Step-by-Step

Adding Animation With Cinema 4D XL

This Step-by-Step Card covers the basics of using the animation features of Cinema 4D XL.

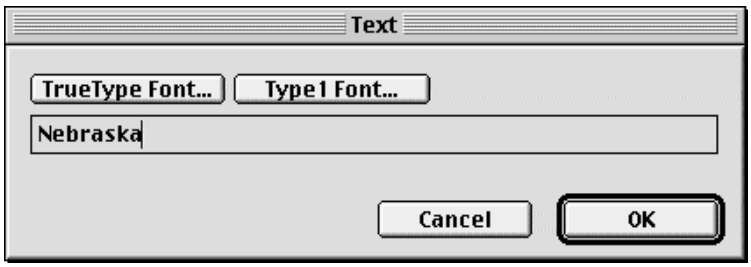
Note: Before you start this Step-by-Step Card, you need to have completed the "Cinema 4D XL: Getting Started With 3D Graphics" Step-by-Step Card. It is also recommended that you complete the Flying Logo Tutorial. To locate this tutorial, open the Tutorials folder located on the Cinema 4D XL CD. Open the "tutorials.htm" file, then double-click Online Tutorials; Basic Skills. The Flying Logo Tutorial provides an introduction to the program that will help you complete the activities in this Step-by-Step Card.

Animating the scene

To animate a scene, you will use the frequently-used type of animation called keyframe animation. Keyframe animation involves setting the X, Y, Z points for an object at one point in time and then moving the object and setting X, Y, Z points for another point in time. Because the object has moved, grown, and changed colors, Cinema 4D XL writes the algorithms and keyframes between the two points in time, creating an animation.

Adding text

1. Open the Cinema 4D XL application.
2. Open the file you saved when you completed the Step-by-Step Card "Cinema 4D XL: Getting Started." You will use this file to add animation to your project.
3. Choose Splines from the Objects menu, then choose Text from the submenu. In the dialog box that appears, type your state's name and click OK.



A 2D version of the text you typed is placed in the middle at 0,0,0.

Note: You may want to switch your view to the 4 Way View in the Views palette.

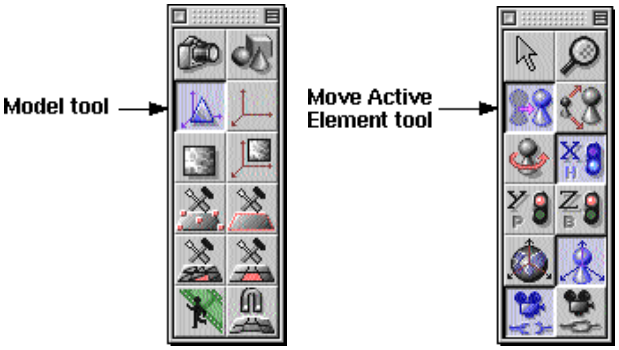
You will extrude a 3D version of the 2D text and then delete the 2D text. Note that an object named "Text" appears in the Object Manager window.

4 Make sure that the word "Text" is selected in the Object Manager window. Choose Select Spline Object from the Objects menu, then choose Extrude Object from the submenu. A 3D version of your text appears.

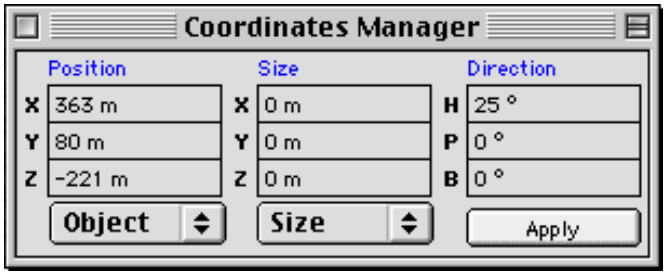
5 Click the name "Text" in the Object Manager window and press the Delete key. This deletes the 2D version of your state name.

