ΠΑΝΕΠΙΣΤΗΜΙΟ ΑΙΓΑΙΟΥ

Studio IV-Concept Design

Ενότητα 9: Εργαστηριακές ασκήσεις

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ΕΚΠΑΙΔΕΥΣΗ ΚΑΙ ΔΙΑ ΒΙΟΥ ΜΑΘΗΣΗ
επένδυση στην κοινωνία της γνώσης
ΥΠΟΥΡΓΕΙΟ ΠΑΙΔΕΙΑΣ & ΘΡΗΣΚΕΥΜΑΤΩΝ, ΠΟΛΙΤΙΣΜΟΥ & ΑΘΛΗΤΙΣΜΟΥ
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ΕΥΡΩΠΑΪΚΟ ΚΟΙΝΩΝΙΚΟ ΤΑΜΕΙΟ

Με τη συγχρηματοδότηση της Ελλάδας και της Ευρωπαϊκής Ένωσης

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Με τη συγχρηματοδότηση της Ελλάδας και της Ευρωπαϊκής Ένωσης

Interface and Tools

Introduction to 3D modeling with Softimage

Basic Interactions with Softimage

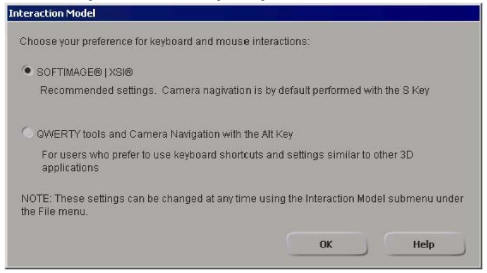
These are the features that provide your basic interactions:

- Starting and Interacting With Softimage
  Covers the methods and startup options available for launching Softimage and the interaction model you will use when working in Softimage.
- Interface — Commands and Tools
  Introduces all user interface elements and the basic tools for accessing commands and modifying parameters and properties.
- Views
  Discusses the tools that let you examine your scene in varying degrees of detail. This includes the 3D views as well as the general-purpose views such as the Explorer view, the Schematic view, and Net View.
- Viewing 3D Objects
  Describes the many ways in which you can view scene geometry in the 3D views.
- Rotoscopy
  Introduces the rotoscoping technique in which video or film images are placed in the background of a 3D view to match your camera's point of view with that of the images, for example.

The First Time You Start Softimage

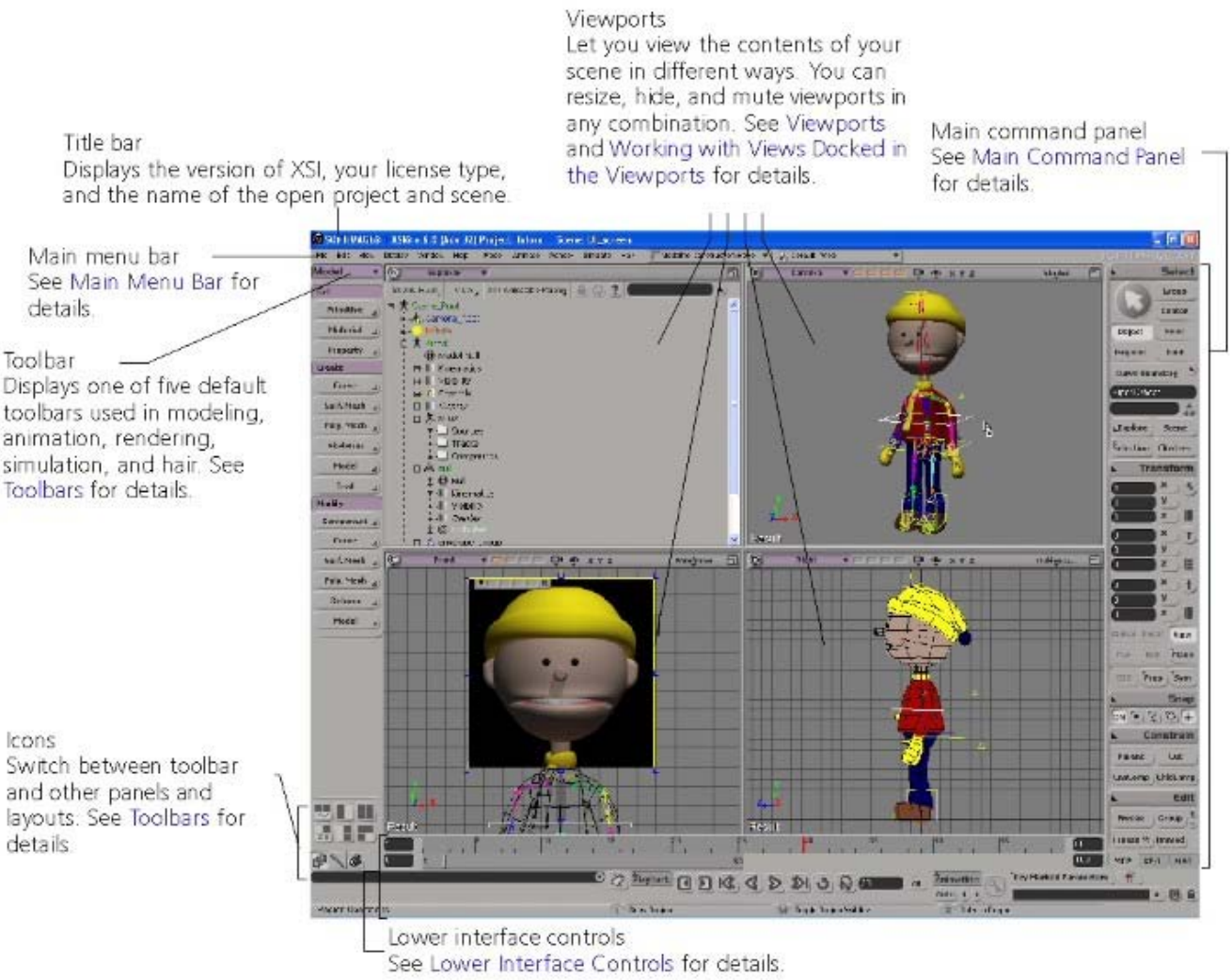
The first time you open Softimage, you are prompted to choose your preference for interacting with Softimage. The interaction model controls how mouse and keystroke interaction will be interpreted in Softimage. The interaction model sets the mapping of keyboard shortcuts to Softimage commands (key map), whether or not sticky keys are available, which tool is active by default, and how key and mouse buttons are used to select objects and components in 3D views.

- **Choosing an Interaction Model**
  - Select an interaction model and click OK. If you want to change your interaction model later, these and additional models from the File > Interaction Model menu. For more information, see Changing Interaction Preferences.
  - Each interaction model simply sets a key map for commands as well as a variety of preferences. You can also change key maps and preferences individually to customize your interaction.
  - The documentation assumes that you are using the default SOFTIMAGE interaction model. However, no matter which interaction model you choose, the appropriate shortcut keys are displayed in the menus dynamically.

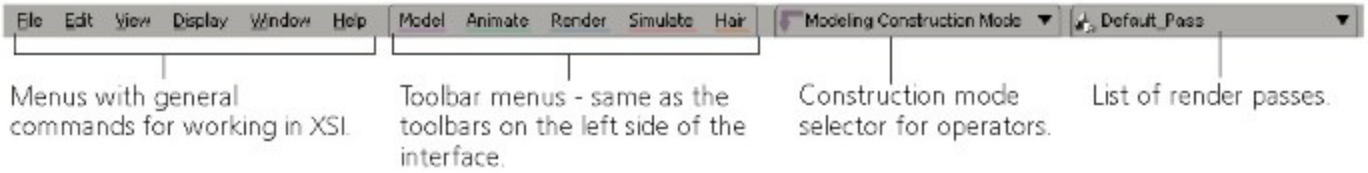


- **The Recommended Choice**
  - It is recommended that you choose the SOFTIMAGE interaction model because it is optimized for use with all Softimage tools. In particular, it makes the most efficient use of modifier keys like Shift, Ctrl, and Alt.
  - If you prefer to use the Alt key for camera navigation, you can set Use Alt key for view navigation in your Tools > Camera preferences (File > Preferences). You can also set Mouse Mapping to Alternate to use the left mouse button to orbit, the middle mouse button to pan, and the right mouse button to zoom.

