

Bryce 3D Basics



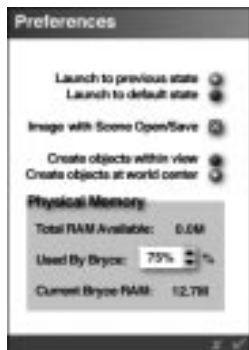
Overview

This section describes how to perform most of the basic functions in Bryce and how to set up the application.

Setting Application Preferences

By setting application Preferences, you can customize Bryce to suit the way you work. You do not have to restart Bryce to make these changes take effect.

Application Preferences are set in the Preferences dialog.



The Preferences dialog lets you set the opening state of the application and customize it.

To set the application's launch state:

1. Choose **Edit menu> Preferences**.
The Preferences dialog appears.

2. Enable either Launch to Previous State or Launch to Default State.

Launch to Previous State launches Bryce using the settings from your last session.

Launch to Default State launches Bryce using the default settings.

To save PICT or bitmaps used in a scene with a file:

1. Choose **Edit menu> Preferences**.
The Preferences dialog appears.
2. Enable PICT with Scene Open/Save.

With this option enabled, Bryce will automatically open or save a PICT or BMP file (PICT/BMP files are automatically appended with the extension) along with your scene file every time you open or save. In most cases, this option should always be selected.

To control new object placement:

1. Choose **Edit menu> Preferences**.
The Preferences dialog appears.
2. Enable either Create Objects Within View or Create Objects at World Center.

Create Objects Within View places newly created objects within the camera view, rather than at world center.

Create Objects at World Center places newly created objects at world center, regardless of whether they will be visible in your current camera view.

Setting Up the Bryce Window

When you first launch Bryce 3D, the interface snaps to the edges of your screen. The menu bar is hidden until you pass your cursor over it, and other applications are hidden behind Bryce. This setup lets you work with a uncluttered desktop.

To maximize the Bryce window:

1. Pass the cursor over the right side of the Working window. The Advanced Display palette appears.

2. Click the Interface Max/Min tool.



Use the Interface Max/Min tool to switch between a Bryce window and a standard window.

3. Click the tool again to switch to a standard window.

Setting Up the Working Window

Before you start working in Bryce, you may want to set up how objects are displayed in the Working window. These display modes can help you when you're arranging objects and can also speed up your redraw time.

Display Modes

The Display Mode tool, at the bottom-right corner of your Working window, toggles through the three possible display modes.

To switch between display modes:

1. Click on the Display Mode tool in the corner of the Working window.

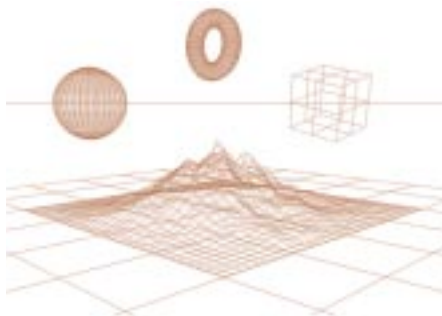


This button is only visible when you pass your pointer over it.

2. Click the button until you're in the desired mode.

There are three modes available:

- Wireframe Display shows all objects as wireframes.



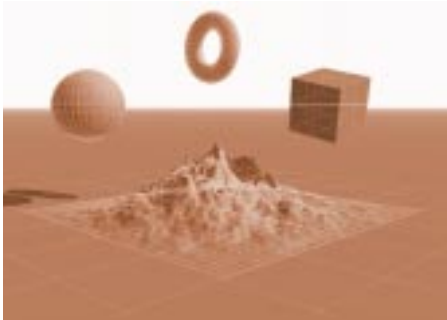
In Wireframe Display all objects are shown as wireframes.

- Bitmap Display shows a rendered scene. The display automatically switches to this mode whenever you click the Render button.



In Bitmap Display all objects are displayed as rendered objects.

- Wireframe/Bitmap Display lets you edit wireframes while simultaneously viewing your rendered image behind them.



In Wireframe/Bitmap display, all objects are displayed as wireframes, but with the rendered image in the background.

This mode is most useful when you have a partially-rendered image and are unhappy with the results. If you switch to this mode, you can move your wireframe objects, relative to the rendered image behind it. In this way, you can accurately judge the results of your change.

