

1

Spaceship Flyby

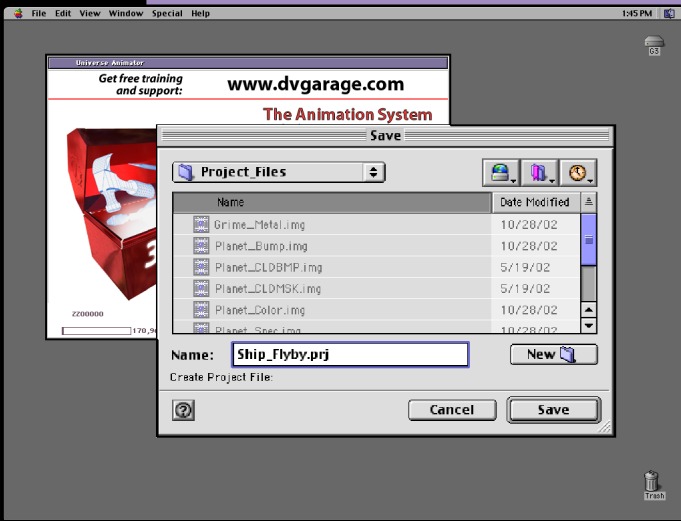


In this tutorial, we will animate a spaceship leaving a planet and flying by the camera. We will add some subtle movements to the ship as it flies offscreen, and we will move the camera in such a way that it seems like we are really there filming this.



Overview





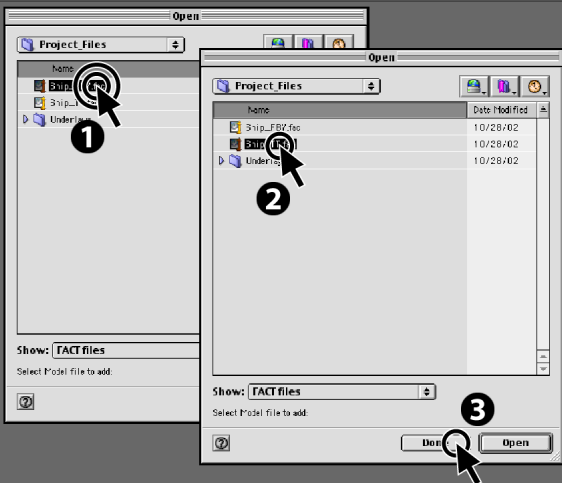
Launch Electric Image Animator.

Press **[CMD/CTRL+N]** to start a new project file.

When Electric Image prompts you to name then save this new project, name it "Ship_Flyby.prj" file, and navigate to the Spaceship_Flyby Tutorial folder and save it in there.

Note: Macintosh keyboard commands are indicated in **red**. Windows keyboard commands are indicated in **blue**. Some files may need to be manually located while loading.





After saving, you will be prompted to load your FACT files into this new project. We will be loading two fact files for this project. These files are located in the Project_Files folder within this tutorial project folder.

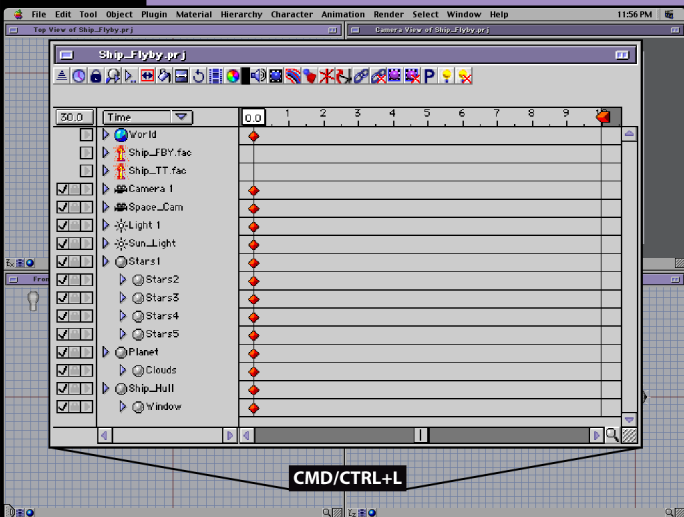
Locate the Ship_FBY.fac file and **[CLK]** Open.

Locate the Ship_TT.fac file and **[CLK]** Open.

[CLK] the Done button.

Note: You can save cameras, lights, geometry and links to texture maps in a model file. However, you cannot save motion data (animation).