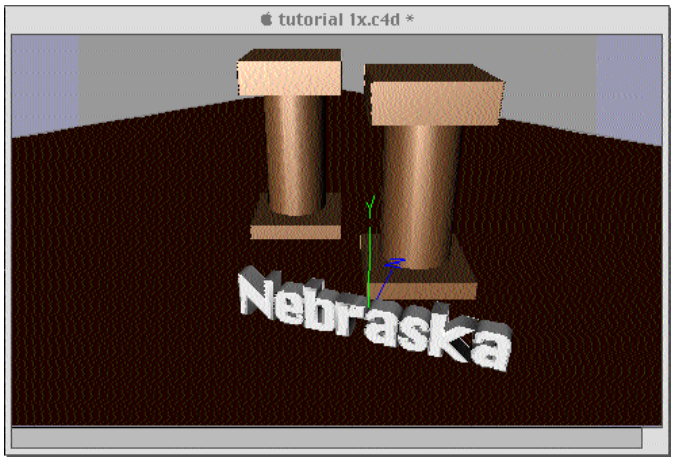
6 Double-click the name "Extrude Object" in the Object Manager window to rename the object. Type your state's name, then click OK.

7 Select the state text object in the Object Manager window and check to make sure that the Model tool and the Move Active Element tool are selected.



8 Select the state text and enter the X, Y, Z numbers in the Coordinates Manager window, including the H-direction angle. If you want to experiment, you can unlock each of the X, Y, and Z boxes in the Tools palette and manually move the text. If you do this, it is recommended that you do one at a time. For example, lock X and Z and unlock Y. This allows you to place the pointer on the text and drag it up. Once it is up, lock Y and X and unlock Z. Drag the text to move the text forward. Repeat the process, locking Y and Z and unlocking X. This moves the text side to side. If you want to manually rotate the text, select the Rotate Active Element tool and move the text.

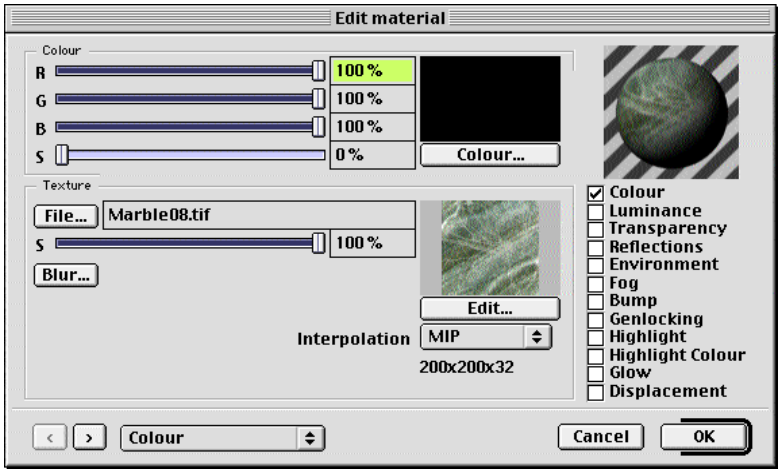




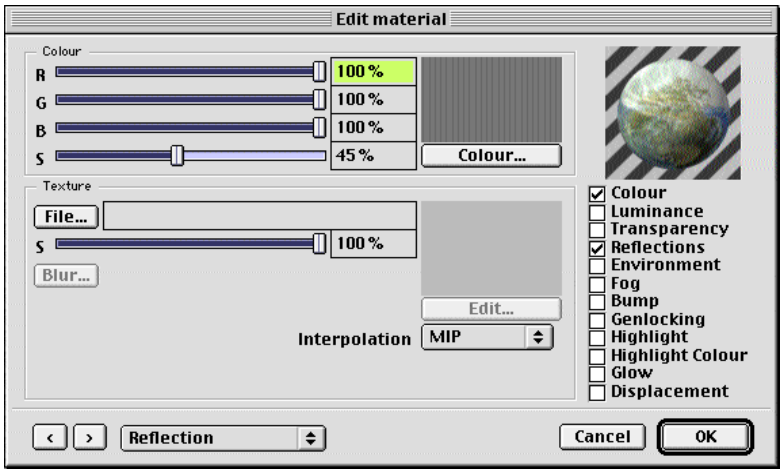
Adding materials to your state's name

1 Select the Materials Manager window and choose New Material from the File menu. Rename the material "state fill."

2 Double-click "state fill " to display the "Edit material" dialog box. Select the texture file "Marble08.tif" and slide the S-slider to 0.