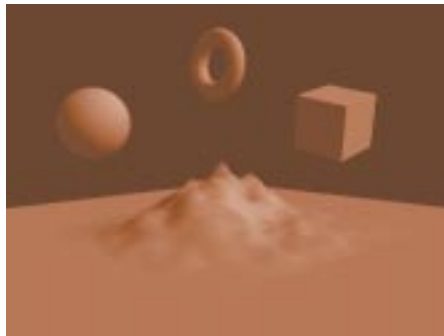
To toggle between modes:

- ⌘ Press the Esc key.

The Esc key will toggle between the last Wireframe mode you selected (Wireframe, or Wireframe/Bitmap) and Bitmap mode.

Flat Shaded Preview Mode

This preview mode is only available if your system contains hardware that supports OpenGL.



In Flat Shaded Preview display, all objects are displayed as flat shaded solids.

When this mode is active your objects appear as flat shaded solids instead of wireframes, and you can see the effects of light sources on object surfaces. However, you can't see materials.

To display objects in Flat Shaded Preview:

- ⌘ Hold down the mouse button over the Display Mode button and choose OpenGL from the menu.

Wireframe attributes

When you're in Wireframe mode, there are several options you can set to make the display more helpful. Disabling some of these options may speed up drawing time.

To set Wireframe attributes:

1. Make sure you're in Wireframe mode. Click the Display Mode tool until the display switches to Wireframe.
2. Drag the Depth Cue control up or down. Dragging up increases the intensity of the depth cueing effect and dragging down decreases it.



When depth cueing is active, the wireframe appears lighter the farther it is from the camera.



When depth cueing is active, objects appear lighter the farther they are from the camera.

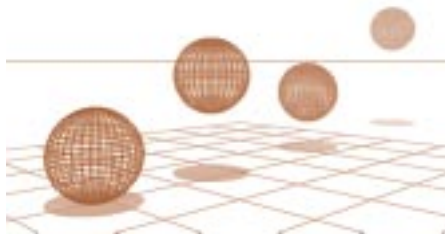
If you hold down the Control key/ Ctrl+Alt keys and click on the Depth Cue icon, Bryce will turn both antialiased wireframes and depth cueing on or off simultaneously.

3. Click the Wireframe Shadows button to turn shadows on or off.



Shadows are designed to help you determine object placement in your scene. For this reason shadows

appear even when there is no ground plane or when the object is below the ground plane.



You can use wireframe shadows to help you determine the placement of objects in the scene.

This feature may slow down your system when working with a complex scene on slower machines.

4. Click the Underground On/Off button to hide or show underground lines.



When underground lines are hidden, any portion of a terrain or object that is positioned below ground level will not be visible in your wireframe scene. This is useful for easy

visualization and composition. However, you might overlook an object that is hidden underground.



When underground is enabled, objects that are positioned below the ground plane are not visible in the scene.

5. Click the Resolution tool and then choose Static, Selected or Motion. Then choose a resolution for the wireframe mode.



Static is the resolution of the wireframe when the object is not moving.

Selected is the resolution of the wireframe when the object is selected.

Motion is the resolution of the wireframe when the object is being moved.

Window Backgrounds

The background texture of the working window can add a great deal to the overall look of the interface. It makes it easier to see wireframes and selected objects.

To select a background texture:

- ※ Click the Background Paper button and choose a background from the menu.



Adding a background texture may slow down some machines. If you need more speed for any reason, select No Texture, and you will get a simple, clean background with no texture.

To select a background color:

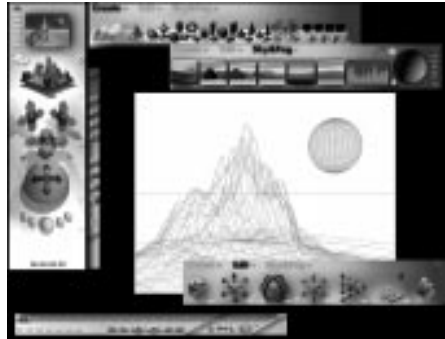
1. Click the Background Paper button and choose Select Color from the menu.
2. Use the color picker to select a color.

Using the Bryce Interface

The Bryce 3D interface can be completely customized. If you want to, you can tear apart the interface and reposition any palette, or you can choose to hide the entire interface and leave only the working window visible.

To move a palette:

- ※ Hold down the Spacebar and drag the desired palette to a new location.



When you break the interface apart, you can see all the palettes at the same time. You can move these palettes anywhere in the Bryce window.

To reset a palette to its original position:

- ※ Hold down the Option/Alt key and the Spacebar, then click on a palette, or choose **Edit menu > Reset Palettes** to reset all palettes to their default positions.

