

Creating Objects



Overview

Objects are the building blocks of your Bryce world. They can be used as props, to populate a scene, or add detail to landscapes.

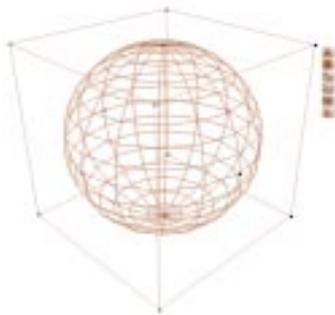
An object is the most basic item in Bryce. Objects can be anything from terrains to pebbles. In Bryce, there are several ways of creating objects. Some objects use unique editors, others can be created by a simple one-step click.

There are two main tools for creating objects. The Create palette, which contains tools for creating objects with a single click, and the Preset Objects Library, which contains pre-made objects you can add to your scene.



Objects in the Scene

Every object in the scene has a bounding box. The box acts like a visual guide that tells you how much space it occupies in 3D space. It also provides access to a series of tools that let you edit an object's attributes and placement.

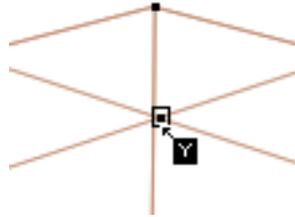


An object's bounding box lets you see how much space it occupies in 3D space.

The buttons around the edges let you set an object's attributes.

The black points on the edges of the box are called *control handles*. These handles can be used to edit the object's size and orientation. As you pass your cursor over the handles, it changes to display the type of control you're selecting.

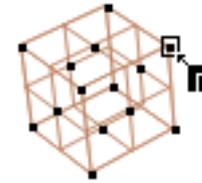
When the cursor turns into a letter, it means that you're over a constrain handle. The handle will only move along the axis indicated by the letter. For example, if the cursor changes to a Y, it means that the handle will only move along the Y axis.



If your cursor changes to a letter, it means that you're over a constrained control handle.

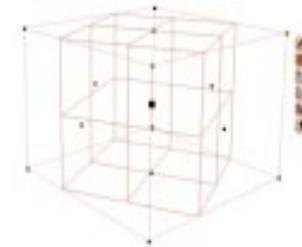
Dragging this type of handle usually distorts the shape of the object.

If the handle changes to a black square with a right-angle, it means that the handle can move in any direction, but the object will be scaled proportionally.



If your cursor changes to a black box with a right-angle, it means that you can use the handle to proportionally scale the object.

The handle in the center of the object represents its origin point. This point is used as the center of rotation and scaling for the object. Refer to "[Transforming Objects](#)" on page 285 for more on rotating and scaling objects.



The handle in the center of the object represents its origin point. This point defines the object's center of rotation.

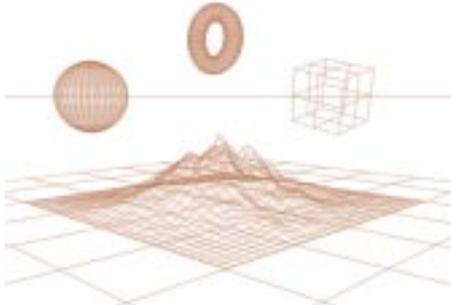
Control handles are used to edit the object interactively. Refer to "[Object Origin Points](#)" on page 286 for more on using control handles.

To display an object's bounding box:

1. Create an object.
2. Select the object.

Object Preview

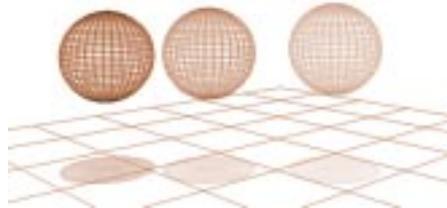
When you create an object, it appears as a wireframe in the Working window. The wireframe represents the structure of the object's shape.



Objects appear as wireframes in the scene. The wireframe gives you an idea of the object's shape and structure.

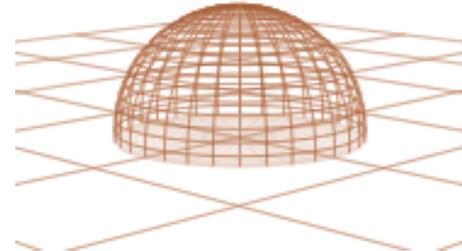
The wireframe preview lets you see how an object looks as it's being rotated or animated without having to calculate and render any complex surface properties. The wireframe casts a shadow on the ground plane below it. The shadow can

be used as a visual guide to help you determine the object's position in 3D space.



As you move the object its shadow follows it along the ground plane. When you have a number of objects, the shadows can help you see its exact position in the scene.

If you move the object below the ground plane, the portion of the object that's below ground is not drawn. This can help you avoid placing an object outside the view of the scene. Wireframe shadows do not interact with light. These appear regardless of the light sources in the scene.



If you move an object below ground, the portion of the wireframe that's below the ground plane is not displayed in the scene.

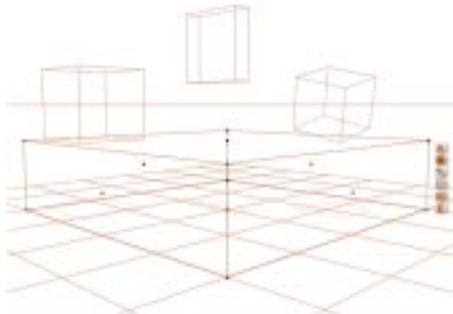
Both shadows and underground wireframes are preview options that can be turned on and off. Refer to "Wireframe attributes" on page 24 for more on these features.

Object Preview Modes

Besides wireframes, there are three other ways you view an object; Bounding Box, Shaded Preview, and Rendered Preview.