The Softimage Interface



Main Menu Bar

- The main menu bar is the horizontal bar at the top of the Softimage interface. It displays menus containing commands for general operations such as managing files, editing, setting preferences, opening tools and editors in floating views, displaying elements, and accessing the documentation.
- 

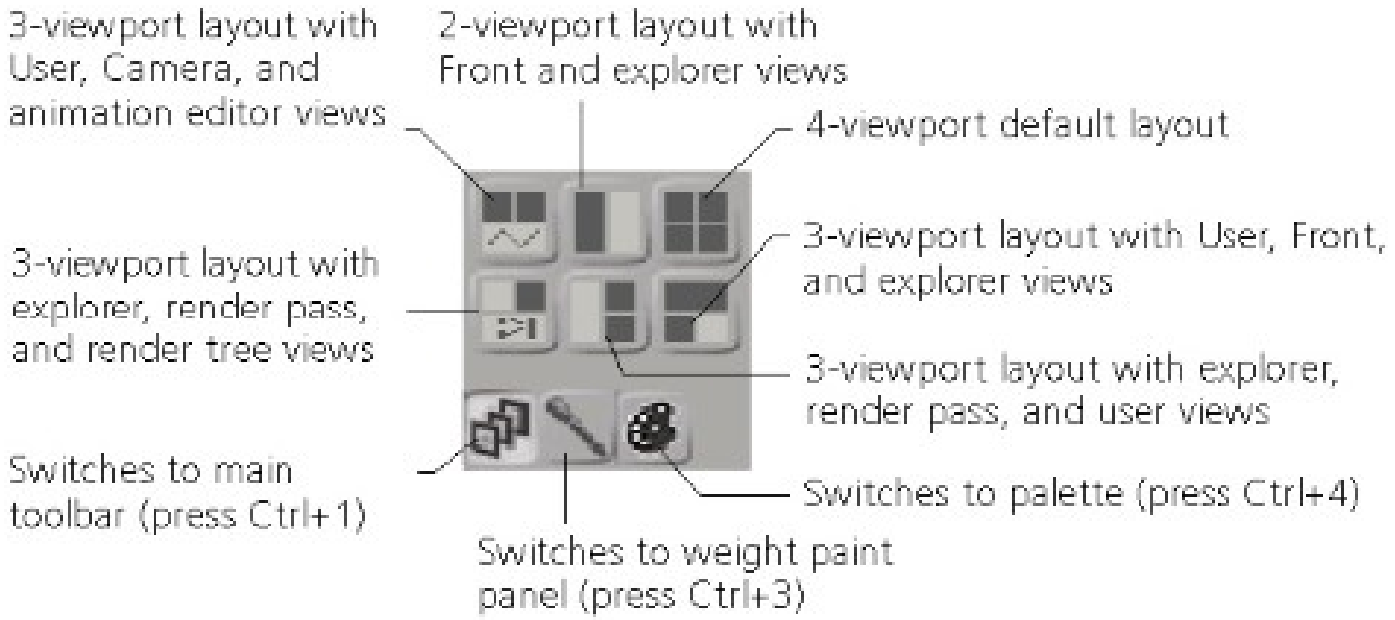
- The Model, Animate, Render, Simulate, and Hair toolbars (see Toolbars) are available from the main menu. Each of these toolbars (and each of their menus) can be torn off from the main menu bar and kept in a handy floating window for the current Softimage session (see Tearing Off Menus).
- The construction mode selector allows you to select the context (mode) for adding operators to the geometry stack for modeling operations, animation, or shape animation. See Construction Modes and Regions [Modeling and Deformation Basics] for more information.
- The render pass list lets you select the current render pass for the scene. This is the same as is available on the Render toolbar, just in an accessible spot when you have other toolbars active. See Passes & Partitions for more information.

Toolbars

- The toolbar panel on the left side of the interface displays one of five default toolbars at a time: Model, Animate, Render, Simulate, and Hair. Each of these toolbars contains menus of the commands most commonly used for tasks in their area. These toolbars are also displayed on the main menu bar.
- To open a menu of commands, click on a menu button on the toolbar. Each menu and submenu on a toolbar can be torn off and kept in a handy floating window for the current Softimage session (see Tearing Off Menus).
- *To switch toolbars*
  - Press 1, 2, 3, 4, or Ctrl+2 on the keyboard, or
  - Click the toolbar name at the top and select a toolbar from the list.

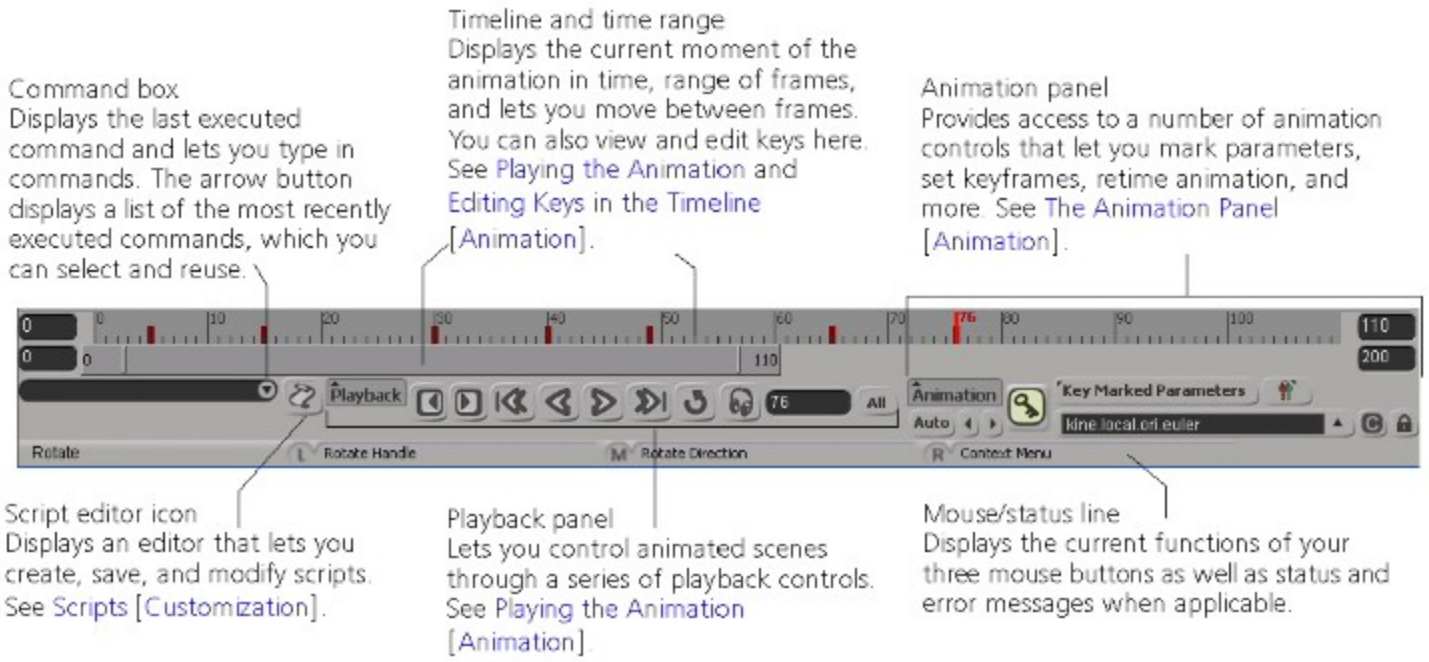
Icons

- At the bottom of the toolbar panel, there are a number of icons that let you switch between the toolbar and other panels, as well as load different interface layouts.



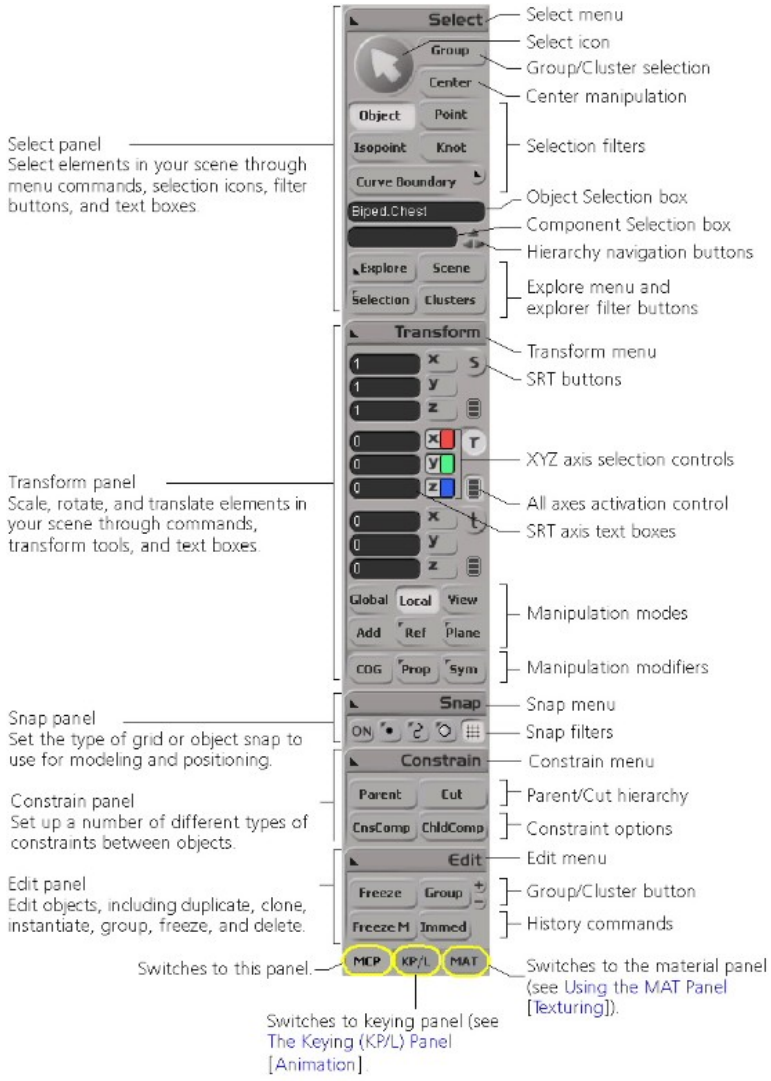
Lower Interface Controls

- The controls in this area give you information, such as what each mouse button does or the last command that you used. From here, you can also open the script editor for working with scripts. There is also animation information and tools, from the timeline and playback controls to the Animation panel.