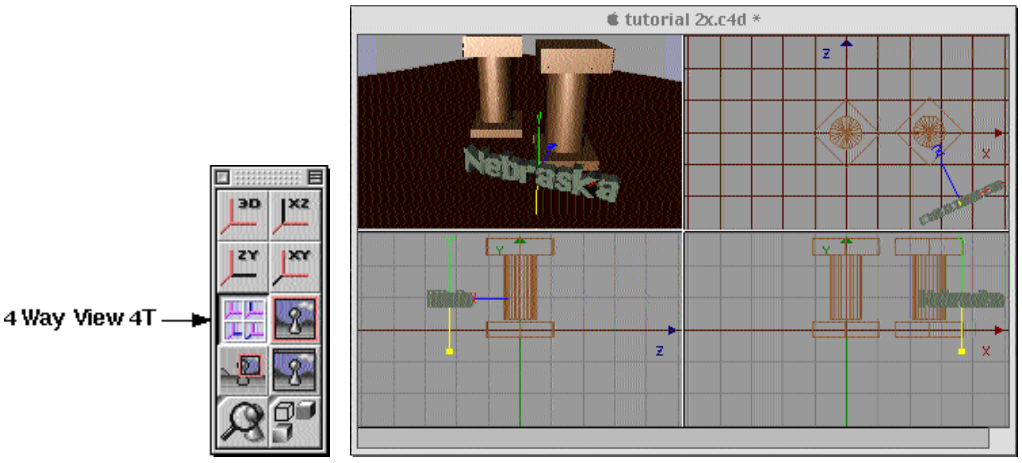
3 Choose Reflection from the pop-up menu at the bottom of the dialog box. Select the Reflections checkbox at the right of the dialog box. Slide the S-slider to 45 percent and click OK.



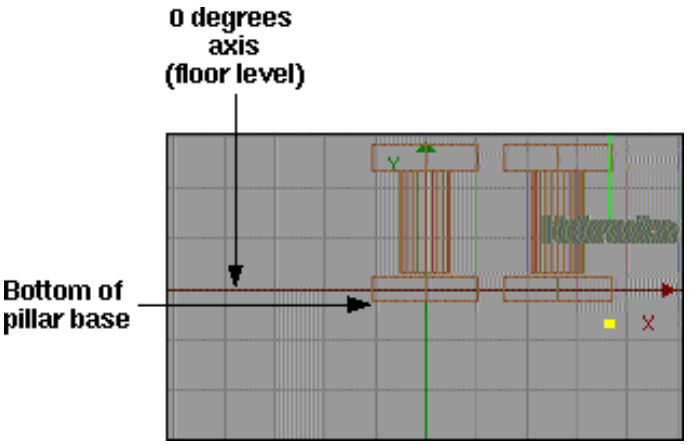
4 Select the "state fill" texture in the Material Manager window. Holding down the Shift key, drag it onto the text "Nebraska" in the Object Manager window. Select the "Render Scene in External Window" button from the Views palette to view a quick render.

Adjusting the objects

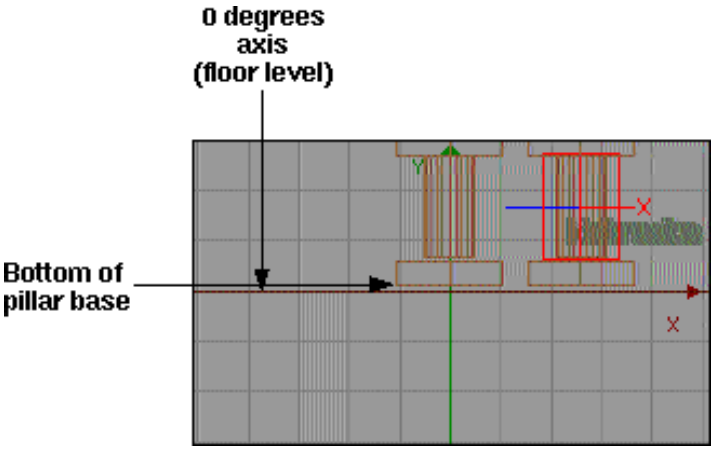
1 Select the 4 Way View button in the Views palette. This gives you a 3D screen view and another view for each of the axis points.