Bounding Box

If you have a large scene and you find that it's taking too long to redraw the entire scene, you can change the display of the objects so that only their bounding box is displayed.



The Show Object as Box preview mode displays the object using only its bounding box.

You can move the box just as you would an normal object. The box can also cast a shadow.

To display an object as a box:

1. Select an object.
2. Click **Object menu> Show Object as Box.**

or

Click the A icon that appears next to the object's bounding box to display the Object Attributes dialog.

In the dialog, click the Show as Box button.

To display an object as a wireframe:

1. Select an object.
2. Click **Object menu> Show Object as Lattice.**

or

Click the A icon that appears next to the object's bounding box to display the Object Attributes dialog.

In the dialog, disable the Show as Box button.

Shaded Preview

This mode is only available if you have an OpenGL accelerator card in your system.

In this mode, objects appear as solids. The colors assigned to the object are also visible. Object surfaces are effected by light sources. Materials textures are not visible in this mode.

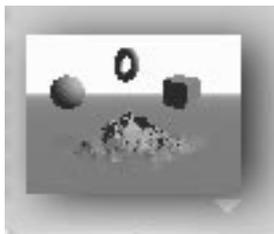


In the shaded preview mode you'll be able to see all the objects in your scene as solids.

Rendered Preview

If you want to see what the object's surface looks like or how it is affected by light gels, you'll have to render it.

The Nano-Preview shows you a small preview of what the object looks like rendered.

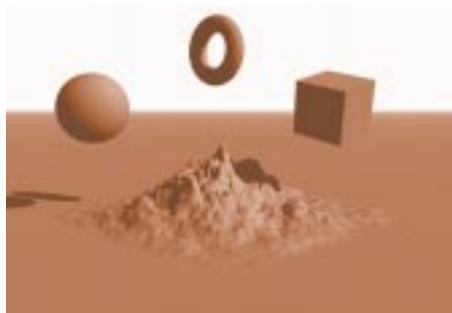


The Nano-Preview of the object shows you a small preview of what the object will look like when its rendered.

Refer to "Using the Nano-Preview" on page 30 for more on the Nano-Preview.

If you want to see the object at full size you'll have to render it. Once it is rendered, you can see the bitmap preview of the object, using the Bitmap Preview mode.

Refer to "The Rendering Procedure" on page 400 for more on rendering and "Display Modes" on page 23 for more on Bitmap Preview mode.



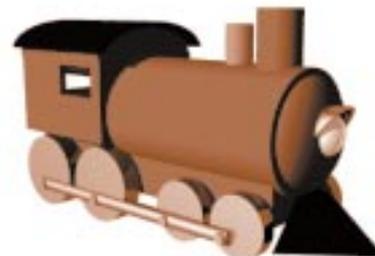
To see a full-sized preview of the object you'll need to render the scene.

Primitives vs. Procedural Objects

Bryce's Create palette lets you create two different types of basic object: Primitives and Procedurals.

Primitives are basic geometric shapes such as the sphere, cube, pyramid, torus, cone, cylinder, plane and disk. These

shapes can be thought of as primary geometric building blocks, from which more complex objects are constructed.



This train is made up of primitive and primitive derivative objects.

Primitives also have derivative groups (such as the ellipsoid and squashed sphere, which are derived from the Sphere), which allow you to create different shapes without having to perform the transformations yourself.

Procedural objects are object that require special constructions or "procedures" to create. Procedures can include operations such as preassignment of materials, randomization of internal parameters or assignment of light properties.



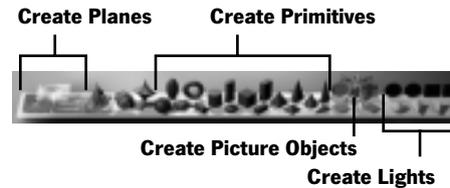
This scene shows examples of procedural objects.

Object Placement

When you create a new object it can be placed in your scene either at absolute world center or at an arbitrary location based on your current view. Object placement is determined by your preference setting. Refer to “**To control new object placement:**” on page 22 for more information.

The Create Palette

The main tool for creating objects is the Create palette. This palette provides access to tools which let you create all the object types available in Bryce.



The Create palette provides access to tools you'll need to create all the different types of object available in Bryce.

The tools on the palette represent the type of object they create. When you click a tool, the object appears in the center of the scene.

The name of each tool appears in the Text Display area as you move your cursor over it.



As you move the cursor over the tool in the Create palette, its name appears in the Text Display area.

To display the Create palette:

- ✳ Click the Create button at the top of the Bryce window.

To use a Create tool:

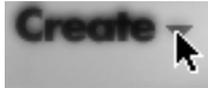
1. Display the Create palette.
2. Click on the tool for the object type you want to create.

The object appears in the working window.

The Triangle icon next to the Create button at the top of the Bryce window lets you access the Preset Objects Library.

To open the Preset Objects Library:

- Click the Triangle icon next to the Create button at the top of the Bryce window.

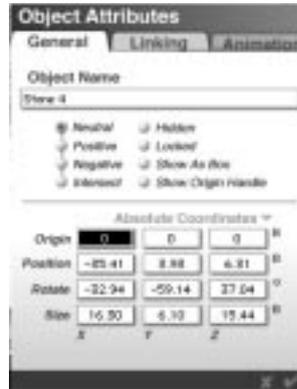


The Triangle icon next to the Create button opens the Preset Objects Library.

The Object Attributes Dialog

The Object Attributes dialog lets you set a number of properties that determine how the object appears in the Working Window.

The dialog is where you'll set up the object's name, size, orientation, placement and display quality. It's most often used to numerically transform the object. When you're animating an object, the dialog is used to control how the object interacts with its motion path. Refer to "Animating" on page 351 for more on animating.



The Object Attributes dialog contains controls for setting the object's name, scale, position, and orientation.