To hide the Bryce interface:

1. Press Command-Tab/Ctrl+Tab. All the palettes disappear and your image appears at the center of your work space.
2. Press Command-Tab/Ctrl+Tab again to display all the palettes.

To display individual palettes:

1. Press Command-Tab/Ctrl+Tab to hide the interface.
2. Press the key combination for the palette you want to display:
 - Command-1/Ctrl+1=Create palette
 - Command-2/Ctrl+2=Edit palette

- Command-3/Ctrl+3=Sky&Fog palette
- Command-4/Ctrl+4=Control palette
- Command-5/Ctrl+5=Selection palette
- Command-6/Ctrl+6=Display palette

Displaying Text Information

The Text Display area at the bottom of the Control palette displays a great deal of valuable information about the interface and statistics for your scene.

During rendering, the Text Display area displays projected and elapsed time estimates. This estimate does not include the time for antialiasing. The total time, including antialiasing, will be calculated and displayed in the Render Report.

When you're working in the Timeline or Animation controls, the Text Display area displays the current time.

To display information about the interface:

- ⌘ Pass the pointer over any interface element.
The name of the element is displayed. In some cases, the element's current settings are also displayed.

To display statistics about the objects in your scene:

1. Switch to Wireframe display using the Display Mode tool.
2. Pass the pointer over the working window.
 - If no objects are selected, the Text Display area displays a count of all of the objects in your scene, as well as a total polygon count.
 - If an object is selected, the Text Display area displays object and polygon counts for the selected object.

To display information about rendered images:

1. Switch to bitmap display mode using the Display Mode tool.
If you have not rendered your image, the working window is blank.
2. Pass the pointer over the working window.
The Text Display area shows information about free memory and file dimensions.

Displaying/Hiding Palettes

To keep the interface uncluttered, many of Bryce's palettes and toolbars are hidden when you first launch the application. Some palettes are hidden behind other palettes.

To display different palettes:

- ⌘ Click on a text button above the Working window, or press the key combination for the desired palette:
 - Command-1/Ctrl+1=Create palette
 - Command-2/Ctrl+2=Edit palette

- Command-3/Ctrl+3=Sky&Fog palette
- Command-4/Ctrl+4=Control palette

To display hidden palettes:

- ✱ Pass the cursor over the edges of the Working window, or
- ✱ Press the key combination for the hidden palette you want to display:
 - Command-5/Ctrl+5=Selection palette
 - Command-6/Ctrl+6=Display palette

Displaying Submenus and Pop-up Dialogs

Wherever you see an inverted or sideways triangle icon in the interface, it indicates that there is a menu or other item available, which contains options pertinent to the item closest to it. For example, in the Edit palette, there are

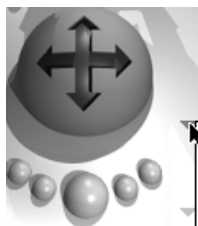
triangle icons next to each tool in the palette. These triangles access the additional options for the tools.



The triangle icon next to a tool or text button indicates that there are more options available for the element.

To display a submenu:

- ✱ Click the triangle icon.



Trackball
Center to Selection
Tripod
Free Camera

Click the triangle icon next to a tool to access additional options.

Working with Documents

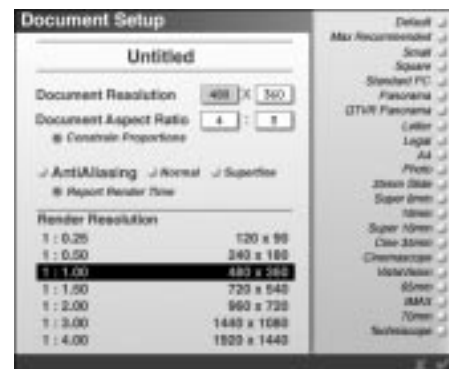
Before you can create a Bryce environment you need a document. A document can be either a blank scene or an existing file that you're going to edit.

Creating an Empty Scene

When you create a blank scene, Bryce opens the Document Setup dialog which lets you specify the aspect ratio and dimensions of the new scene.

To create a new document:

1. Choose **File menu> New**. The Document Setup dialog appears.



Use the Document Setup dialog to set the resolution and aspect ratio for your image.

2. Enter values in the Document Resolution fields.

This is the absolute size of your working space expressed in pixels. You can enter any values you like here, though it's recommended that

you not exceed your available screen space if you can avoid it. You can work small and render large if you need to. The values in the Aspect Ratio fields will update automatically as needed.