Main Command Panel

- The main command panel on the right side of the interface contains all the commands and tools you will use most frequently while working in your scene. Commands and tools that have a similar purpose are grouped into panels.
- You can collapse a panel by right-clicking on its label. Right-click on the label a second time to expand a collapsed panel. This can be useful when working at small screen resolutions.
- As well, each menu and submenu on the main command panel can be torn off and kept in a handy floating window for the current Softimage session (see Tearing Off Menus).
- See the following sections for information on each group of commands found in the main command panel.
  - Select panel commands and tools—see Selecting [Scene Elements].
  - Transform panel commands and tools—see Transformations [Transformations].
  - Snap panel commands and tools—see Snapping [Transformations].
  - Constrain panel commands—see Animating with Constraints [Animation].
  - Edit panel commands—see 3D Objects, Components and Clusters, and Properties [Scene Elements], Models and Displaying Scene Information [Data Management], and Operator Stack [Modeling and Deformation Basics].



Using the Menus

- You can access most commands from menus on the main menu bar at the top of the interface, from the toolbars on the left of the interface or from the main menu bar, and from the menus on the main command panel.

- **Context Menus**
- Some pop-up menus are displayed by Alt+right-clicking or just right-clicking on individual elements, such as geometric objects, cameras, and lights, in the 3D views, the explorer, and the schematic view, or from specific areas of the interface. These type of pop-up menus are called context menus because they provide commands that are applicable (in context) to the chosen object.
- In general, when you open a context menu:
  - If the element under the mouse pointer is not selected, then only that element is affected by the menu command you choose.
  - If the element under the mouse pointer is selected, then all selected elements are affected.
  - The exception is when you use the context menu in the explorer to mute/unmute deformations or activate/deactivate constraints. These commands act like toggles, and affect only the deformation or constraint under the pointer. A check mark in the menu indicates whether the node is currently muted or active.

Using the Menus

A description of all commands is available from the help—choose Help > XSI Guides.

A tear-off menu in a floating window.

The menu from clicking the menu button in the Select panel.

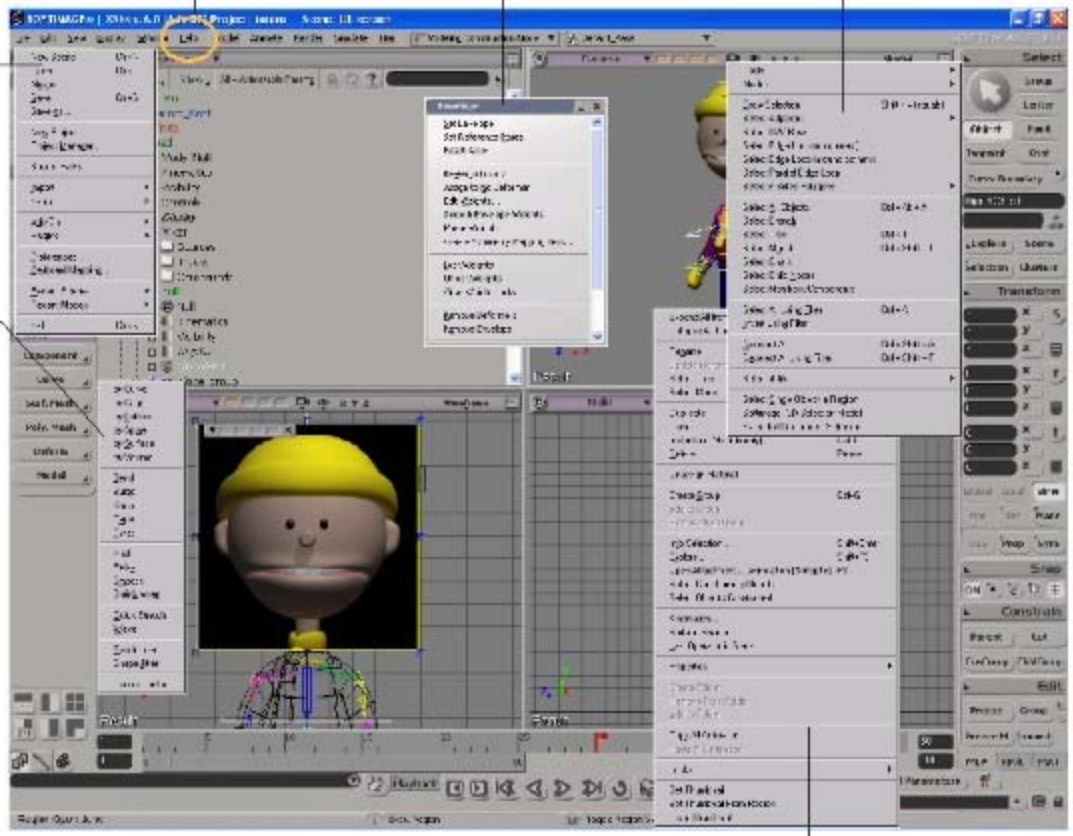
A drop-down menu from the main menu bar.

A menu from clicking a menu button on the toolbar.

Clicking the triangle in the corner of a button opens a menu.

Middle-click the menu button to repeat the last command selected.

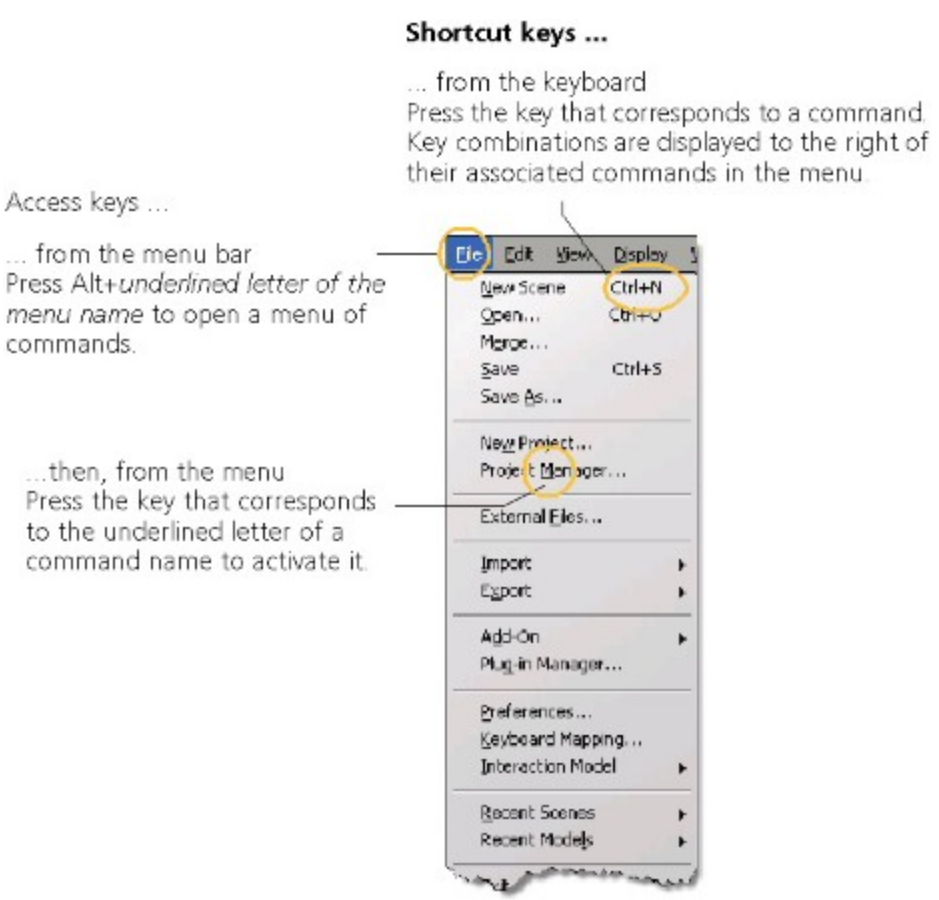
Choose a command from the menu with the mouse or press a key that corresponds to an underlined letter in the menu to instantly activate the command.



A context menu for an element. In the explorer or schematic view, right-click on an element to open its context menu. In a 3D view, Alt+right-click (Ctrl+Alt+right-click on Linux) on an element to open its context menu.

Using Access and Shortcut Keys

- Keyboard shortcuts are specific key combinations that perform the equivalent of certain menu commands. There are two types of keyboard shortcuts:
  - **Access keys** —The underlined letters you see in many menu names. Pressing Alt+[underlined letter] activates its associated command.
  - **Shortcut keys** —Commands that have been mapped to your keyboard. For example, pressing Ctrl+[key] activates an associated command.
    - The actual shortcut keys (default or not) are listed to the right of many menu command names. Note that not every menu command has a shortcut or access key.