The dialog is divided into three tabs: General, Linking and Animation.

The General tab contains controls for setting the object's name and display attributes and position. Refer to "Editing Object Attributes" on page 312 for more on using the dialog to edit objects.

The Linking tab contains controls for setting up parent-child links and tracking. Refer to "Linking Objects" on page 305 for more on linking and "Tracking Objects" on page 378 for more on tracking.

The Animation tab lets you set the properties of the object when it is connected to a Motion Path. Refer to "Motion Paths" on page 372 for more on motion paths.

To display the Object Attributes dialog:

- Select an object.
- Click **Object menu > Attributes**.
or
Click the A icon that appears next to an object's bounding box.

Naming Objects

When you create an object, the first thing you should do is assign a name to it. An object's name identifies it in the Working Window.

You can select objects, by name, using the Selection palette. The name can also help you distinguish a specific object when your scene contains more than one object of the same type. Refer to "Selecting Objects" on page 36 for more information.

An object's name is also used when you're creating parent-child links and setting up object tracking.

To name an object:

1. Select an object.
2. Click the A icon that appears next to its bounding box.
3. Enter a name in the Object Name field.

Creating Infinite Planes

An infinite plane object extends in all directions out to infinity. When you create a plane in Bryce it appears as a finite plane to make it easier to position, but when your scene is rendered the plane extends infinitely in all directions.

Though procedurally these three infinite planes are different, they are all considered to be Infinite Planes for the purpose of selecting with the Selection tools.



When you add a plane object it appears as a finite object in the Working window....



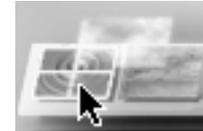
...but when you render the scene it extends out to infinity

Water

Water planes are created just a bit higher than ground level. That way, if you have already created ground and terrains, you can easily place a water plane into your scene, and immediately see the terrains peeking out from the water.

To create a Water plane:

- ☞ Click the Water plane tool.



Use the Water plane to add bodies of water to your environment.

Once the plane appears in your scene you can edit it like any other object. Refer to “[Editing Object Attributes](#)” on page 312 for more on editing objects.

Water planes are created with a water texture randomly chosen from the Waters & Liquids Preset Materials Library. You can change this material by selecting a different preset or creating a new material.

To change the water plane’s Preset Material:

1. Click the second Triangle icon at the top of the Bryce environment. The Preset Materials Library appears.
2. Choose a library and material then click the OK icon.

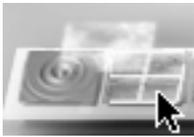
Refer to “Using the Preset Materials Library” on page 234 for more on the Preset Materials Library.

Ground

Ground planes are created at ground level. By default, all new scenes open with an infinite ground plane.

To create a Ground plane:

- ✧ Click the Ground plane tool.



Use the Ground plane to add ground to your environment.

Once the plane appears in your scene you can edit it like any other object.

The Ground plane is created with a gray color, as are all Bryce primitives. Once you begin assigning textures to objects, Ground objects (as well as all other primitive objects) will inherit the texture assigned to the previous object.

Cloud

Cloud planes are placed much higher in your scene since they're generally the highest objects in your environment.

To create a Cloud plane:

- ✧ Click the Cloud plane tool.



Use the Cloud plane to add clouds to your environment.

Once the plane appears in your scene you can edit it like any other object.

Cloud planes are automatically assigned a randomly chosen texture from the Clouds & Fogs Preset Materials Library. You can change this material by selecting a different preset or creating a new material.

To change the Cloud plane's preset material:

1. Click the second Triangle icon at the top of the Bryce environment. The Preset Materials Library appears.

2. Choose a library and material then click the OK icon.

Infinite Slabs

An infinite slab is a plane object that has depth. An infinite plane is a plane object that has no depth. The plane has no effect on objects above it or below it; an infinite slab can affect objects within it.

For example, anything you place within the slab's depth will be affected by the slab's volume color.

Slabs are usually used to create water. When you create a water slab, you create water with realistic volume. This means that if you sink an object into the water it will be affected by the colors or textures you assign to the slab's volume.



In an infinite slab, the plane in the scene has depth that affects the objects within it.

The realistic look of a water slab depends almost entirely on the material you assign to it. The Volume color plays an essential role in creating realistic water effects. Refer to “[Volume Color](#)” on page 210 for more on Volume Color and materials.

To create an Infinite Slab:

1. Click the plane tool and choose the Water Slab icon from the popup.



The popup that appears when you click the Water plane tool lets you choose between an infinite plane and an infinite slab.

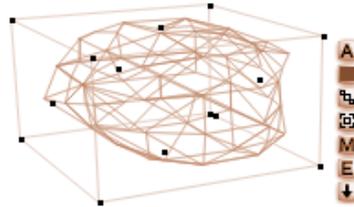
2. Select the slab.
3. Click the A icon that appears next to its bounding box. The Object Attributes dialog appears.
4. Enter a depth value in the Size Y field and click the OK icon.

Creating Stones

The Stone object tool creates random, organic Stone shapes that can be assigned materials and positioned throughout your scene.

To create a Stone Object:

- ✳ Click the Stone object tool.



Use the Stone object tool to create randomly generated stones.

Stones objects are polyhedron based, and can be smoothed or unsmoothed using the Polyhedron dialog. Refer to “[Editing Imported Polyhedrons and Stones](#)” on page 322 for more information.

Stones are assigned random textures automatically from the Rocks & Stones Preset Materials Library.

To change a stone’s preset material:

1. Click the second Triangle icon at the top of the Bryce environment. The Preset Materials Library appears.
2. Choose a library and material then click the OK icon.

