a combination of both the left and right mouse simultaneously. The further away from the crosshairs you place the airplane icon, the faster your viewpoint changes.
Forward and Backward Position the airplane above the crosshairs and hold the left mouse button to move forward; below the crosshairs to move backward.

Rotate Right and Left	Position the airplane to the right of the crosshairs and hold the left mouse button to rotate right; left of the crosshairs to rotate left. This is analogous to a helicopter rotating about its local axis.
Up and down	Position the airplane above the crosshairs and hold the right mouse button to fly up (to raise your viewpoint up -y units); below the crosshairs to fly down.
Move right and left	Position the airplane to the right of the crosshairs and hold the right mouse button to move (pan); left of the crosshairs to fly left.
Rotate clockwise and counter clockwise:	Position the airplane to the right of the crosshairs and simultaneously hold both the right and left mouse buttons to rotate the viewpoint clockwise (the scene will appear to rotate counterclockwise); left of the crosshairs to rotate the viewpoint counterclockwise.
Climb and Dive	Position the airplane above the crosshairs TO CLIMB, BELOW

[Pick Mode]

When this is selected, the user may left click on any object in the view window and it will be selected. Left clicking again will bring up an options box with several options:

Stretch X	Checking this circle locks the stretching onto the X plane
Stretch Y	Checking this circle locks the stretching onto the Y plane
Stretch Z	Checking this circle locks the stretching onto the Z plane
Scale	Checking this circle locks the stretching onto all planes, allowing the object to be scaled
Axis	World-Checking this circle scales and stretches the object around the center of the universe
Local	Checking this circle scales and stretches the object around the center of the selected object(s)
Slide Bar	Sliding left or clicking the left arrow scales or stretches smaller, sliding right or clicking the right arrow scales or stretches larger
Textures	Shaded- checking this box makes the texture darkened or lightened depending the amount of light hitting it
Transparent	checking this box makes all black in the selected texture appear see-through
Apply	Launches a window that allows the user to select from a list of image files to apply to the selected object as a texture map
Remove Color	Removes the current texture from the selected object
Name	Launches a window that allows the user to define the color of the selected object
Location	Allows the user to change the name of the selected object in the universe
Direction	Allows the user to change the XYZ location of the selected object
Size	Allows the user to change the rotation, tilt and facing of the selected object along the XYZ axis
Commit	Allows the user to change the XYZ scale of the selected object
Restore	Invokes all changes on the selected object
	Removes all changes made on the selected object

[Object Fly] Puts the view window into object fly mode. When the left mouse button is pressed in the view window the selected object will move along the Z axis and rotate around the Y axis. When the right button is pressed in the view window the object will fly along the X and Y axis. If both buttons are pressed in the view window and the mouse is moved, the object will rotate around the X and Z axis

[Strict VRML] When this option is selected, the document, when saved to .WRL format, will comply rigidly to VRML spec 1.0

[Show Statistics] When this option is selected the framerate and polygon count of the current scene will be displayed in the status bar of the view window

[Render Always] When this option is selected the scene will constantly redraw itself even when no object manipulation or viewpoint movement is occurring. This allows for a constant framerate to be calculated, but slows down the system considerably.

[Help Menu]

- Index Displays an index of all help topics (implemented in Beta 2)
- Using Help Displays instructions on how to use context-sensitive help (implemented in Beta 2)
- About SPINNER Displays version information and company info