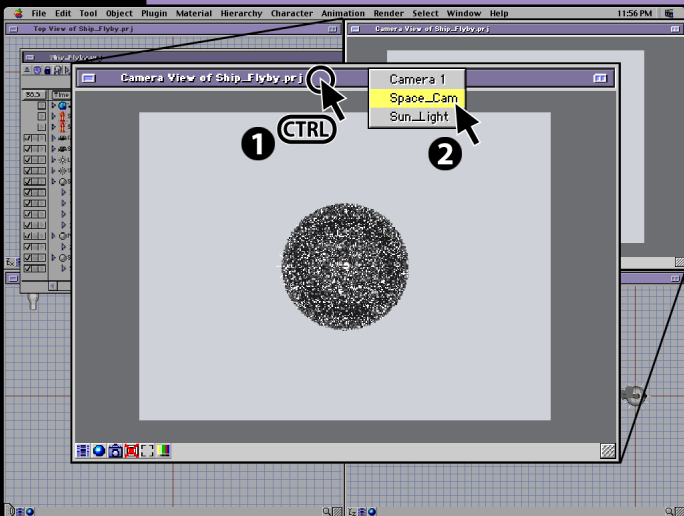
Animator now generates the scene loosely based on the size of the FACT file we loaded. Before we proceed, we need to remove two unwanted elements: a Camera and a Light.

Open the Project window [**CMD/CTRL+L**].

Animator defaults to adding a Light and a camera into every new Project file. Since our FACT file contained a prebuilt Camera and Light, we do not need the default Camera and Light in our scene.

However, before we delete the Camera, we need to switch our viewing angle from the default Camera to the Space_Cam camera...





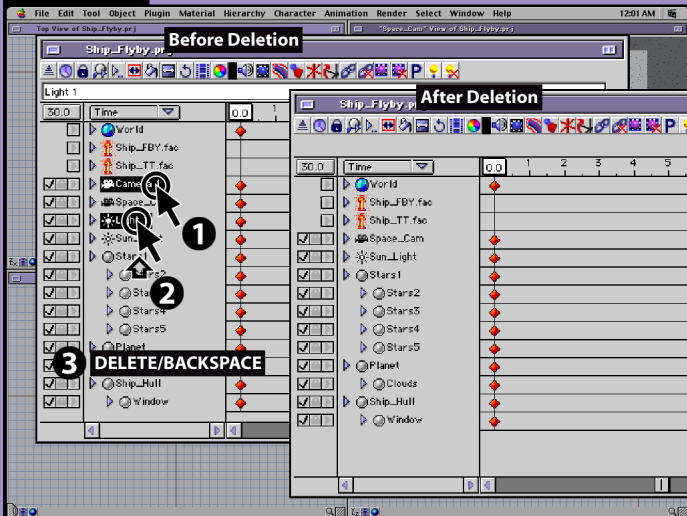
In the Camera View window, [**CTRL/R+CLK**] on the Camera View's window header bar.

In the pop-up menu, select the **Space_Cam** camera.

The Camera View window should change so that you see the planet and the space ship.

We can now delete the default Camera and Light....





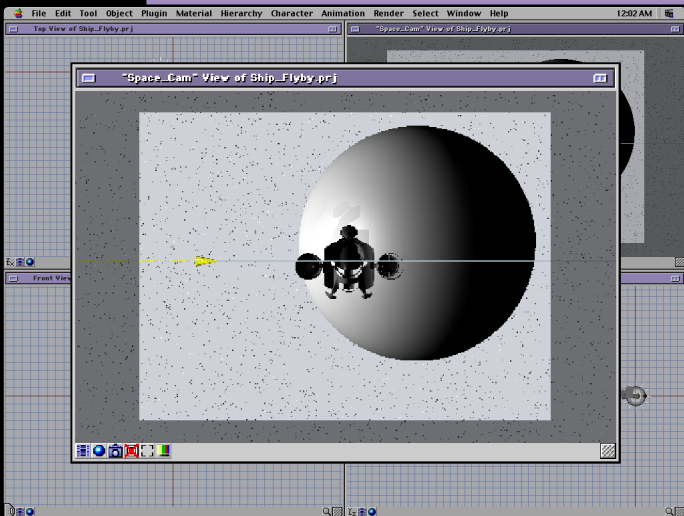
So, in the Project window, **[CLK]** on Camera 1 and **[SHIFT+CLK]** on Light 1 then press the **[DELETE/BACKSPACE]** button.

You should only see the following in the Project window : World, Ship_FBY.fac, Ship_TT.fac, Space_Cam, Sun_Light, Star objects 1-5, Planet and Clouds, Ship_Hull and Window.

For now, close the Project window **[CMD/CTRL+W]** .