Since Stones are essentially clumps of polyhedrons, they are highly dependent on the textures assigned to them for their realism. For example, if you assign a flat texture with no bumpiness to a Stone, the results won’t be very Stone-like. Try to assign rocky textures to stones. Refer to “[Using the Material Preview Area](#)” on page 234 for more on assigning textures.

Creating Symmetrical Lattices

A Symmetrical Lattice is a terrain object that has a mirror image of itself fused at its base. When you modify one half of the lattice, the corresponding changes are applied to the mirrored half.

The Symmetrical Lattice can be a great timesaving tool. Instead of creating symmetrical shapes by duplicating and aligning two halves, you just need to edit one half of a lattice and your object is created for you. Symmetrical Lattices are edited as Terrains, using the Terrain Editor. Refer to [“Clipping Terrains” on page 190](#) for more information.

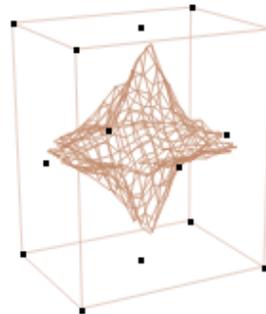
Many advanced types of objects can be created using the lattice object. Any object that's symmetrical can be created by painting its shape in the Terrain Editor.



The hair dryer in this example was created using a symmetrical lattice object.

To create a Symmetrical Lattice:

- ※ Click the Symmetrical Lattice tool.



Use the Symmetrical Lattice tool to create symmetrical objects.

Creating Primitives

Primitives are the primary geometric building blocks in Bryce. You can create spheres, toruses, cylinders, cubes, pyramids, cones, discs, and 2D squares.

To create a geometric primitive:

- ※ Click one of the primitive tools:



Creates spheres



Creates toruses



Creates cylinders



Creates cubes



Creates pyramids



Creates cones



Creates discs



Creates 2D faces

By default all primitives are assigned a flat gray color.

Derivative Primitives

Derivative primitives are primitive objects whose shape is “derived” from basic geometric primitives.

Derivative primitives were created so that you could skip some of the editing procedures on most of the basic primitives. For example, instead of elongating a cube to make it into a pillar, you can just use the Stretched Cube or Brickoid derivatives.

To create a derivative primitive:

※ Click one of the derivative primitives tools available:



Sphere derivatives: Ellipsoid, Squashed Sphere



Cylinder derivatives: Tuboid, Stretched Cylinder, Squashed Cylinder



Cube derivatives: Stretched Cube, Brickoid



Pyramid derivatives: Stretched Pyramid, Squashed Pyramid



Cone derivatives: Stretched Cone, Squashed Cone

Creating a Pict Object

A Pict Object is a 2D picture that is applied to a 2D finite plane. The object is basically a picture on a frame. The Frame is a 2D plane, meaning that it has no depth. If you view it from the side, it disappears.

Using a Pict Object is a quick way of creating very complex-looking objects. The only problem is that you can only view them from one angle, so the front of the Pict Object must always be facing the camera.

The Alpha channel of the object can be used to create transparencies in the Pict Object.



This truck object was created using a 2D Pict Object....



however, if you move the camera, the 2D nature of the object is very obvious.

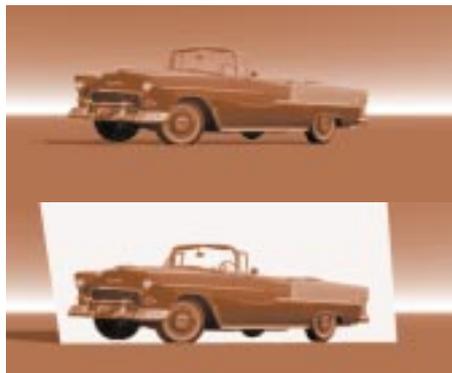
A good way of ensuring that your 2D Pict Object always looks right is to have it track the camera. Refer to [“Tracking Objects” on page 378](#) for more on tracking.

Alpha Channels and Pict Objects

The picture you use must have an Alpha channel. Refer to [“Alpha Channels” on page 115](#) for more on Alpha channels.

The alpha channel of your Pict images will allow you to specify visible and invisible portions of your picture texture.

For example, you can clip out a picture’s background so that only the main object in the picture is visible.



This is what the car image looks like with and without an alpha channel applied.

The shadow cast by the image will be in the shape of the picture’s alpha channel which gives a more realistic look.

To create a Pict object:

1. Click the Pict Object tool.



The Pictures dialog appears:



The Pictures dialog lets you select 2D images to use as Pict Objects.

2. Click an image square to load an image.
 3. If the image you want is not in the library:
 - Click the Load button. The load image dialog appears.
 - Use the dialog controls to locate the picture you want to use and click Open.
- or**
- In another application, copy the picture you want to use to the clipboard.

- Access the Picture dialog and click the Paste button.

The picture is loaded into the first image box and its alpha channels are loaded into the second box.

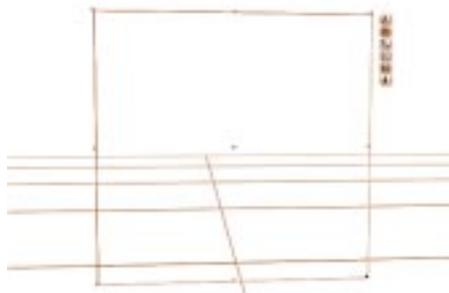


When you load a new picture into the Picture dialog, the main image is loaded into the first box its alpha channel is loaded into the second box, and the combination is loaded into the third.

You can invert the alpha channel by clicking the Invert button.



4. Click the OK icon to exit the dialog. Bryce creates a 2D plane and maps the image onto it as a texture. The Pict Object is created with the same aspect ratio as the original picture.



When you exit the picture dialog, the image is mapped onto a 2D plane and placed in your scene.



Working with Pictures

Pictures can be used in several ways in Bryce. They can be used as 2D Pict Objects or as components in materials or gels.

