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Creating Objects

Modeling vs. Primitives

There are two ways of creating objects in Ray Dream 3D. You can create objects by combining a number of basic 3D shapes, called *primitives*, or you can model unique shapes using the Ray Dream 3D's *Free Form* modeler. The method you use will depend on the type of object you want to create.

The first thing you need to do when creating an object, is decide how you're going to build it in 3D space. The easiest way of doing this is to break the object down to it's basic components. If those components turn out to be all geometric shapes, you use primitives to create it. If the object's basic components are shapes that can't be created using primitives, you use the modeler.

For example, when a sub is reduced to basic components, you can see that it's made up of cylinders, cones and cubes. Therefore you would use 3D primitives to create the object.

A complex object...

...and the primitives used to make it.

Following the same example, if you reduce a jellyfish to its basic components you'll end up with objects that are not geometric shapes. In this case you'd have to use the modeler to create this object.

A complex object...

...and the shapes used to make it.

This chapter covers the different types of primitives you can create using Ray Dream 3D, as well as introducing the

Text modeler. The **Free Form** modeler is covered in "Free Form Modeling" on page 89.

What are 3D Primitives?

Primitives are the most basic type of 3D object you can create in Ray Dream 3D.

Geometric primitives are 3D geometric shapes such as cones, squares or cylinders.
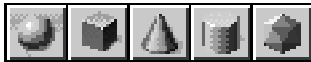
Creating Geometric Primitives

Geometric Primitive objects are the building blocks of 3D objects. When you closely examine any complex 3D object you'll notice that it can be reduced to simple primitive geometric shapes. In fact, the easiest way of creating an object is by combining a number of primitives.
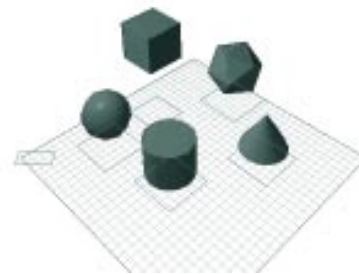
Examples of geometric primitives.

When you create a Geometric Primitive object, it simply appears in your scene where you can move and resize it as necessary. Each type of object you can

create has its own tool. The **Geometric Primitive** tools are located on a single pop-up tool.

All the Geometric Primitive tools can be accessed from a single pop-up.

To create a Geometric Primitive object:

1 Choose a Geometric Primitive tool from the toolbar.

2 In the **Perspective** window, click a point in the Working Box to create an object of default size, or drag to create an object of a custom size.

or

Drag an object creation tool from the toolbar into the **Time Line** window to create an object of default size.

Objects dropped into the **Perspective** window are placed on the active plane of the Working Box, at the point where you release the mouse. Objects dropped into the **Time Line window** are placed at the center of the Universe.

or

Choose **Insert menu▶** type of object.

The object is created at a default size and placed in the center of the Universe.

Creating Infinite Planes

An Infinite Plane is a flat primitive whose sides extend out to infinity in all directions. This type of primitive is used to create a surface for your scene such as a sky, ocean or ground.

To create an Infinite Plane:

Click the primitves tool and choose the **Infinite Plane** tool, then drag it into the **Time Line** or **Perspective** windows.



Use the Infinite Plane tool to create an Infinite plane.

Although the plane appears finite in the **Perspective** window, it will extend out to infinity in the final rendering.

Shading an Infinite Plane

Apply shaders to an Infinite plane can be tricky since the texture or color you apply will extend out to infinity. This can be a especially tricky when using texture maps or gradients. The plane's tiling controls can help you adjust how shaders are tiled on the plane.

To adjust shader tiling:

1 Double-click the Infinite Plane.
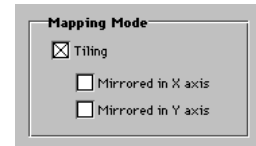
Use the Infinite plane tiling controls to set the attributes for tiling a shader across the plane.