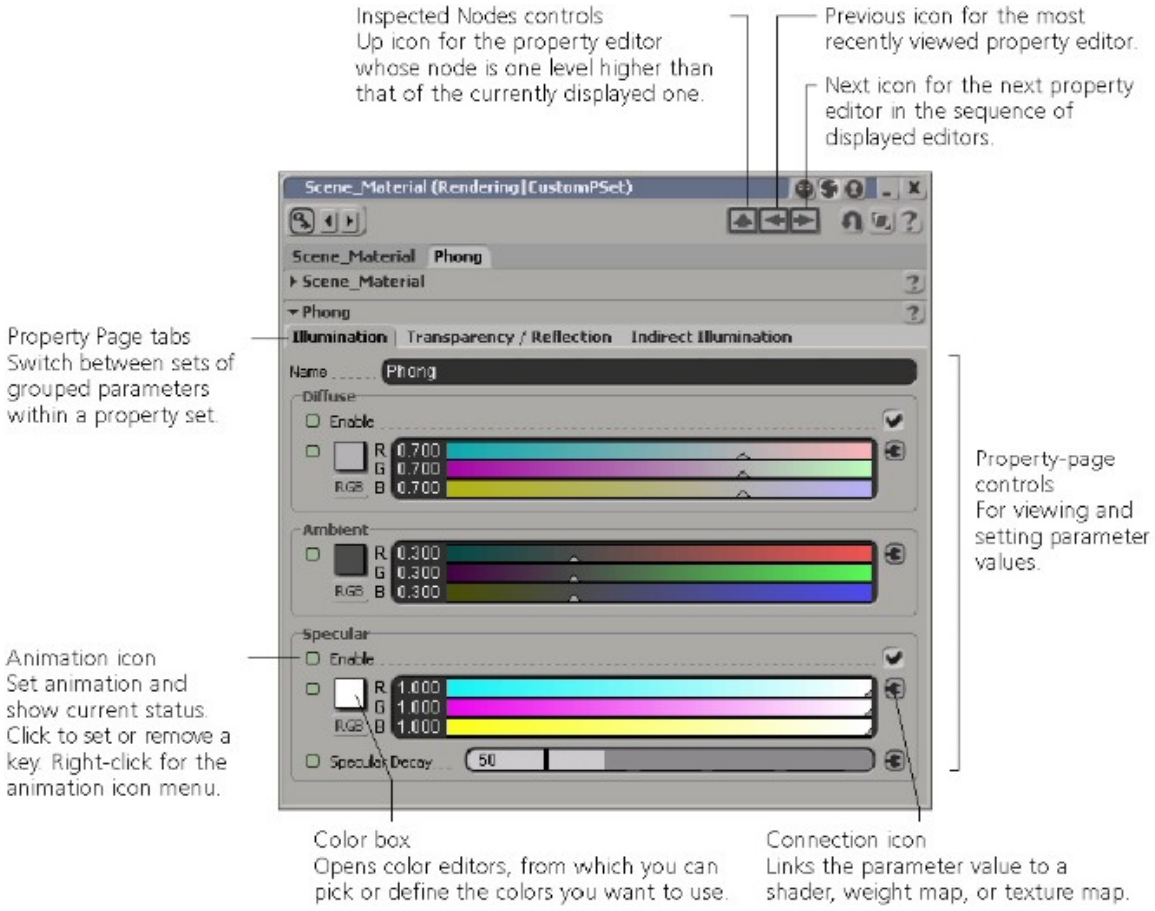


Using Shortcut Keys to Activate Tools

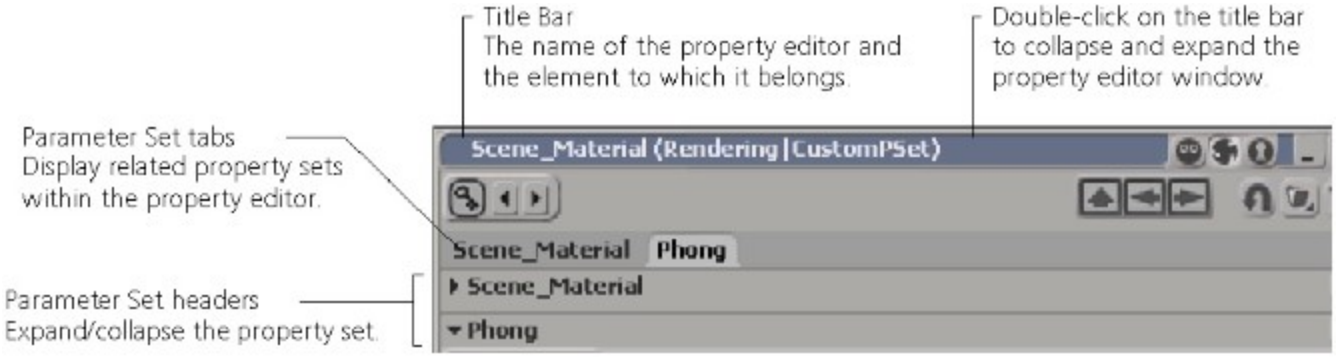
- Shortcut keys are mapped to most of the tools used in Softimage, and pressing a key activates a specific tool. Once the key is pressed, the mouse pointer changes shape to identify the active tool. Any further actions you perform with the mouse are then related to that tool. For example, pressing the z key activates the pan and zoom tool so that holding down the right mouse button zooms out of the scene, and holding down the middle mouse button zooms in.
- You can move back and forth between different tools quickly by using these shortcut keys. Only one tool can be active at a time.
- Tools can be activated in one of two modes:
  - **Sticky**—you do not need to hold the key down to activate the tool.
  - **Supra** (temporary)—you must keep the key held down for the tool to remain active.

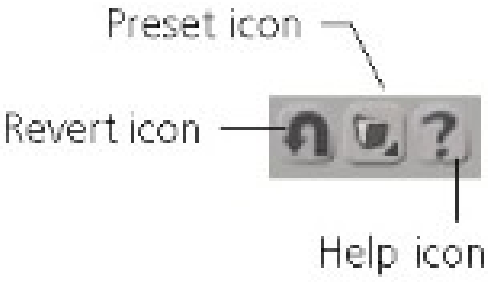
Modifying Properties in Property Editors

- Property editors are where you'll find an element's properties. They are a basic tool that you will use constantly to define and modify elements in a scene.



Property Editor

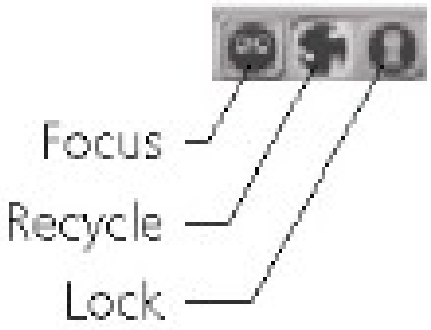




The area in the upper-right corner (below the title bar) contains:

- A **Revert** icon that lets you reset all controls to the values they had when you first opened the property editor.
- A **Preset** icon allows you to save or load presets of parameter values.
- A **Help** icon that gives you information on all properties on the property set selected on the top tabs. Each property set also has its own help icon on its header.

Property Editor



Locking, Recycling, and Focusing Property Editors

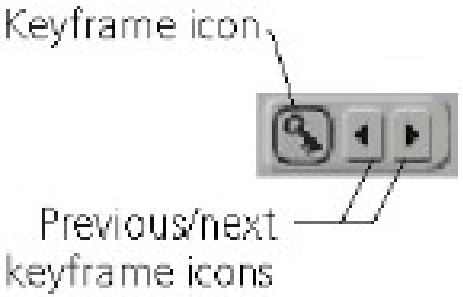
The three icons in the upper-right corner control how the property editor is updated as you work and select elements.

•The **Focus** icon updates the current property editor to show the properties of the element you select, but only if the element is the same type as was previously selected (hence "focusing" on the type of element). For example, if you display the property editor of a spotlight and then select a point light, that property editor is updated to display the properties of the point light because spotlights and point lights are both the same type of element. However, if you then select a geometric object, a blank page is shown, because lights and geometric objects are different types of elements.

•The **Recycle** icon keeps that property editor open and refreshes it to display the properties of any element you select. This is a convenient way of keeping only one editor open at all times. For example, if you select a cube, the property editor shows the cube's properties. Then if you select a light, the same property editor is updated to show that light's properties.

•The **Lock** icon keeps the property editor open for the selected element. You can open other property editors for other elements, but a locked property editor remains open until you close or recycle it.

Property Editor



Animation Controls

The upper-left corner of the property editor, just below the title bar, contains the following controls related to setting keyframes for properties.

- Two arrow icons that let you move to the previous keyframe and next keyframe.
- A keyframe icon that lets you set or remove keyframes for the current settings of marked parameters on the property page. Right-click for more options.