When you use a picture as an object, it is applied to a 2D plane and appears as an object in the Working window. Refer to [“Creating a Pict Object” on page 112](#) for more on creating 2D Pict Objects.



This is what a picture looks like when it is used as an object.

When you use a picture as a material component, the image is applied to a material channel, where its values are used to drive the value of the channel. Refer to [“Materials” on page 193](#) for more on working with Materials.



This is what a picture looks like when it is used as part of a material.

When you use a picture as a gel, the image is placed in front of the light and appears as a projection. Refer to [“Applying Gels” on page 349](#) for more on gels.



This is what a picture looks like when it is used as a gel.

Alpha Channels

Every image contains a number of channels that store data about the makeup of the picture. For instance channels can contain masks, colors, or bump information.

The alpha channel of an image is its first channel. The channel is like a grayscale map that accompanies an image, which is used primarily as a “mask.” Areas in the alpha channel that are white will be ignored by the program as it computes

the picture (appearing transparent), and areas that are black will be recognized and computed (appearing opaque).

The most common use for alpha channels is to mask the contours of a 2D object, separating it from any unwanted background information. For instance, you may import a picture of a dog. If you have created an alpha channel “mask” describing the area of the dog as black and the “non-dog” area as white, then unwanted cats and mailmen in the original Pict’s background will not be seen in your rendered image.

In Bryce, Alpha channels are also used when your picture is a component in a material. In this case the alpha channel can be used to determine everything from the bumps in a material to how a surface property is applied on an object. Refer to [“2D Textures” on page 215](#) for more on using pictures in a material.

If you want to use the picture in the library for multiple purposes, you’ll need to make sure that all the pictures have an alpha channel.



Without Mask



With Mask

This example illustrates how the Alpha channel mask is used to eliminate the unwanted areas of an image.

The Picture Library

The Picture Library stores all the images available in Bryce. The library can be used to catalogue pictures and to import pictures. You can store any number of pictures in the library. The only limit is your system's memory.

There are two ways of accessing the Picture Library. The method you use depends on how you're going to use the image.

To access the Picture Library from the Create palette:

- Click the Pict Object tool. The library automatically opens.

To access the Picture Library from the Materials Lab:

1. Select an object.
2. Click the M icon that appears next to the object's bounding box. The Materials Lab appears.
3. Click on one of the columns in the grid to activate a component window.

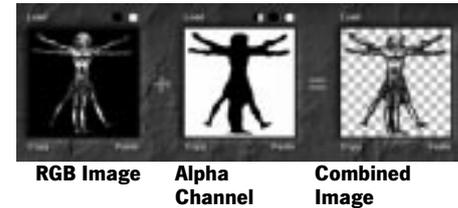
4. In the window, click the P button in the bottom-left corner. A default picture appears in the window.
5. Click the Pink button at the top of the window. The Picture Library appears.

To access the Picture Library from the Light Editor:

1. Select a light source.
2. Click the E icon that appears next to the object's bounding box. The Light Editor appears.
3. Click the 2D Texture button at the bottom of the editor. The library appears.

Previewing Pictures

The three most prominent items at the top of the library are the Pict, Alpha, and Combined preview windows. The first window displays the current picture, the second window displays the alpha channel associated with the picture and the third displays the resulting picture after the alpha channel is combined with the picture.



The three windows at the top of the editor display the picture, its alpha channel and the result of combining the two.

Picture Thumbnails

Below the three preview windows are the picture thumbnails that display a small preview of each picture in the library. The grey thumbnails represent empty slots in the library. When you load images, they are added to the first available grey slot.



The thumbnails below the preview windows represent all the pictures available in the library.

If there are a large number of pictures in the library, you can use the scroll bar to scroll through all the thumbnails.

To display an image in the library:

- Click on the picture's thumbnail. The picture, and its associated alpha channel, appears in the three preview windows at the top of the dialog.

Loading Pictures Into the Library

You can load pictures into the library to create your own custom library. Pictures can be loaded into any of the three preview windows.

When you load a picture into the first window, you're loading only the picture's RGB (Red, Green and Blue) color information.

The picture loaded into the first preview window replaces the currently selected picture in the library, so you're replacing a picture in the library with the picture you're loading. If you want to add a new picture to the library, you need to load it into the Combined Image window.

When you load a picture into the second window, you're only loading the picture's alpha channel.

The alpha channel determines which portions of the picture are visible and which are not. The areas of the picture that are transparent appear as a checkboard pattern.



When you load an image into the Alpha Channel window, the black and white alpha channel appears in the window.

Every picture should have an alpha channel assigned to it. If the picture does not have an alpha channel, the resulting image appears completely opaque.



If there is no Alpha Channel, the image appears completely opaque.

If your picture doesn't have an alpha channel, you can copy the image from the RGB Image window into the Alpha Channel window. This way your picture won't appear completely opaque.

The Alpha channel you load does not have to necessarily match the image. You can create some interesting clipping effects by combining different alpha channels and images.

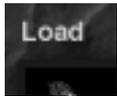


In this example, the image was combined with a different alpha channel to create a new clipping effect.

When you load a picture into the last preview window, the Combined Image window, the entire picture is loaded into the first empty thumbnail slot.

To replace the RGB information in a picture:

1. Click the thumbnail of the picture you want to replace.
2. Click the Load button on top of the RGB Image window. The Load dialog appears.



The Load button displays the Load dialog which lets you select a picture to load into the RGB Image window.

3. Use the dialog controls to locate the desired image and click Load.

The picture appears in the first preview window.

To replace the Alpha channel information in a picture:

1. Click the thumbnail of the picture you want to replace.
2. Click the Load button on top of the Alpha Channel window. The Load dialog appears.