2 Enable the **Tiling** option if you want your shader to be tiled across the plane.

If you don't enable tiling, the shader will be stretched to cover the entire surface of the plane.

3 Enable either the **Mirrored in X axis** or **Mirrored in Y axis** option.

These options let you control the continuity of the pattern created by tiling the shader.

The X and Y refer to the plane's own coordinate system, not the global coordinate system.

Mirrored in X axis mirrors the tile in the X axis as it tiles it across the plane.

Tile mirrored in X the axis.

Mirrored in Y axis mirrors the tile in the Y axis as it tiles it across the plane.


Tile mirrored in the Y axis.

You can adjust the size of tiles by adjusting the size of the plane.

Creating Text Objects

When you create a **Text** object, Ray Dream 3D immediately opens it in the **Text Modeling** dialog, allowing you to enter the text you want, specify its depth, and add bevels.

To create Text objects:

1 Choose the **Text** tool and then drag in the **Perspective** window. The **Text Modeling** dialog appears.
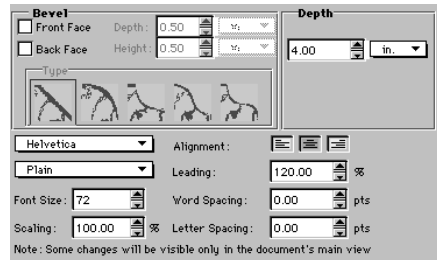

Use the Text Modeling dialog to create text.

2 In the region at the bottom of the dialog (where it says "text..." in the figure above), type the text you want.

3 Choose a font from the font pop-up.

Any TrueType and Type 1 fonts you have in your system are available for creating **Text** objects.

4 Choose a font style from the style pop-up.

5 Enter a value in the **Font Size** entry box. Font size is measured in points. You can also use the scroll arrows to set a value.

6 Use the **Depth** controls to set the width of the text.

7 Enable the **Front Face** checkbox to add a bevel on the front face of the text object.

8 Enable the **Back Face** check box to add a bevel to the back of the **Text** object.

9 Enter values in the **Depth** and **Height** fields to specify the slope or contour of the bevel on the text.
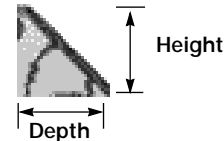
The Depth and Height settings control the contour of the bevel on the back of your text object.

10 Click on a bevel type in the **Type** controls at the top of the dialog.

11 Click **Done**. You can also choose Edit menu▶ Jump Out.

The **Text** dialog changes back to the **Perspective** window, and your text object is drawn.

To edit a Text object:

Double-click a **Text** object in the **Perspective** or **Hierarchy** window, or select a **Text** object and choose `Edit menu▸ Jump In`.

Ray Dream 3D opens the **Text** object in the **Text Modeling** dialog, where you can change its content, extrusion depth, bevels, or any of the type specifications.

The Size of Text Objects in the Universe

The size of a text object in the Universe depends on the font size you choose in the **Text Modeling** dialog. You can determine how large a **Text** object will be by multiplying its font size by 0.333. This calculation gives you the approximate height (in inches) of a capital letter; lowercase letters are proportionally smaller, of course.

For example, if you created a **Text** object using 72-point type in the **Text Modeling** window, any capital letters in the text object would be approximately 23 inches tall in the Universe. Knowing the height of the letters in your object, you can set a value in the **Extrusion Depth** field to control the relationship between height and depth.

Creating Objects Using the Modeling Wizard

The Modeling Wizard is a picture-based assistant that guides you through the basic steps of creating an object. After a few sessions with the Wizard you'll better understand the concepts of **Free Form** modeling.

Note: The Modeling Wizard only creates **Free Form** objects.

To create an object using the Modeling Wizard:

1 Drag the **Modeling Wizard** tool into the **Perspective** or **Time Line** window.

The Modeling Wizard appears.

2 Follow the instructions provided.

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