3. Enter values in the Document Aspect Ratio fields.

These fields represent the Document Resolution as a ratio. Depending on the type of work you are doing, it may be more convenient to enter values here rather than in the resolution fields above. For instance, many video formats, as well as the standard 13" screen, are 3:4 aspect ratios.

The values in the Document Resolution fields will update automatically if you change the aspect ratio.

- 4.** Enable the Constrain Proportions button if you want to preserve the current aspect ratio as you adjust the resolution.
- 5.** Select a Render Resolution from the list.

This resolution sets the absolute size of your rendered image, expressed in pixels as a multiple of your document size.

You may be working at Bryce's default size as you build your scene, but you may then wish to render that scene four times larger for print, or four times smaller for a Web page. Rather than resetting your document resolution every time you render, and thus impacting your wireframe workspace, you can simply set a separate size for rendering. Think of Document Resolution as input, and Render Resolution as output.

The default resolution is 480 x 360, and the default aspect ratio is 4:3.

To set up a new document using presets:

- 1.** Choose **File menu> New**. The Document Setup dialog appears.
- 2.** Click one of the preset aspect ratios displayed along the right side of the dialog.

These presets are aspect ratios for many useful document types. The pixel values that are placed in the

Document Resolution fields are either absolute (as in Legal or Letter) or based on your available screen resolution (as in Maximum Recommended or Square).

If you hold down the Control key/ Ctrl+Alt keys when you're accessing this dialog, the last Render Resolution option will be called Maximum, and will automatically set up the largest possible vertical render size based on your current Aspect Ratio.

Opening an Existing File

Bryce 3D can open any file created in Bryce 2 (Mac or PC).

To open an existing file:

- 1.** Choose **File menu> Open**.
- 2.** Use the dialog controls to locate and open your file.

Merging scenes

You can merge two Bryce scenes using the Merge command. When you use this command the scene you open is merged with the currently open scene. Objects from the scene you're opening are placed in your current scene, at the same absolute coordinates that they previously occupied.

To merge two scenes:

Choose **File menu > Merge**. A dialog appears prompting you to save the current scene.

1. Click Save. The Open dialog appears.
2. Use the dialog controls to locate the file you want to merge and click Open.

The file you selected is merged with the current scene.

Holding down the Option/Alt key while performing this function will merge only the sky from the incoming scene.

Working in a Scene

Displaying Your Scene

The display of your scene is controlled by the display mode you selected when you set up the Working window. You can also control how individual objects are displayed and how your scene is displayed in the Nano-Preview.

Changing Object Display

You can change how your objects are displayed using the Object menu commands. Changing the object preview can greatly reduce redraw time in a complex scene. The Object's preview does not affect how the object renders.

To display objects as boxes:

1. Choose **Object menu > Show Object as Box**.

This command displays any selected object, objects, or group as box(es). This is useful when you just want to work with the object's position, but don't need more details.

Keyboard Shortcut: Command-B/
Ctrl+B.

To display objects as wireframes:

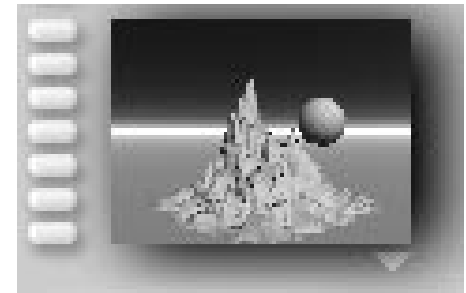
- ✱ Choose **Object menu > Show Object as Lattice**.

Use this command to change objects shown as boxes back to wireframes.

Keyboard Shortcut: Command-L/
Ctrl+L.

Using the Nano-Preview

The Nano-Preview is where your object is displayed before you render it. The preview can display your scene from a number of different angles without affecting the position of the camera.



The Nano-Preview displays a rendered preview of your scene.

To display your scene from different angles in the Nano-Preview:

- ✳ Click the triangle icon below the Nano-Preview and choose a preset display angle.



Click the triangle icon to access the preset display angles for the Nano-Preview.

The view of your scene does not change in the Working window.

To set Nano-Preview options:

- ✳ Click the triangle icon below the Nano-Preview and choose a display option:
 - Sky Only previews only your sky settings.
 - Full Scene previews your actual scene. This is the default setting for the Nano-Preview.
 - Wireframe Only previews your wireframes only, as opposed to a rendered preview.
 - Auto Update will automatically update the preview render with every single change you make during your session. In most cases, this is a godsend, giving you almost immediate feedback after any action. On slower machines, or when working with highly complex scenes, you may wish to deselect this option.