3. Use the dialog controls to locate the desired image and click Load.

The picture's alpha channel appears in the first preview window.

To load a new picture into the Library:

1. Click an empty picture slot in the bottom of the library.
 2. Click the Load button on top of the Combined Image window. The Load dialog appears.
 3. Use the dialog controls to locate the desired image and click Load.
- The picture's thumbnail appears in the empty slot.

Copying and Pasting Pictures

Copying and pasting in the Picture Library works differently for each of the three image windows.

When you copy and paste into the first window, you're only pasting RGB color information, so if you copy an image from the Combined window, only the color information is pasted into the RGB window.

As with loading, any changes you make in the RGB Image window changes the selected image.

When you copy and paste into the second window, you're only working with the Alpha Channel information, so any image you paste into this window will appear as an alpha channel image (i.e. black and white). Any changes you make in this window affect only the selected image.

When you copy an image from the Combined window the entire image is placed on the clipboard. Depending on where you paste it, only a portion of the image may be used.

When you paste a picture into the Combined window, it appears as a color image with transparent and solid areas. All pictures are treated as color. So if you paste a picture copied from the Alpha Channel window in this window, you'll get an RGB representation of the alpha channel image. As well, any image pasted into this window creates a new picture entry in the library. [zot verify]

To copy and paste RGB information in a picture:

1. Click the Copy button below the RGB Image window.



The Copy button places the contents of the RGB Image window on the clipboard.

2. Click the Paste button below the window where you want the RGB image to appear.
 - If you paste the image into the Alpha Channel window, it is desaturated and used as an alpha channel.
 - If you paste it into the Combined Image window, the RGB image becomes a new entry in the library.

To copy and paste Alpha Channel information in a picture:

1. Click the Copy button below the Alpha Channel window.



The Copy button places the contents of the Alpha Channel window on the clipboard.

2. Click the Paste button below the window where you want the Alpha Channel information to appear.
 - If you paste the image into the RGB Image window, an RGB representation of the alpha channel is placed in the window.
 - If you paste it into the Combined Image window, an RGB representation of the alpha channel is placed in an empty slot in the library [zot verify].

To create a new picture using RGB color information only:

1. Click the Copy button below the RGB Image window.
2. Click the Paste button below the Combined window. The RGB information is placed in an empty slot in the library.

To create a new picture using Alpha channel information only:

1. Click the Copy button below the Alpha Channel window.
2. Click the Paste button below the Combined window. The alpha channel information is placed in an empty slot in the library.

Deleting Pictures

When you delete a picture, you remove all the image information (including color and alpha channel) from the library.

To delete a picture from the library:

1. Click the thumbnail for the picture you want to delete.
2. Click the Delete button above the Combined window.

Inverting the Alpha Channel

When you invert an alpha channel all the black areas become white and the white areas become black. This means that all the areas that were transparent now become solid and vice versa.

To invert an alpha channel:

- ※ Click the Invert button above the Alpha channel window.



The Invert button swaps all the black and white values in the alpha channel.

Picture Lists

A Picture List is a file that contains a group of pictures. A Picture list can be used to store all the pictures used in a given scene, or to store a series of pictures you use most often.

You should also use a picture list to store any pictures you've used as part of material.

There are several Pict texture List files provided as samples for your first excursions. ZOT where?

To open a picture list:

1. Click the Open List button at the bottom of the Picture Library. The Open dialog appears.
2. Use the dialog controls to locate the desired list and click Open. The pictures in the list appear in the library.

To save a picture list:

1. Click the Save List button at the bottom of the Picture Library. The Save dialog appears.
2. Enter a name for the list and click save.

Name the list the same as the scene. This way, you can easily find the list that belongs to a specific scene.

Importing Objects

Bryce can open DXF, 3DMF and files created in previous versions of Bryce.

To import an object:

1. Choose **File menu > Import**. The Open dialog appears.
2. Bryce searches for available DXF or 3DMF files in any location and display them within the dialog.
3. Select the file you want and click OK.

4. You can disable automatic format checking, which can be very time consuming in certain cases, by clicking the checkbox.

Some Notes on Imported Files

There are almost as many types of DXF files as there are applications that write them. While DXF is the closest thing to a “standard,” DXF files can be slow and cumbersome. Bryce does a good job of handling most any file it sees, but due to the idiosyncrasies in the various types of the format, some files may take longer than others to load and results may be inconsistent depending on the way the original file was generated.

Bryce preserves logical groups and basic colors assigned to imported objects. The colors are not visible on the wireframes, as that would conflict with Bryce’s “Family” wireframe colors; but the colors are evident when you render your file.

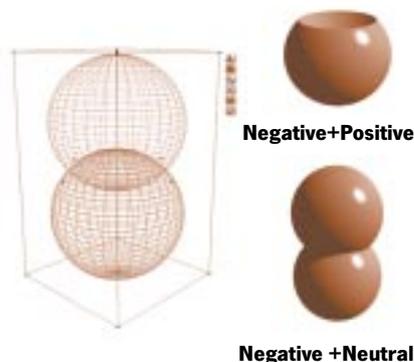
The Bryce DXF and 3DMF Plug-ins reside in the Plug-ins folder alongside the Bryce application and Support Files folder.

Creating Boolean Objects

A Boolean object is an object created by combining two or more objects to form a single object. Boolean objects are created by performing Boolean operations on a number of objects. You can perform three types of Boolean operations in Bryce: union, subtraction and intersection.

Bryce uses Object properties to perform Boolean operations. Objects can be Neutral, Positive, Negative or Intersecting. When you combine these objects in a group, the result is a Boolean object.

Boolean operations do not have any effect on Neutral objects. When you group a neutral object with a Boolean object, no Boolean operation is performed.