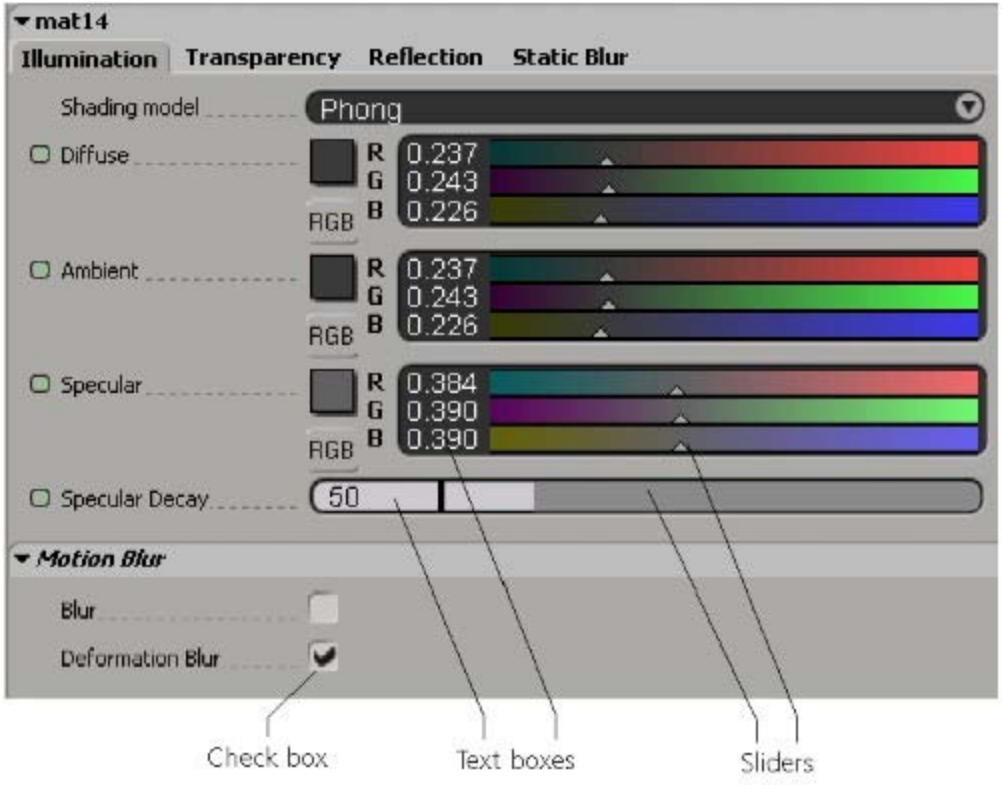
Displaying Property Editors

- There is more than one way to access an element's property editor: how you access an editor depends on your current work context:
- Select an object and:
  - Press Enter to display a property editor of the object.
  - Press Alt+Enter to display a property editor of the object, as well as those that belong to all its children.

- In the explorer, click the icon of an element or select an element, then click the Selection button on the Select panel to display a menu from which you can choose certain properties. Click the icon of the property set you wish to view.
- Use shortcut keys to open a property editor. Pressing Ctrl+k, for example, opens the Local or Global Transform property editor of a selected object. You can also create your own shortcut keys to open a property editor of your choice.

Setting Values for Parameters

- Object, shader, or operator parameter values can be edited directly by means of text boxes, check boxes, sliders, and virtual sliders located throughout the interface. You will change parameters mostly in property editors (as the one shown below).
- In addition to property editors, you can enter values in many of the text boxes in the main command panel, and use virtual sliders to change values in the explorer.
- You change the value of a parameter in a text box by typing in either text or numerical values. If a slider is associated with the text box, you can also drag the sliders to raise or lower the numerical values. Some sliders and text boxes, such as those that control color channels, are grouped together.
- If the text box contains more characters than it can display, it automatically scrolls with the text cursor.



Enter Values Using Sliders

- Do one of the following:
  - Click anywhere along the slider to set a value. Values on the left are lower and values on the right are higher. When you use the left mouse button to drag, the scene updates continuously.
  - Drag a slider to the right or left while pressing the Shift key to make finer adjustments.
  - Drag a slider to the right or left while pressing the Ctrl key to change the value of all the sliders in a color-control group simultaneously.
  - Drag with the middle mouse button. When you use the middle mouse button, the scene updates only when you release the mouse button instead of refreshing continuously as you drag. This is especially useful when setting values on parameters that may take a long time to update. Again, press Shift for finer adjustments.
  - If you need to specify more precise values than is possible with the sliders, you can enter values numerically.

- **Entering Values Outside of Slider Ranges**
  - Many parameters with sliders let you set values outside of the slider range. For example, the range of Local Transform property editor's Position sliders is between -50 and +50, but objects can be much farther from their parent's origin than that.
  - When you set a value outside a slider range, for example by typing it in, the displayed range automatically expands to twice the current value. For example, if the default range of a parameter is between 0 and 10 and you set the value to 15, the new range is 0 to 30. However, the change is not permanent — if you set the parameter to a value within the default range and then close and reopen the property editor, the displayed range is back to its default.

To enter information

- by increments
  - Click in the numeric text field and press the square bracket keys ([) and (]) to increment and decrement values as follows:

Press this...	To do this...
]	Increment by 1
[	Decrement by 1
Ctrl+]	Increment by 10
Ctrl+[	Decrement by 10
Shift+]	Increment by 0.1
Shift+[	Decrement by 0.1

- by increments
  - Click in the numeric text field and press the arrow keys to increment or decrement values as follows:

Press this...	To do this...
Ctrl+right-arrow	Increment by 10
Ctrl+left-arrow	Decrement by 10
Shift+Ctrl+right-arrow	Increment by 0.1
Shift+Ctrl+left-arrow	Decrement by 0.1

If you have a mouse wheel, click in the numeric text field, then roll the wheel forward to increment the value or backward to decrement the value.

Undoing and Redoing Edits

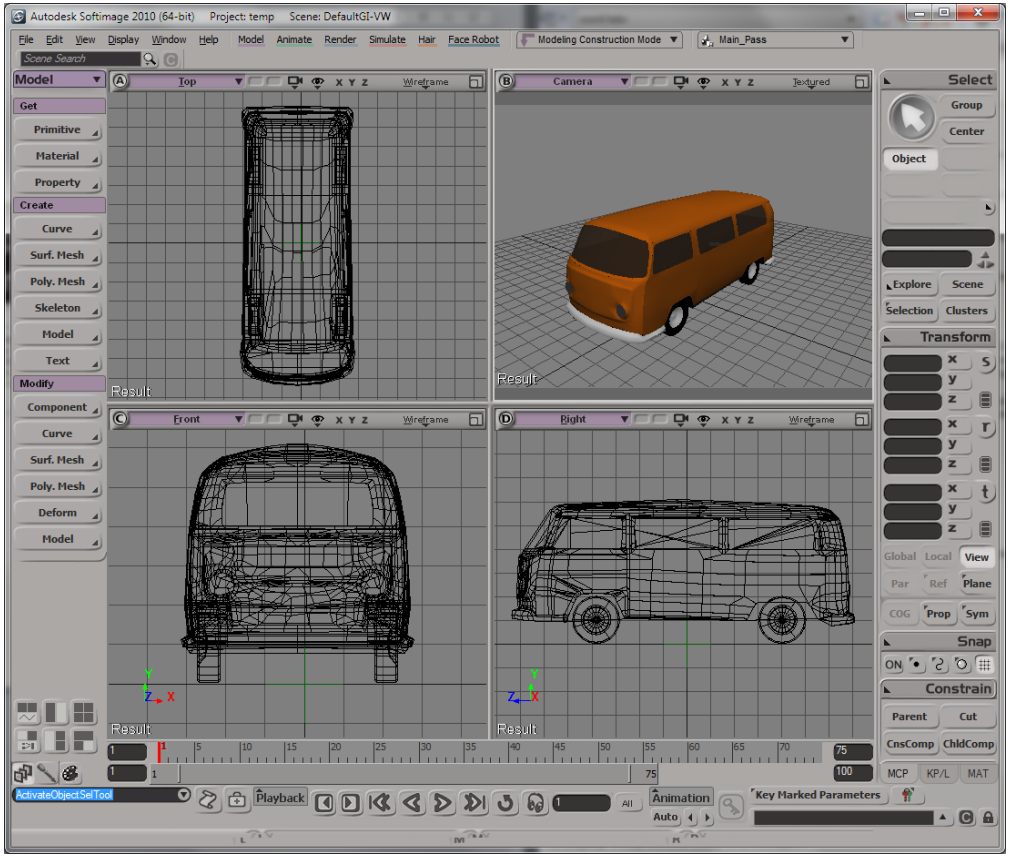
- You can undo most edits made from the Softimage interface, such as scaling an object or deleting a camera.
- *To undo an edit*
  - Choose the Edit > Undo command or press Ctrl+z.
  - You can continue to undo actions as far back as the system memory can recall. This is limited by the number of undo levels that you have specified in your user preferences (see below for setting this).
- Undo does not work on:
  - Changes made to shaders
  - Changes in viewport manipulations
  - Changes to light ray properties
- *To redo an edit*
  - Choose the Edit > Redo command or press Ctrl+y. You can invoke one redo command for each undo action.