With this option deselected, you'll need to click in the

Nano-Preview window or press Control-R/Ctrl+Alt+R to update the render.

Viewing Your Scene

When you're creating an environment in Bryce, your scene can quickly become rather large. You may not be able to see the entire landscape in the Working window. Bryce has several tools that can help you see every inch of your new world.

Orthogonality and Views

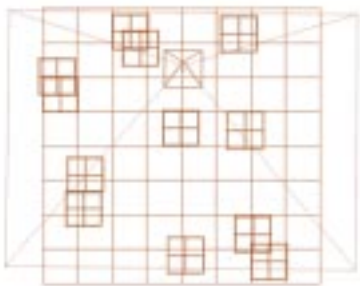
When you view a scene from the side, front, top or bottom using the Camera, you'll see certain amounts of perspective distortions. These distortions can make precise visual alignments difficult.

For instance, if you had a dozen cubes in different locations, and then went to Top View to place them on top of one another, you would find it very difficult. Cubes further from the camera would be slightly smaller than cubes close to the camera. This results in a confusing array of lines. The more complex the scene, the more confusing and difficult this kind of alignment becomes.



If you viewed objects from above through a real-world camera, the perspective distortions would make aligning or placement difficult.

To solve this problem, Bryce 3D uses a perspective-free, *drafting board* kind of view in which like-sized objects far away appear exactly the same as those up close.



Bryce uses an “orthogonal projection” of your objects to eliminate perspective distortion.

This perspective-free view is called an *orthogonal projection*. In Bryce 3D, all views other than your Main View (that is, Top, Bottom, Right, Left, Front and Back) are orthogonal projections. They are not generated by the camera, and so do not contain the perspective distortion that would necessarily come with a camera view.

As a result, Camera controls do not work in these views. You can navigate within the orthogonal views using the Zoom and Pan tools.

If you press the Render button while in an orthogonal view, Bryce will quickly set up the camera position you need, and render your image. There may be slight differences between what you see in the wireframe projection and what you see in the rendered image, as a result of the added perspective distortion in the rendered image.

Zooming In and Out

In Bryce there is a difference between moving the camera and using the zoom tools.

When you move the Camera, you’re moving in 3D space. When you use the pan and zoom controls, you’re transforming a 2D projection of your 3D scene—your camera position does not change.

When you use the Zoom tool, you are essentially making the 2D projection larger or smaller. Your camera position in 3D space does not change.

To zoom in:

- ※ Click on the Zoom In tool.



Bryce scales the 2D projection of your scene larger, creating the illusion of zooming into your 3D scene; your camera position remains unchanged.

Keyboard Shortcut: Command-plus/ Ctrl+plus.

To zoom out:

- ※ Click the Zoom Out tool.



Bryce scales the 2D projection of your scene smaller, creating the illusion of zooming out of your 3D scene. Your camera position remains unchanged.

Keyboard Shortcut:
Command-minus/Ctrl+minus.

To zoom into an area:

- ⌘ Hold down Command-Spacebar/Ctrl+Spacebar and drag a marquee around an area of your scene.

Your cursor changes to a Zoom tool, and Bryce centers and scales up the area in the marquee to fit your window.

To zoom out of an area:

- ⌘ Hold down Command-Option-Spacebar/Ctrl+Alt+Spacebar and drag around an area.

Bryce scales down your entire scene to fit within the area your marquee selected.

To zoom numerically:

1. Double-click the Trackball in the Control palette. The Camera & 2D Projection dialog appears.
2. Enter a value in the Scale field.
The default value is 100%.

To reset the zoom value:

- ⌘ Press the Option/Alt key and click the Zoom tool.
The view of your scene resets to 100%.

Panning

Panning works exactly like zooming. When you use the Panning tool, you are moving a 2D projection of your scene right and left, up and down in front of the camera. Your camera position in 3D space does not change.

To pan your scene using the Pan tool:

- ⌘ Drag over the Pan tool in the direction you want your scene to move.

To pan your scene using the Spacebar:

- ⌘ Hold down the Spacebar and drag in the direction you want your scene to move.

To pan numerically:

1. Double-click the Trackball in the Control palette. The Camera & 2D Projection dialog appears.
2. Enter a value in the Horizontal field.
The default value is 240.
3. Enter a value in the Vertical field.
The default value is 180.

To reset the pan value:

- ⌘ Press the Option/Alt key and click the Pan tool.
The view of your scene resets to 240 horizontal and 180 vertical.