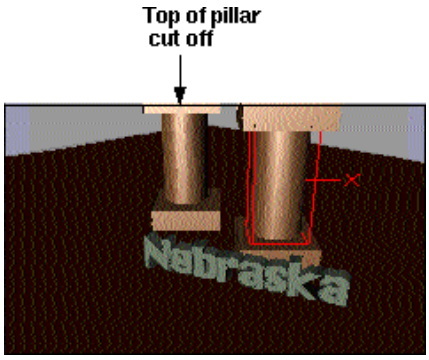


As you may notice from looking at the X view, the bottom of the pillars is below the 0 degree line, meaning that the pillar is sunk into the table and part is not visible. This is not important for a still image, but during animation you will be flipping the pillars end over end. If this is not altered, it will look as if the pillars are flipping and sinking into the floor. You want it to look as if the pillars are flipping on the floor. To do this, you will adjust the height of the pillars on the "Y" axis (up and down).

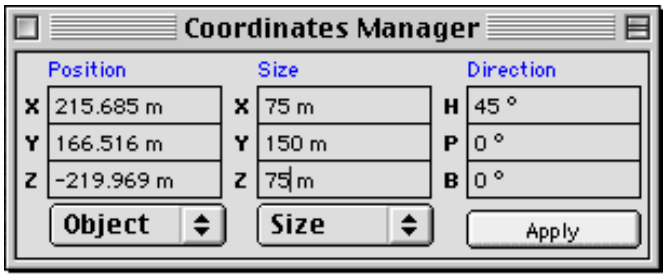


2 Select and turn off the X and Z axes in the Action palette. Make sure Cylinder is selected in the Object Manager window. Select the column portion of the pillar in the X axis window and drag the pillar up until the base is a bit above 0 degrees. Repeat the process for Cylinder 1. The base is above the X axis and now the pillars seem too large for the scene.

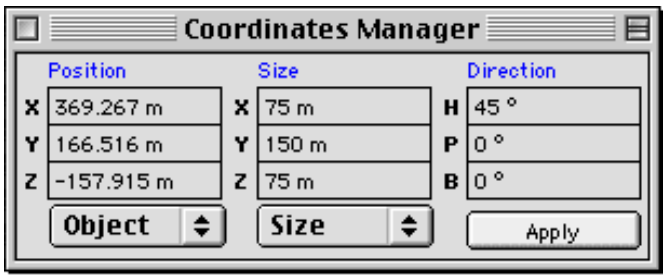




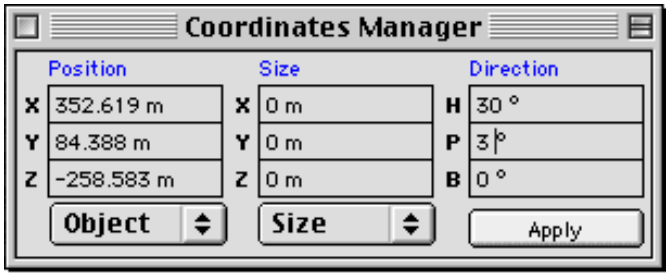
3 Adjust the coordinates in the Coordinates Manager window for each of the items in the scene, except the floor. Be sure to select each item in the Object Manager list and then adjust the numbers to match the images below. You can do this manually by shutting off each axis and moving the objects, but it is a bit quicker to work through the Coordinates Manager.