- **Setting the Number of Undo Levels**
- There's enough space in the system memory to let you undo up to 1000 edits.

- *To set the number of undo levels*
  - Choose File > Preferences to open the Preferences window.
  - Click General.
  - In the Number of Undo Levels text box, enter the number of edits that can be undone.

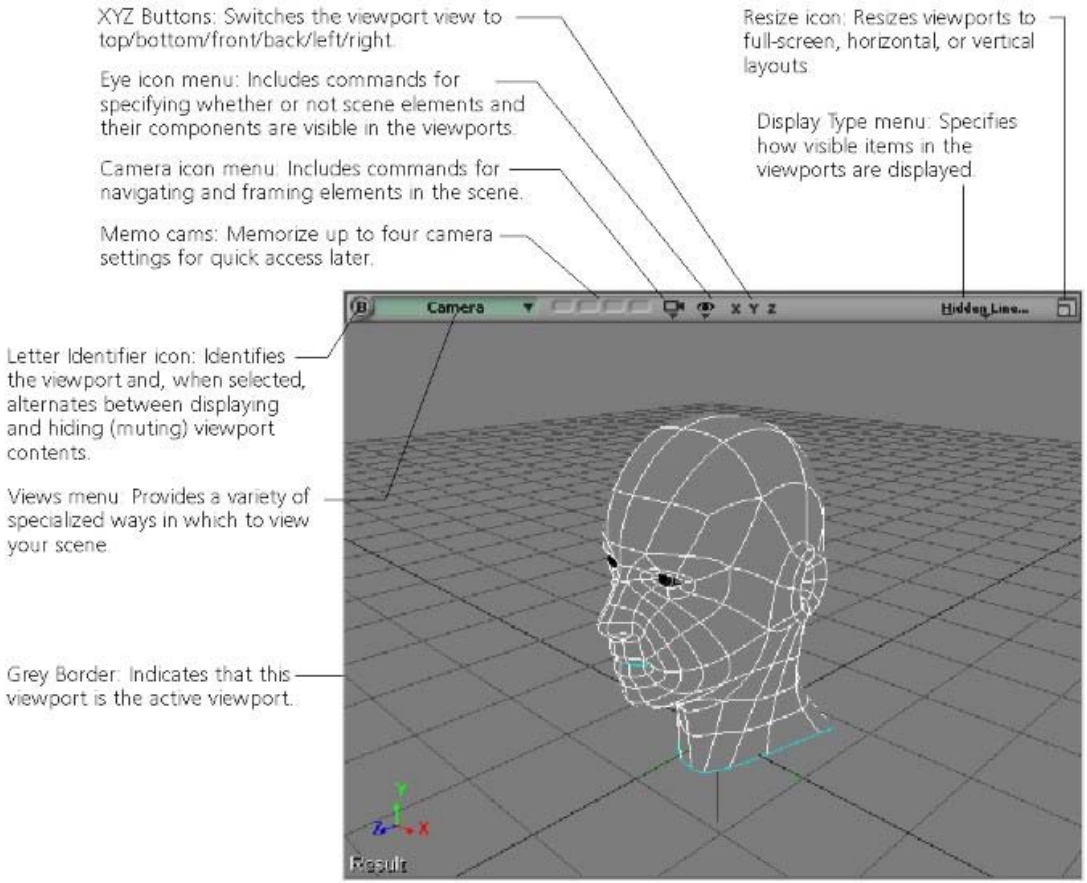
Working with Views Docked in the Viewports

- There are four viewports in the view manager at the center of the standard Softimage layout. Each viewport is identified by a letter. When you start Softimage, viewport A (top left) shows the Top orthographic view, viewport B (top right) shows the Camera perspective view, viewport C (bottom left) shows the Front orthographic view, and viewport D (bottom right) shows the Right orthographic view.
- The current view — that is, the last view you clicked in — is highlighted with a white border.



Viewports

- The viewing area of the interface contains four windows, called viewports, where you can view and work on your scene. Each viewport can display different types of views. You can display up to four different views in the viewports.
- Viewports can have different geometry views (Top, Front, Right, and User) and display types (Shade, Wireframe, Texture, Hidden Line, etc.). They can also display other tools such as the animation editor, browser, and the explorer. Any viewport can display any type of view.
- A viewport's menu bar contains a set of controls that allow you to perform various functions such as changing views and display types, setting scene visibility, and resizing the viewport.



Viewports

- **The Active Viewport**
- Clicking anywhere in a viewport makes it the “active” viewport. This is indicated by a thin grey border around the viewport. The active viewport is the camera/viewpoint view that is rendered when you use the Render toolbar’s Render > Preview > Active Camera command. For more information about preview rendering.

- **Muting and Soloing Viewports**
  - When a viewport is muted, it is prevented from displaying its contents. Muting a viewport’s neighbors helps speed up its refresh rate.
- *To mute or solo viewports*
  - To solo (view just one viewport), left-click on its letter. Left-click a second time to redisplay all viewports.
  - To mute a viewport, middle-click on its letter. Middle-click a second time to redisplay the viewport.
  - Right-click a viewport’s letter to display a menu with mute and solo commands.

Displaying Views in Viewports

- You can display many different views docked inside the viewports.
- *To display a view in a viewport*
  - Click the arrow or the name of the current view displayed on any viewport menu bar to open the Views menu.
  - Select the desired view from the menu.
- *To display the previous view in a viewport*
  - Middle-click the arrow or the name of the view on the viewport menu bar.

Maximizing and Restoring Viewports

- You can maximize a single viewport so that it occupies the full space taken by all four viewports. Alternatively, you can maximize viewports horizontally or vertically to display two or three viewports at a time. Restoring a viewport returns it to the previous size.

- *To maximize or restore a viewport*
- Do one of the following:
  - With the mouse pointer over the corresponding viewport, press F12.
  - Click the viewport's Resize icon.
  - Right-click the viewport's Resize icon, then choose Maximize or Restore.

- *To maximize or restore a viewport horizontally*
- Do one of the following:
  - Middle-click the viewport's Resize icon.
  - Right-click the viewport's Resize icon, then choose Horizontal or Restore.

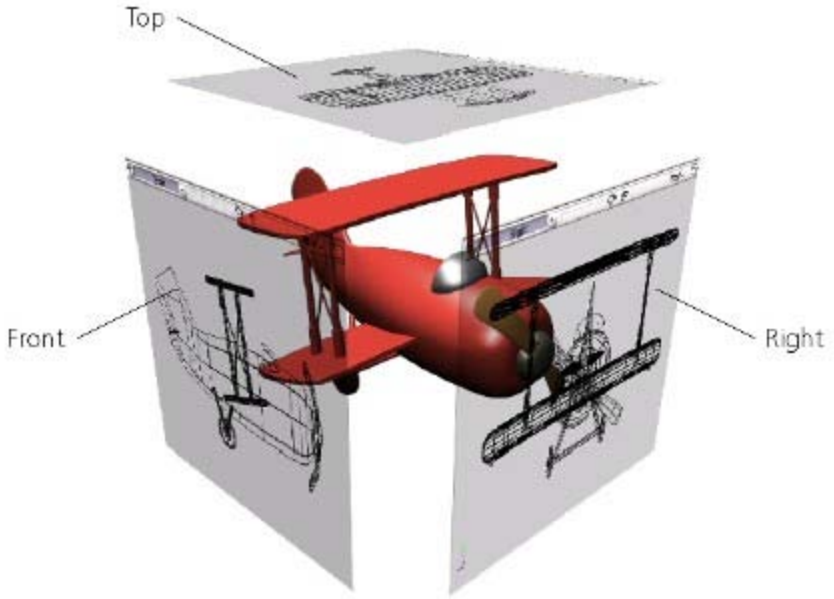
- *To maximize or restore a viewport vertically*
- Do one of the following:
  - Ctrl+middle-click the viewport's Resize icon.
  - Right-click the viewport's Resize icon, then choose Vertical or Restore.

Resizing Viewports

- You can change the relative sizes of the viewports, as well as reset them to their original sizes.
- *To resize viewports*
  - To resize horizontally, click and drag the vertical splitter bar that separates two viewports.
  - To resize vertically, click and drag the horizontal splitter bar that separates two viewports.
  - To resize freely, click and drag the intersection of the splitter bars that separates all four viewports.
- *To reset the viewport sizes*
  - To reset the size horizontally, middle-click the vertical splitter bar that separates two viewports.
  - To reset the size vertically, middle-click the horizontal splitter bar that separates two viewports.
  - To reset the size both horizontally and vertically, middle-click the intersection of the splitter bars that separates all four viewports.
- **Returning to the Default Viewports**
  You can return to the original state of the viewports by doing one of the following:
  - Right-click the viewport's Resize icon, then choose Reset Size. All four viewports are restored and their sizes are reset.
  - Right-click the viewport's Resize icon, then choose Reset All. All four viewports are restored, their sizes are reset, and the default views are displayed.