Using Fly-around View

You may have noticed a tiny circular icon above and to the right of the Views icon; clicking here will change from your current View to a special *motion view*, or Fly-around View.



In Fly-around view your scene rotates so you can see it from a number of angles.

This view enables you to get a sense of context in your Bryce world. If you're working close to the ground, or stuck in the midst of a clump of trees, or you've lost a cube you know you created a half an hour ago, you can use the Fly-around view to see your entire scene all at once.

In Fly-around view, Bryce positions the Camera on an imaginary monorail track above and away from your scene such that you can see the whole thing from all sides as the camera moves around it.

To switch to Fly-around view:

- ※ Click the Fly-around view icon next to the View control. The View control icon changes to the Fly-around control icon.



To switch back to Camera view:

- ※ Click on the Fly-around view icon again.

To rotate the view of your scene in Fly-around view:

- ※ Move your mouse in the direction you want to rotate. The scene rotates in the direction you drag.

To zoom in and out in Fly-around view:

- ※ Hold down the Command/Ctrl key.

To pause the Fly-around:

- ※ Press the Spacebar.

To end the Fly-around and save Fly-around position:

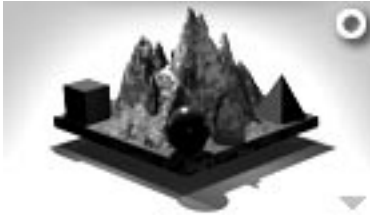
- ※ Press Return/Enter. The view switches back to camera view and the last Fly-around position becomes the new Camera View.

Keyboard Shortcut: Command-Y/
Ctrl+Y.

Using the View Control

Bryce lets you view your scene from several preset positions; Main, Top, Front, and Side, Bottom, Right, Left and Back. All these views with the exception of the Main View are special Orthogonal projections which allow perspective-free views well-suited for alignment operations.

The View control is an interactive way of cycling through the various preset views. The current position of the View control indicates the view you're seeing in the Working window.



The View Control lets you select from different views of your scene.

To switch views using the View control:

- ⌘ Click or drag the Views control until you reach the view you are looking for.
- Every time you click the control Bryce displays a different preset view.

To switch views using the View control menu:

- ⌘ Click the triangle icon next to the View control and select a view option:

- Camera View: select this option to view your scene as the Camera sees it, based on the Camera's current location and orientation.
- From Top: select this option to view a perspective-free orthogonal projection of your scene as seen from above (based on absolute world coordinates).
- From Right: select this option to view a perspective-free orthogonal projection of your scene as seen from the right (based on absolute world coordinates).
- From Front: select this option to view a perspective-free orthogonal projection of your scene as seen from the front (based on absolute world coordinates).
- From Left: select this option to view a perspective-free orthogonal projection of your scene as seen from the left (based on absolute world coordinates).
- From Back: select this option to view a perspective-free orthogonal projection of your scene as seen from behind (based on absolute world coordinates).
- From Bottom: select this option to view a perspective-free orthogonal projection of your scene as seen from below (based on absolute world coordinates).
- Director's View: select this option to view you seen from the perspective of a director sitting outside the scene.

To switch views using the keyboard:

- ⌘ Select a preset view shortcut:
 - Camera View=1
 - Top View=2
 - Right View=3
 - Front View=4
 - Director's View=5

To reset the view of your scene:

- ☼ Click the triangle icon next to the View control and choose Reset Views, or
- ☼ Press the Option/Alt key and click on the Views icon.

This option resets your Camera View to Bryce's default setting.

Selecting Objects

Before you can perform any type of editing or transforming operation on an object, you need to select it. Besides selecting objects using the cursor, Bryce's Selection tools let you select objects by type or family. You can also cycle through all the objects in your scene.

To select an object:

- ☼ Click on any object. A selected object's wireframe will appear red, or
- ☼ Drag a marquee around the object.

To select a number of objects:

- ☼ Shift-drag a marquee around a number of objects.

To step through all the objects in your scene:

- ☼ Press the Tab key until the object you want selected appears in red.

To select all objects:

- ☼ Choose **Edit menu> Select All**, or
- ☼ Press Command-A/Ctrl+A.

To select an object within a group:

- ☼ Hold down Control and click the desired object.

To deselect all:

- ☼ Choose **Edit menu> Deselect All**, or
- ☼ Click anywhere outside the selected area.

To add objects to a selection:

- ☼ Hold down the Shift key while selecting the object.

To remove objects from a selection:

- ☼ Shift-click the selected object.

To select obscured objects:

- ☼ Hold down the Shift key and select through the obscuring object. All objects underneath the cursor and behind the frontmost object will be selected.