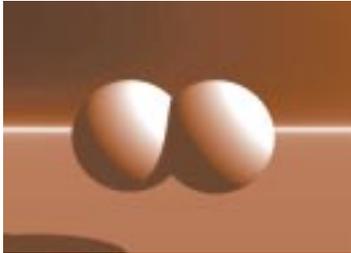
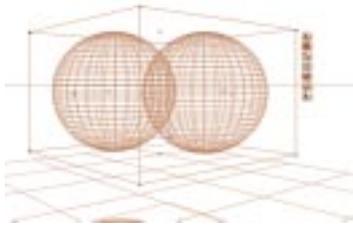


If you were to group a neutral object with a Boolean object, both objects would remain visible with no Boolean operation occurring.

Neutral is the default object property.

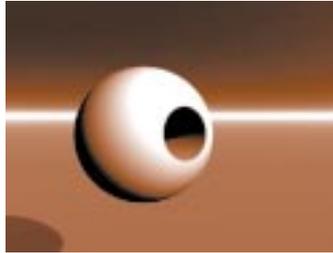
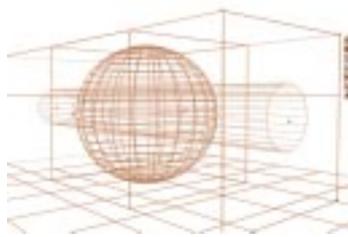
Boolean Operations

Boolean Union is performed by grouping two positive objects. The area that is common to both object is removed, creating a continuous object. For example, when you group two positive spheres, you get a kind of peanut shaped object which is the union of the two objects.



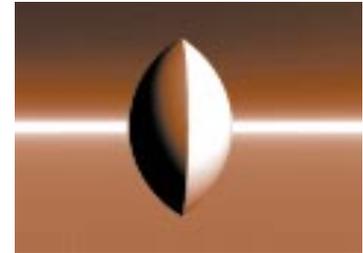
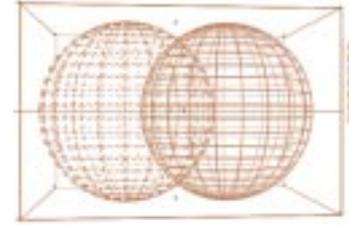
Boolean union is performed by grouping two positive objects

Boolean Subtraction is performed by grouping a negative object with a positive object. The area that is common to both objects is subtracted from the positive object resulting in a positive object with negative space. For example, when you group a positive sphere with a negative one, the resulting object looks like a sphere with a crater.



Boolean subtraction is performed by grouping a positive object with a negative object.

Boolean Intersection is performed by combining an Intersecting object with a Positive object. The area that is common to both objects becomes the only visible portion of the group.



Boolean Intersection is performed by grouping a Positive object with an Intersecting object.

Negative or Intersecting objects must share space with at least one Positive object in the group to exhibit a Boolean operation. If there is no common space, Negative objects are invisible when rendered.

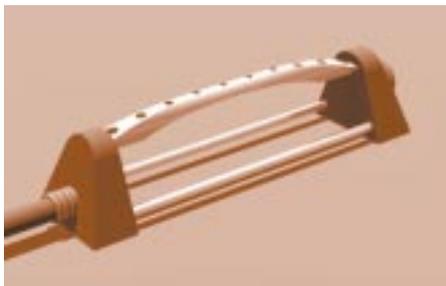
A group that contains an Intersecting object that does not intersect with any other object in the group becomes entirely invisible; this is because the Intersecting object is intersecting with nothing.

You can build very complex objects by compounding Booleans. Suppose you wanted to create a flute. You would first create the hollow tube by combining a positive cylinder with a negative cylinder, then create several negative spheres and group those with the tube, creating a simple flute.



This simple flute was created by grouping a hollow tube with several negative spheres.

By compounding more Boolean operations on top of this simple flute you could create even more complex objects.



This sprinkler was created using compound Boolean operations.

Since Bryce performs Boolean operations using object attributes, you can adjust the shape of a Boolean object by repositioning the objects in the group. You can edit objects within groups using the Solo mode in the Selection palette. Refer to “[Selecting Objects](#)” on page 36 for more.

The final Boolean object appears only in the rendered image or in the Nano-Preview. You won’t be able to see the Boolean object in the Wireframe preview.

To subtract one object from another:

1. Select an object.
2. Click the A button next to the object’s bounding box, or press Command-Option-E/Ctrl+Alt+E, or choose **Object menu > Edit Attributes**.

The Object Attributes dialog appears.



Use the Object Attributes dialog to set an object’s Boolean attribute.

3. Enable the Negative checkbox.
4. Move the negative object so that it intersects another object.
5. Make sure that the second object’s Boolean attribute is set to Positive.
6. Select both objects and click the G button next to the selection’s bounding box.

When your scene is rendered, the area where the two objects intersect is removed from the positive object.

To create an object that is the intersection of two objects:

1. Select an object.
 2. Click the A button next to the object's bounding box, or press Command-Option-E/Ctrl+Alt+E, or choose **Object menu > Edit Attributes**.
- The Object Attributes dialog appears.
3. Enable the Intersecting checkbox.
 4. Move the intersecting object so that it intersects another object.
 5. Make sure that the second object's Boolean attribute is set to Positive.
 6. Select both objects and click the G button next to the selection's bounding box.

When your scene is rendered, the area where the two objects intersect becomes the only visible portion of the group.

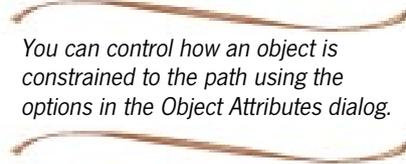
Creating Geometric Paths

A geometric path is an object that acts as a motion path for other objects. Geometric Paths do not render as objects.

You can think of these paths as railroad tracks. Objects can move along the track but they can't move off of it.