Cylinder coordinates



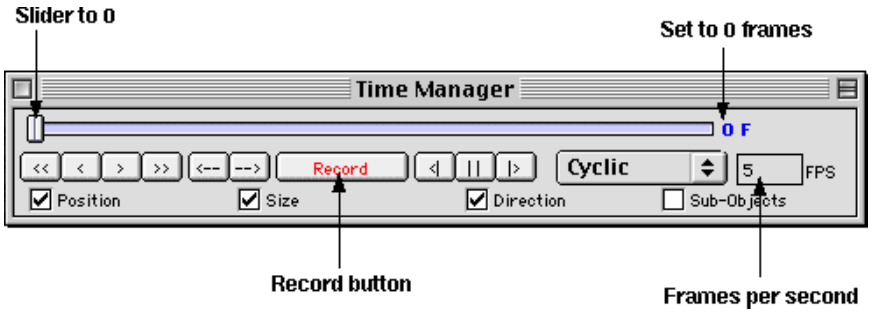
Cylinder 1 coordinates



State (Nebraska) Coordinates

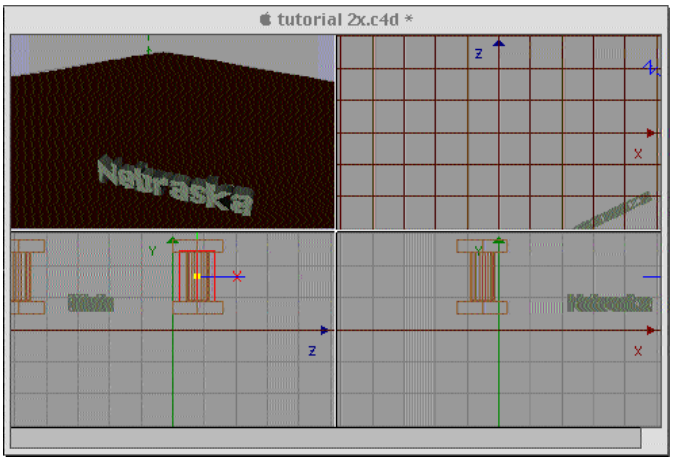
Setting keyframes

1. While in the 4 Way View scene, make sure that the X axis is on and the Y and Z axes are off.
2. Make sure that the Move Active Element button is selected in the Action palette.
3. Check to see that the time slider in the Time Manager window is set at 0 and set the FPS (frames per second) to 5. Real-time video is viewed at 30 FPS (default) but you want to create a slow motion effect.



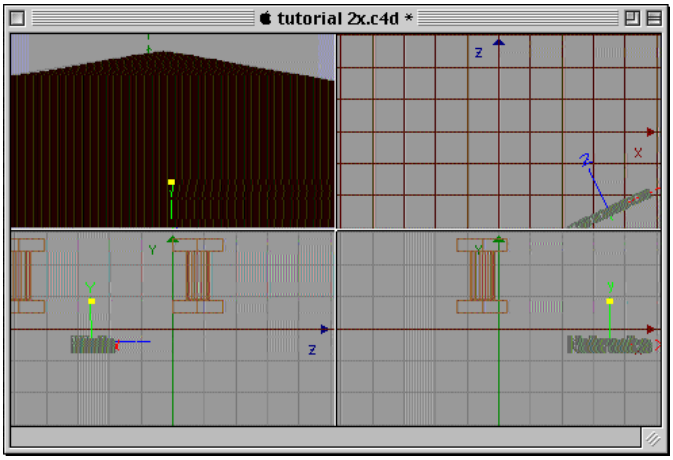
4. Select Cylinder in the Object Manager window. The column of the pillar turns red. Using any of the windows (whichever one is easiest for you to use), drag the image to the left and off the screen. In the 3D window (what the viewer will see), it disappears but you can still see it in the other three windows.

5 Click the Record button once the object is offscreen. This creates a keyframe for this object at 0 point in time. Repeat the process for Cylinder 1 and drag this object to the right and off the screen. Be sure it is selected in the Object Manager window before you move it. Once it is moved offscreen, click the Record button.