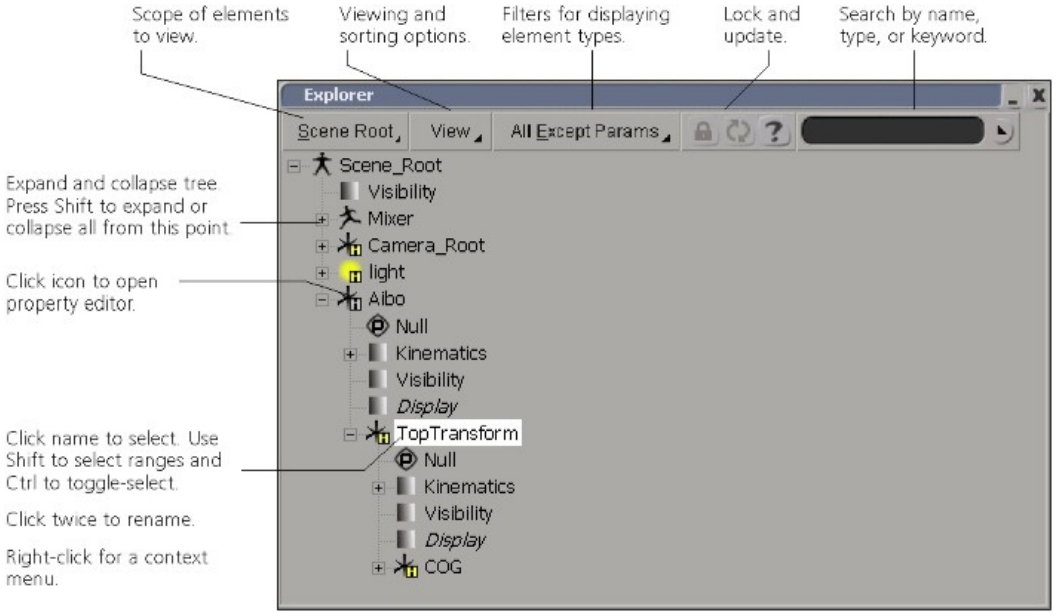
Viewpoints

- Viewpoints show you the geometry of objects in a scene. They can be viewed in the render region, but they cannot be rendered like camera views.
- You can also choose different display types to change the visual appearance of the objects seen in viewpoints.
- **Top, Front, and Right Views**
  - The Top, Front, and Right views are parallel projection views, called such because the object's projection lines do not converge in these views. Because of this, the distance between an object and the camera has no influence on the scale of the object. If one object is close to the camera, and an identical object is farther away, both appear to be the same size.
  - The Top, Front, and Right views are orthographic, which orients the camera so it is perpendicular (orthogonal) to specific planes:
    - The Top view faces the XZ plane.
    - The Front view faces the XY plane.
    - The Right view faces the YZ plane.



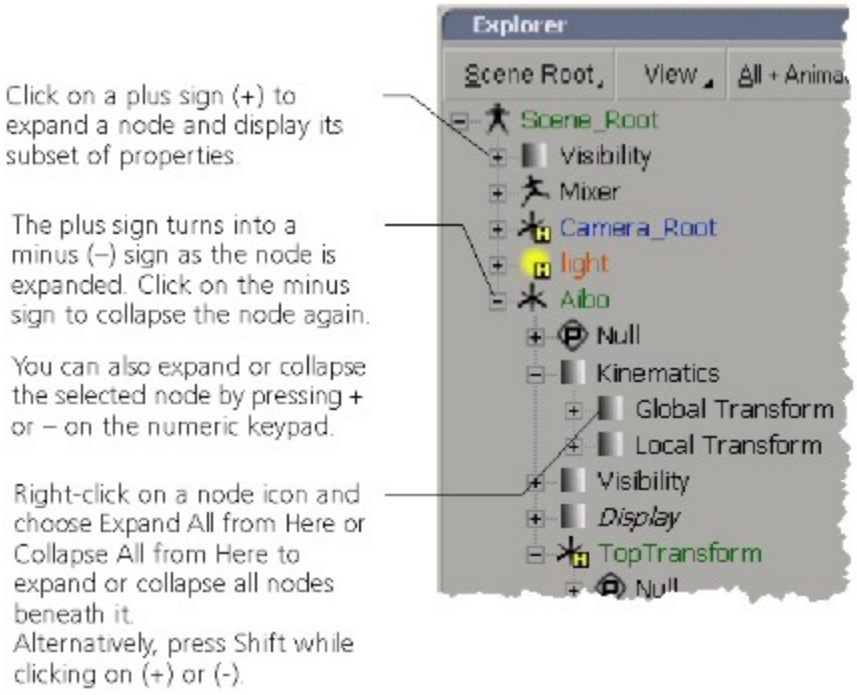
The Explorer

- The explorer (shortcut 8) displays the contents of your scene in a hierarchical structure called a tree. This tree can show objects as well as their properties as a list of nodes that expand from the top root.
- You normally use the explorer as an adjunct while working in Softimage, for example, to find or select elements. Using the explorer, you can:
  - Display and navigate among various elements.
  - Select scene elements.
  - Set the scope to determine the range of information shown.
  - Set filters to determine the types of information shown.
  - Find objects by name.
  - Sort and reorder elements.
  - Rename scene elements.
  - Create parent/child relationships between objects by dragging and dropping.
  - Add objects to groups, layers, and partitions by dragging and dropping.
  - Duplicate elements by Ctrl+dragging.



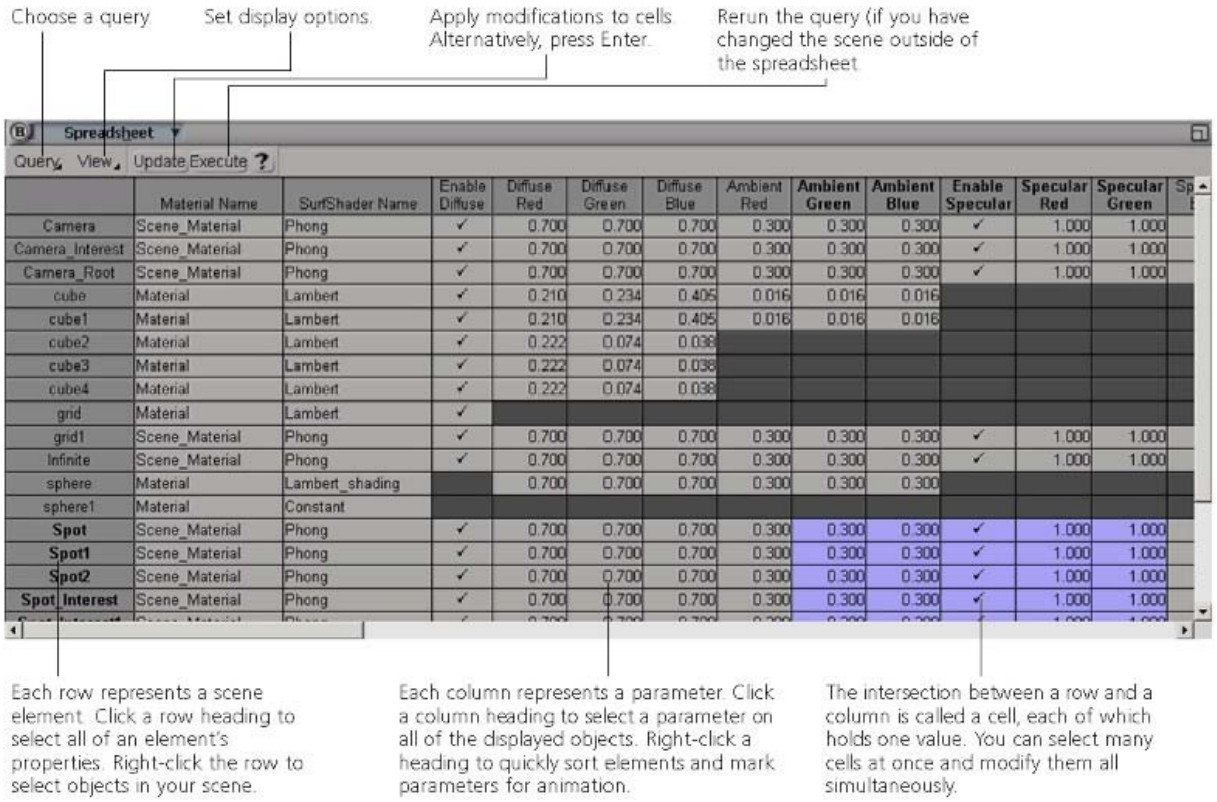
Explorer: Element Tree

- The explorer displays elements in a tree-like hierarchy of nodes.
  - You can pan the view by dragging up and down in an empty area within the explorer.
  - If your mouse has a wheel, you can also use it to scroll up and down in an explorer window. Simply make sure the explorer has focus (click anywhere in the explorer) before using the wheel.