Now on to the exercise....





As you can see in the Camera View window, we have a planet and a spaceship.

We need to position the spaceship so that it is flying away from the planet and towards the camera.

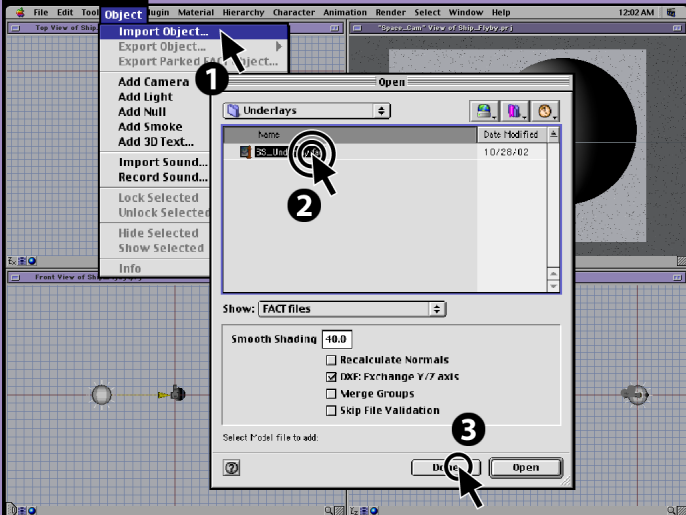
There are an infinite number of ways to position the ship and fly it past the camera, but we want to add a little drama to the scene and make the shot really stand out.

Let's have the ship fly from the dark side of the planet to the upper left of the Camera View window. To do this, we will need to reposition the ship.



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Load the Underlays...



In the Main menu, select Object > Import Object.

Navigate to the Underlays folder in the Project_files folder for the Spaceship_Flyby tutorial.

[DBL+CLK] on the SS_Underlay.fac file to open it.

[CLK] on the Done button.

Note: These underlays will assist us in positioning the spaceship and animating it.

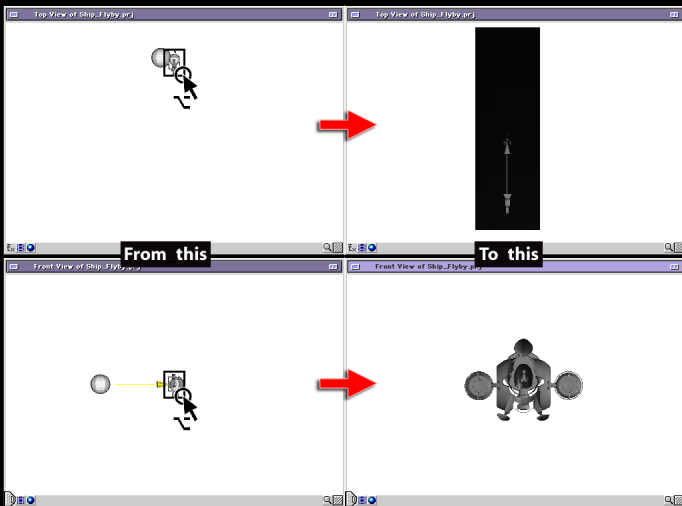


Getting Started



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Viewing the Underlays...



Right now, we cannot see the underlays that we just loaded.

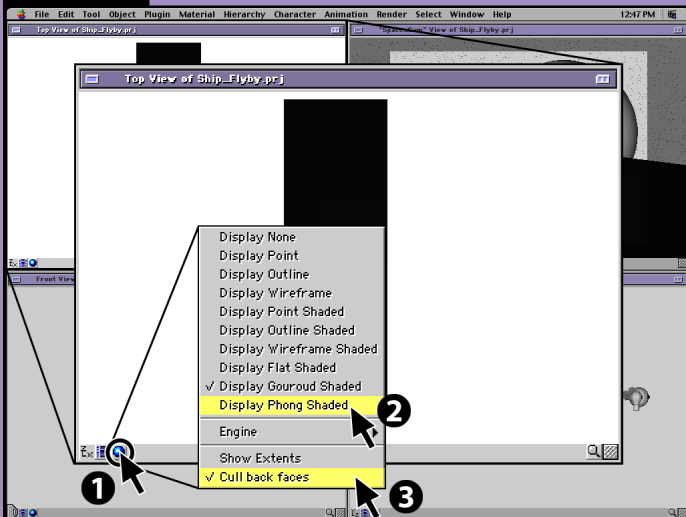
In the Top View window, press **[OPT/ALT]**, then **[CLK+DRG]** a box around the camera to zoom in to see the scene. You may need to do this more than once. Stop zooming in when you see the camera resting on a black plane*.