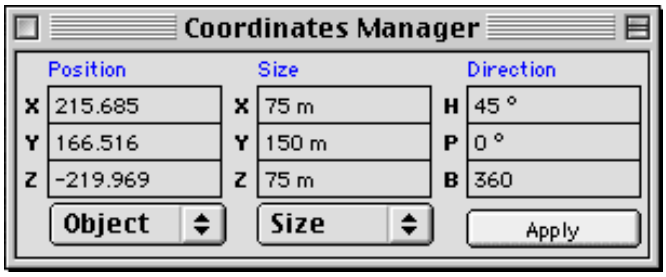
6 Select the text of your state in the Object Manager window and turn off the X axis and Z axis (red lights) and turn on the Y axis (green light). You will be moving the text of your state below the floor.

7 Select the text in any of the windows and drag the text object until it is hidden below the floor. Click the Record button. Your scene should look like the image below.



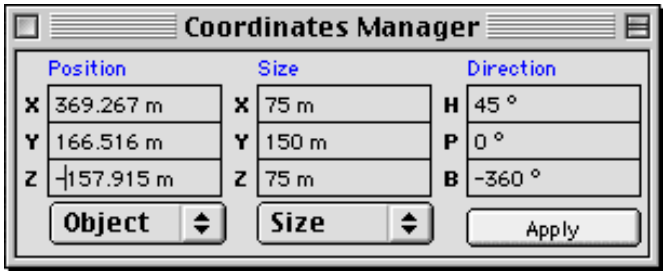
8 Click in the Time Manager window and slide the frames to 30. Remember not to click the Record button at this point. The key to keyframe animation is to move the objects where you want them and then click the Record button after the object is in place. You must do this for each object you move.

9 Select the Cylinder object in the Object Manager window and turn off the Y axis and Z axis buttons. Turn on the X axis button. You can either slide the image back to where you want it to be or use the Coordinates Manager window to reset the coordinates back to the original settings. Pay attention to the Direction category as B is changed to 360 degrees. This means that over a period of 30 frames, you will have the pillar tumble two times.



10 Click the Record button. If you do not select this after moving the image, it will not be able to create the animation from the first keyframe to the second keyframe. A yellow line appears to show the establishment of keyframe to keyframe.

11 Repeat steps 9 and 10 for Cylinder 1 using the coordinates below. However, notice that the degree for B in the Direction field is a negative number. This is so the rotation is toward the center of the image. After the image is set, click the Record button.

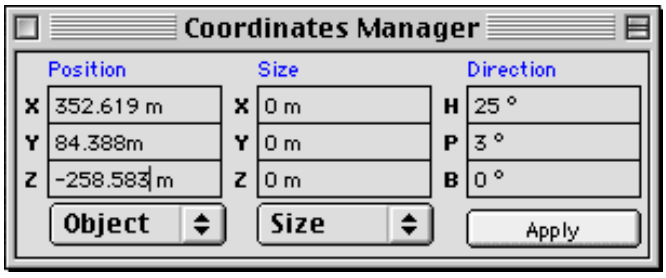


12 Save your file.

13 Check your animation by sliding the Time Manager slider back to 0 frames and then sliding it to the 30th frame. You should see both pillars tumble together.

14 Slide the slider in the Time Manager to 80 frames. You will have the text come up more slowly than the pillars tumbled.

15 Select your state text in the Object Manager window and reset the coordinates in the Coordinates Manager window back to the original settings. After the settings have been set, click Record.



Your scene should look exactly like it did at the end of "Adjusting the Objects" earlier in this Step-by-Step Card.

16 Choose Save from the File menu.

Rendering the final movie

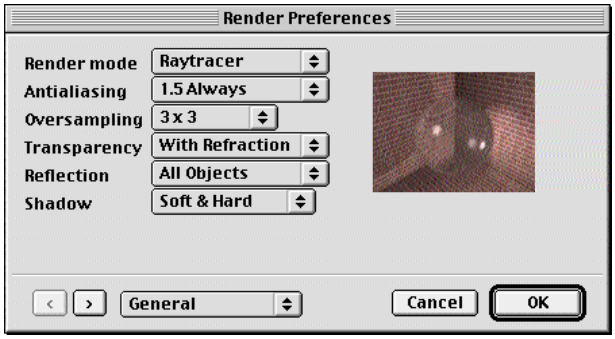
Before you complete a final render to the movie file, you need to make some preference settings for rendering. When you arrive at this stage, you need to give some time for the computer to raytrace and render.