Objects attached to a geometric path can move to any point along the path, but they can't move off it. So, their trajectory is controlled by the shape of the path.



You can control how an object is constrained to the path using the options in the Object Attributes dialog.

Geometric paths can be edited just like you would any other object. You rotate, position or scale the path using the tools in the Edit palette. You can also edit a path by dragging its control points. This

way can change the geometry of the paths and so the trajectory of any object attached to it.

Geometric paths are especially useful when you creating motion animations, as they can help you create predictable and repeatable motion.

The other great thing about geometric paths is that you can have more than one object attached to it. This can be very useful if you want a number of objects to move along the same trajectory.



You can attach multiple objects to the same path. The motion of each object on the path is constrained by the shape of the path.

Objects that are attached to the same path can be animated at different rates. So, if you can think of the objects as different trains on the same track, some trains are at the beginning of the track, others are in the middle and some are at the end. All the object attached to the path will have the same trajectory.



All the objects attached to a path have the same trajectory, but they can move at different rates.

For example, this snake is made up cylinders all attached to the same path, but they're moving at different rates so it looks like the snake's body is slithering.

You can also align objects differently to the same path. So object may appear to tilt differently as they follow the same trajectory.

Since geometric paths are objects, they can also be attached to other paths. Some very complex types of motion can be created using this technique.



For example, you can simulate the motion of the solar system by attaching an object on a circular path to circular geometric path.

The object on the circular path would act like a moon orbiting around a planet which is also orbiting around the Sun.

To create a geometric path:

- ※ Choose **Object menu > Create Path**.
A default-shaped path object appears in your scene.

To convert a motion path into a geometric path object:

1. Select an object with a motion path.
2. Choose **Object menu > Create Path**.
A path object with the same shape as the path you selected is created.

To link an object to a path:

1. Select the object you want to attach to the path.

2. Move the cursor over the Link icon that appears next to its bounding box.



3. Drag the linking control handle from the object to path object.

Using the Presets Object Library

The Presets Object Library contains all the Preset objects available in Bryce. Objects in the library are either 3D models or geometric paths. Refer to [“Creating Geometric Paths” on page 124](#) for more on geometric paths.

You can place objects from the library anywhere in your scene and edit them just as you would any object.

To add an object from the Preset Object Library to your scene:

1. Click the Triangle icon next to the Create button at the top of the Bryce environment. The Object Preset Library appears.



Use the Preset Object Library to add 3D models to your scene.

2. Click on a category name (Boolean Objects, Mountains, Stones and Trees, or Imported Objects) to switch categories.
3. Click on the preset thumbnails to view preset names and descriptions

4. Click the OK icon to add the selected object your scene.

The Create palette does not need to be active for you to access the Object Presets Library.

You can also select presets in one motion by dragging directly to the desired preset and releasing the mouse. You can also drag over the category names to change categories, into the category's presets and then release mouse.

Adding and Deleting Preset Objects

You can add a number of different types of object you to the preset library: Terrains, Boolean objects, compound groups, geometric paths and DXF objects. The preset will retain all Boolean, grouping and textural properties of the object.

To add an object to the preset library:

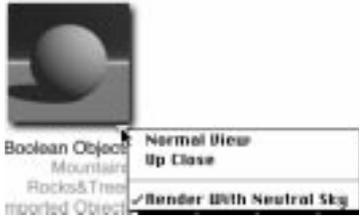
1. Select the object you want to add to the library.
2. Click the Triangle icon next to the Create button at the top of the Bryce window. The selected object appears in the preview area of the Object Preset Library dialog.



The object preview area displays the object you selected.

3. Click a category name. The library switches to the category you selected. The new preset will be added to the category you select.

4. Click the Triangle icon in the bottom right corner of the object preview and choose a view option from the menu.



Use the Triangle icon at the bottom of the preview area to display a list of preview options.

Normal is the default view of your selected object.

Up Close displays a close-up of your object.

Render With Neutral Sky displays your object with a flat sky, instead of the sky applied to your scene.

5. Set up the preview of the object:
 - Drag the preview area to rotate the view of the object.
 - Hold down the Spacebar and drag up, down, right, or left to pan the object preview.
 - Hold down Command/Ctrl and drag in the preview area to zoom in and out of the preview.

6. Click the Add button at the bottom of the dialog. The Add Object dialog appears.
7. Enter a name for the new preset in the Preset Name field.
8. Enter a description of the preset in the Description field and click the OK icon.

This name and description will appear beneath the object preview whenever the preset is selected.

You can edit the name and description of any preset at any time simply by pressing the Tab key, or clicking on the name or description.

9. Click the OK icon. Your preset is added to the first available space within the current category.

To delete an object preset:

1. Click the Triangle icon next to the Create button at the top of the Bryce environment. The Preset Object Library appears.

2. Click on the preset you want to delete, or hold down Shift and select a continuous series of presets, or hold down Command/Ctrl and select a discontinuous set of presets.
3. Click the Delete button at the bottom of the dialog.

Importing and Exporting Preset Objects

Importing and exporting presets is a handy way to exchange custom presets with other users.

To import a Preset object file:

1. Click the Triangle icon next to the Create button at the top of the Bryce window. The Preset Objects Library appears.
2. Select the category into which you want to import the file.
3. Click the Import button at the bottom of the dialog. The file open dialog appears.
4. Locate the file which you would like to import and click Import.

The contents of the file are placed into the first available space in the current category.

To export a Preset object file:

- 1.** Click the Triangle icon next to the Create button at the top of the Bryce window. The Preset Objects Library appears.
- 2.** Select the category from which you want to export presets.
- 3.** Select the preset or presets you wish to export.
- 4.** Click the Export button at the bottom of the dialog. The save file dialog appears.
- 5.** Enter a name and location for the file and click Save. The file is saved as a DXF object.