The Selection Palette

The Selection palette is hidden behind the Animation controls in Bryce's default state. The palette is divided into two sections: select by type tools and the VCR controls.



The Selection palette has tools for selecting objects in variety of different ways.

To display the Selection palette:

- ※ Click the Swap button in lower right corner of the Working window. The Selection palette appears.



Click the Swap button to switch between the Animation and Selection palettes.

Selecting By Object Type

The Select by Type icons let you select all the objects in your scene that are of a particular type. For instance, clicking on a sphere here will select all spheres and sphere-derivative objects in your scene.

The following tools are available:



Selects all Infinite slabs.



Selects all Water, Cloud, and Ground planes.



Selects all Terrain objects.



Selects all Stone and Mesh objects.



Selects all Symmetrical Lattice objects.



Selects all Torus objects.



Selects all Spheres, Ellipsoids, and Squashed Spheres objects.



Selects all Cylinder, Tuboid, Squashed Cylinder, and Stretched Cylinder objects.



Selects all Cube, Brickoid, and Stretched Cube objects.



Selects all Pyramid objects.



Selects all Cone, Stretched Cone, and Squashed Cone objects.



Selects all 2D Disk objects.



Selects all 2D Face and 2D PICT objects.



Selects all Radial Light objects.



Selects all Spotlight objects.



Selects all Square Spotlight objects.



Selects all Parallel Light objects.

To select a specific object by type:

- ※ Hold down the cursor over the tool for the type of object you want to select and choose the name of the object from the menu that appears.

You must first name objects, if you want them to appear in this menu. Refer to **“Naming Objects” on page 107** for more on naming objects.

To select objects by family:

- ※ Click the Families tool and choose the name of family you want to select from the menu.

You must first name a family if you want it to appear in this menu. Refer to **“Families” on page 309** for more information.

To select Polymesh objects:

- ※ Click the triangle icon next to the selections palette and choose Select Polymesh.

All of the above selection controls will respect the previously-described Shift-click techniques for multiple selections and deselections.

To select all objects except a specific type:

1. Click the tool for the object you want to exclude from the selection. All the objects of that type are selected.
2. Click the triangle icon in the Selection palette and choose Select Inverse from the menu.

To select all the objects in your scene:

- ☞ Click the triangle icon in the Selection palette and choose Select All from the menu.

The VCR Controls

The VCR controls let you step through the various selection tools and activate Solo Mode.



To display the VCR Controls:

1. Click the Swap button in the lower right corner of the Working window. The Selection palette appears.
2. Pass your cursor over the right side of the Selection palette. The VCR Controls appear.

To step forward and backward through the object types in your scene:

1. Click on the larger forward arrow to step forward through object types within the current scene. The first object of its type is selected.



2. Click on the larger backward arrow to step back through object types.



If you watch the Select By Type icons, the object type you are stepping to will highlight momentarily.

To step forward and backwards through the object in a selected object type:

1. Click on the smaller forward arrow to step forward through each object of the type in a selection.



For example, you can use the large arrows to step to the first sphere created in your scene, and then the smaller arrows to step through all other spheres in your scene.

2. Click the smaller backwards arrow to step backwards through each object of the type in a selection.



One advantage to making selections with this technique is that you can select objects within a Group. Simply clicking on a Grouped object will not necessarily select the entire group; using the VCR controls to select within a Group allows you to reposition

objects, or assign textures to objects within a Group without having to first Ungroup them.



To step sequentially through every object in your scene:

1. Click the triangle icon in the Selection palette and choose Alternate VCR Mode.
2. Click the larger backwards or forwards arrow.



To step sequentially through families:

1. Click the triangle icon in the selection palette and choose Alternate VCR Mode.
2. Click the smaller backwards or forwards arrow.



To temporarily remove all unselected objects from the scene:

1. Select an object.

2. Click the Solo Mode button in the center of the VCR controls. The button color changes to red.



In Solo Mode, you can only edit the selected objects; all the other objects remain in place but uneditable.

If you're working on a very complex scene, Solo Mode speeds up your work significantly as Bryce does not have to calculate and draw extraneous wireframe objects.

Editing Your Scene's Contents

Bryce supports several of the basic editing features you find in most applications. You can cut, copy and paste objects between the clipboard and your scene.

Cutting and Pasting Objects

To cut and paste an object:

1. Select an object.
2. Choose **Edit menu> Cut**, or Press Command-X/Ctrl+X.

The selected item is removed from your scene and placed on the clipboard.