Raytracing computes the course of a light beam in space. In non-scientific computer geometry it is not light rays that are being traced but visual rays, that is, rays that emanate from the viewer's eye rather than from a light source.

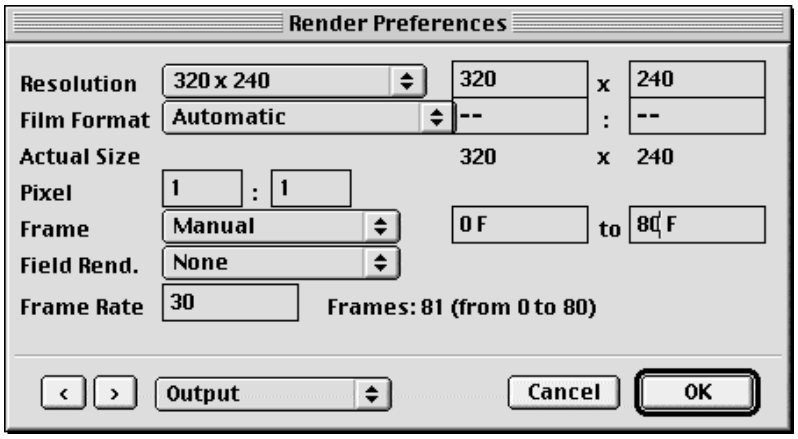
1 Select the 3-D button in the Views palette.

2 Choose Preferences from the File menu, then choose Render from the submenu.

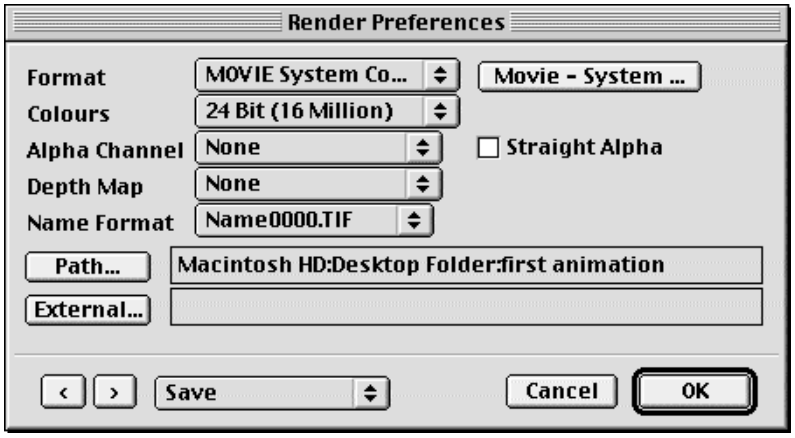
3 Set the Render preferences to Render mode: Raytracer; Antialiasing: 1.5 Always; Oversampling: 3 X 3; Transparency: With Refraction; Reflection: All Objects; Shadow: Soft & Hard. See the dialog box below.



4 After setting the Render preferences, choose Output from the pop-up menu at the bottom of the dialog box and adjust the settings to match the settings below. Resolution: 320 X 240; Film Format: Automatic; Pixel 1:1; Frame: Manual OF to 80F; Field Rend: None; Frame Rate: 30 and the bottom pop-up menu to Output. See the dialog box below.



5 Choose Save from the pop-up menu at the bottom of the dialog box and adjust the settings to Format: Movie System Compression; Colours: 24 Bit (16 Million); Alpha Channel: None; Depth Map: None; Name Format: Name0000.TIF; Path—will default from your file location on your hard disk. Click OK. See the dialog box below.



6 Select the "Render Scene in External Window" button in the Views palette. Your computer raytraces and renders each image from frame 0 to frame 80. This will take a while depending on the speed of your processor.

7 After rendering is complete, save your file.

8 Quit the Cinema 4D XL application. Navigate to where you saved your QuickTime movie and click the Play button.