The Spreadsheet

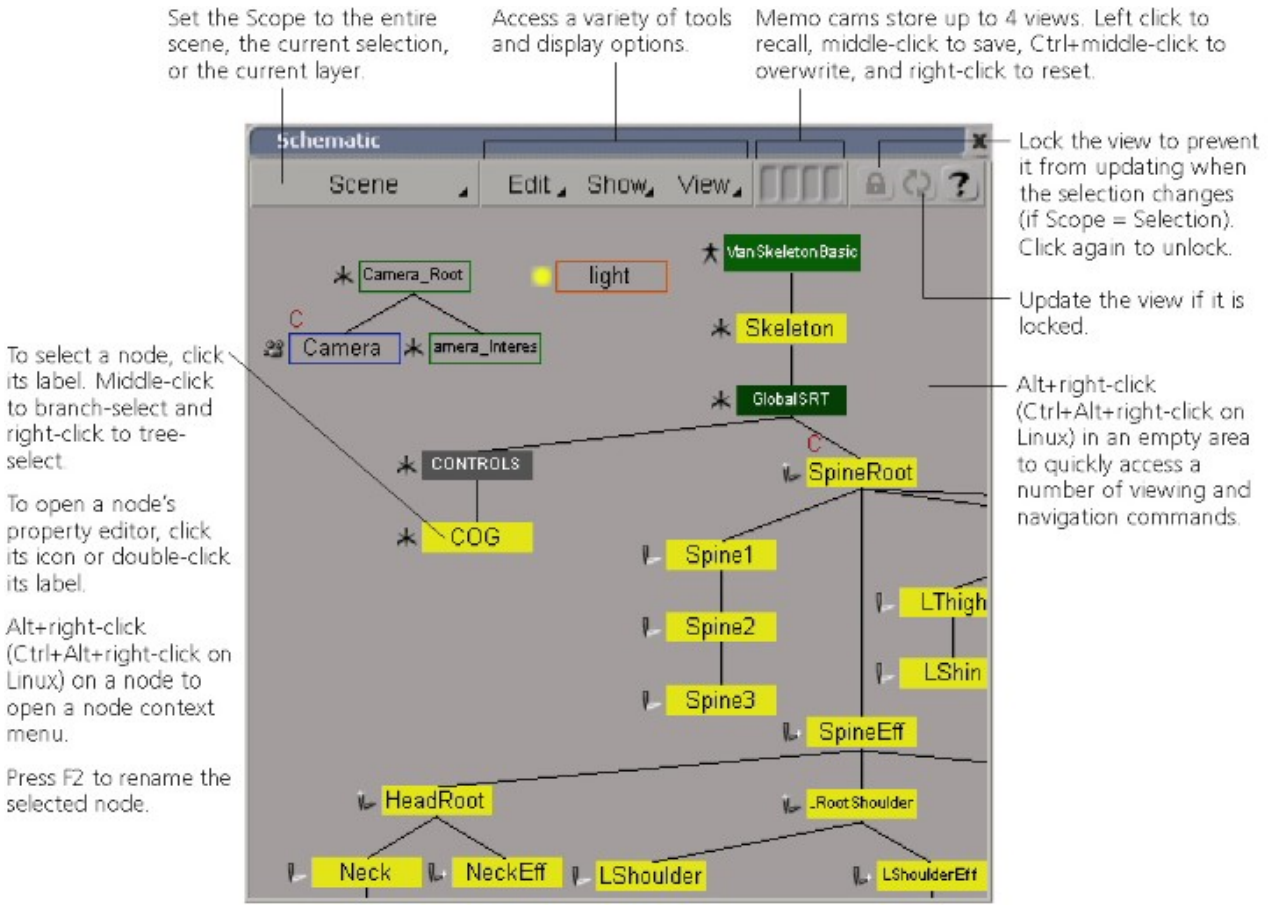
- The spreadsheet view displays scene information about elements and their parameters in a grid. This information is filtered and organized by queries that you create to show specific aspects of your scene in combination with sorting operations you can perform based on object data. You can then perform operations on many elements or parameters at once.

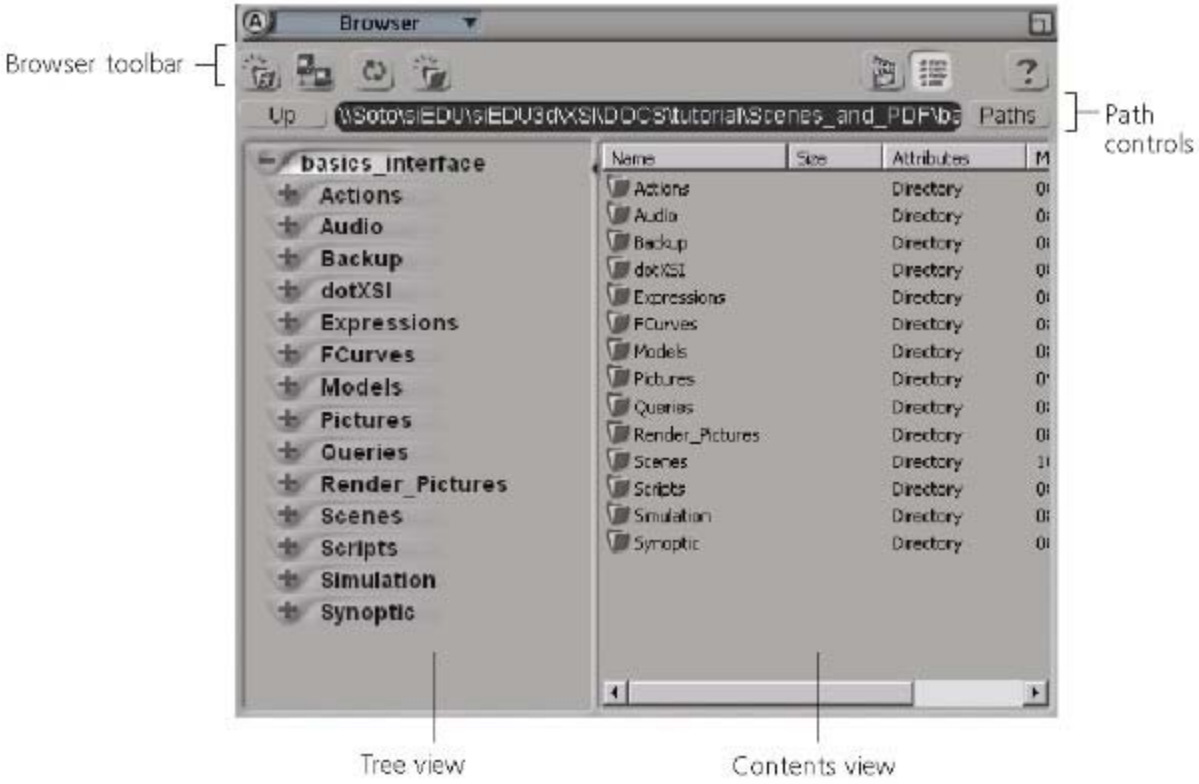


	Material Name	SurfShader Name	Enable Diffuse	Diffuse Red	Diffuse Green	Diffuse Blue	Ambient Red	Ambient Green	Ambient Blue	Enable Specular	Specular Red	Specular Green
Camera	Scene_Material	Phong	✓	0.700	0.700	0.700	0.300	0.300	0.300	✓	1.000	1.000
Camera_Interest	Scene_Material	Phong	✓	0.700	0.700	0.700	0.300	0.300	0.300	✓	1.000	1.000
Camera_Root	Scene_Material	Phong	✓	0.700	0.700	0.700	0.300	0.300	0.300	✓	1.000	1.000
cube	Material	Lambert	✓	0.210	0.234	0.405	0.016	0.016	0.016			
cube1	Material	Lambert	✓	0.210	0.234	0.405	0.016	0.016	0.016			
cube2	Material	Lambert	✓	0.222	0.074	0.038						
cube3	Material	Lambert	✓	0.222	0.074	0.038						
cube4	Material	Lambert	✓	0.222	0.074	0.038						
grid	Material	Lambert	✓									
grid1	Scene_Material	Phong	✓	0.700	0.700	0.700	0.300	0.300	0.300	✓	1.000	1.000
Infinite	Scene_Material	Phong	✓	0.700	0.700	0.700	0.300	0.300	0.300	✓	1.000	1.000
sphere	Material	Lambert_shading		0.700	0.700	0.700	0.300	0.300	0.300			
sphere1	Material	Constant										
Spot	Scene_Material	Phong	✓	0.700	0.700	0.700	0.300	0.300	0.300	✓	1.000	1.000
Spot1	Scene_Material	Phong	✓	0.700	0.700	0.700	0.300	0.300	0.300	✓	1.000	1.000
Spot2	Scene_Material	Phong	✓	0.700	0.700	0.700	0.300	0.300	0.300	✓	1.000	1.000
Spot_Interest	Scene_Material	Phong	✓	0.700	0.700	0.700	0.300	0.300	0.300	✓	1.000	1.000

The Schematic View

- The schematic view presents the scene in a hierarchical structure so that you can analyze the way a scene is constructed. It includes graphical links that show the relationships between objects, as well as material and texture nodes to indicate how each object is defined.



The Browser

- The Softimage file browser is a type of window specifically used to:
  - Search (browse) through scene databases, project directories, preset libraries, and other repositories whose files are required to build a project.
  - Import scene files from databases as well as load scene and project files.
  - Perform file management tasks such as moving, copying, renaming, and deleting files.