- ✱ Choose **Edit menu> Paste**, or press Command-V/Ctrl+V.

To copy and paste an object:

1. Select an object.
2. Choose **Edit menu> Copy**, or press Command-C/Ctrl+C.

A copy of the selected item is placed on the clipboard.
3. Choose **Edit menu> Paste**, or press Command-V/Ctrl+V.

Copying and Pasting Materials

Using the Copy/Paste Material commands, you can edit an object's material without affecting the object.



To copy and paste an object's material:

1. Select an object.
2. Choose **Edit menu> Copy Material**, or press Command-Option-C/Ctrl+Alt+C.

The selected item's material is copied to the clipboard.

3. Choose **Edit menu> Paste Material**, or, press Command-Option-P/Ctrl+Alt+P.

Copying and Pasting Matrices

Using the Copy/Paste Matrix commands, you can copy information about an object's location, size and orientation values to the clipboard and then paste them onto other objects.

To copy and paste an object's matrix:

1. Select an object.
2. Choose **Edit menu> Copy Matrix**, or press Option-C/Alt+C.

The selected object's matrix is copied to the clipboard.

3. Select a different object.
4. Choose **Edit menu> Paste Matrix**, or press Option-P/Alt+P.

To delete a selected object:

1. Select an object.

2. Choose **Edit menu> Clear**, or press the Delete/Backspace key.

Duplicating and Replicating Objects

When you duplicate an object, Bryce creates an exact copy of the object and places it in exactly the same position as the original. When you replicate an object, Bryce creates a new object and applies the last set of transformations to it.

To duplicate an object:

1. Select an object.
2. Choose **Edit menu> Duplicate**, or press Command-D/Ctrl+D.

To replicate an object:

1. Select an object.
2. Choose **Edit menu> Replicate**, or press Command-Option-D/Ctrl+Alt+D.

A new object appears at a size, location and orientation based on the last set of transformations. For example, if you select an object, drag

it to a new location and then select Replicate, a new object is created at the same distance from the original.

To replicate objects numerically:

1. Select an object.
2. Choose **Edit menu> Multi-Replicate**, or press Command-Option-Shift-D/Ctrl+Alt+Shift+D.

The Multi-Replicate dialog appears.

3. Enter a value in the Quantity field.
This value sets the number of duplicates you want to create.
4. Enter X, Y and Z values in the Offset fields.

Offset values are expressed in a range from 0 to 99999 Bryce units of measure (refer to "**Bryce Units**" on page 282 for more on Bryce units). The default value is zero.

5. Enter X, Y and Z values in the Rotate fields.

Rotate values are expressed as degrees, with a range of 0 to 999. The default value is zero.

6. Enter X, Y and Z values in the Scale fields.

Size values are expressed as a percentage of current size, with a range of 0 to 9999%. The default value is 100%.

The Quantity value entered in this dialog sets the number of duplicates created when you use the Replicate command.

Undoing Operations

The Undo and Revert to Saved commands let you erase the effects of changes you made to your scene.

To undo the last operation:

- ※ Choose **Edit menu> Undo**, or press Command-Z/Ctrl+Z.

To redo the last operation:

- ※ Choose **Edit menu> Redo**.

To revert to the last saved version of your scene:

- ※ Choose **File menu> Revert to Saved**.
All unsaved changes are discarded.

The Marker Pen

The Marker Pen turns your screen into a white board. When you're using the Marker Pen, you can draw anywhere in the Bryce environment without affecting your scene. One key click erases all the marker pen lines.

To draw with the marker tool:

1. Click the Marker Pen tool, or press the M key.



2. Drag it anywhere on your screen.

To erase marker pen lines:

- ※ Click the Marker Pen tool again, or press the M key again.

Saving and Closing

The Save command lets you save your work in a convenient location for later use. Since your scene files can quickly become large and complex, you should save your work often.


Saving Files

To save a file:

1. Chose **File menu> Save**. The Save dialog appears.
2. Use the dialog controls to choose a location for your work and click Save.

To save a file under a different name:

1. Chose **File menu> Save As**. The Save dialog appears.
2. Enter a new name and/or location in the fields provided and click Save.
3. A copy of your work is saved, leaving the original intact.



*If the PICT /BMP With Scene Open/
Save preference is selected, Bryce
saves both the scene data and the
rendered image when it saves the file.*

Closing

When you close the application, a dialog appears asking you to save your work.

To close Bryce:

- ⌘ Choose **File menu> Quit**, or press Command-Q/Ctrl+Q.