Do the same thing for the Front View window. Stop zooming in when most of the planet takes up the right hand side of the screen.

However, we still can't see the underlays. We'll fix that in the next couple of steps...

*Note: If you cannot see a black plane, your preference settings may need to be adjusted.





The default Shade Mode for each window is set to Gouraud shading and cullback faces. We need to turn off the cull back faces and set the shading of the Top and Front view windows to Phong.

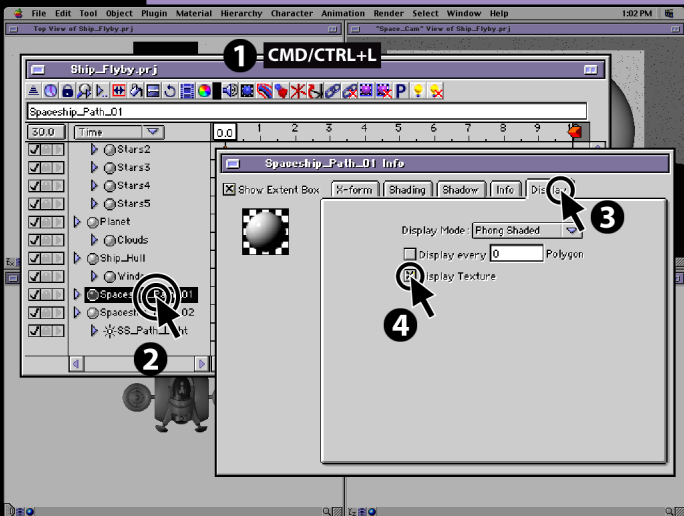
[CLK] on the blue ball button in the Top View window.

Set the Display mode to Display Phong Shaded.

[CLK] on the blue ball button again and deselect Cull back faces.

Follow the same steps above for the Front View window.





Open the Project window [**CMD/CTRL+L**].

[**DBL+CLK**] on the Spaceship_Path_01 layer.

In the Info window that opens up, select the Display tab.

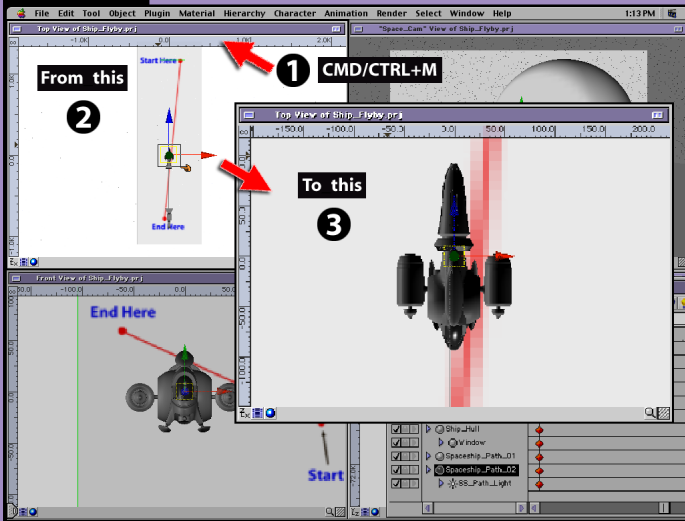
Turn on the Display Texture option.

Close the Info window.

Do this same thing to the Spaceship_Path_02 layer.

Note: You should now see texture map underlays in both the Top and Front View windows.





Press **[CMD/CTRL+M]** to turn on the rulers.

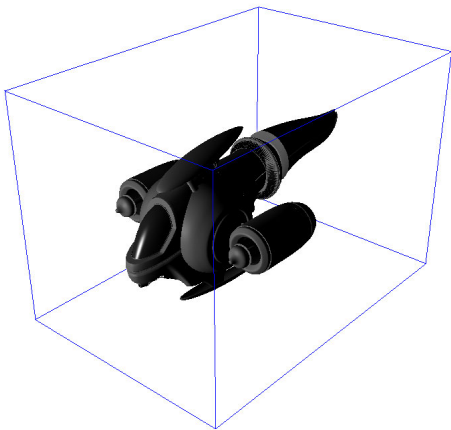
In the Top View window, zoom in to the origin of the scene until you can clearly see the Spaceship.

If you need to, in the Front View window, zoom in to the camera/origin area to see the front view of the spaceship.

Use the combination **[SPACE+CLK+DRG]** to move the window so that you can clearly see the spaceship.

Note: Because of limited screen space, throughout this tutorial you will need to close, reopen, and/or reposition the Project window as needed.

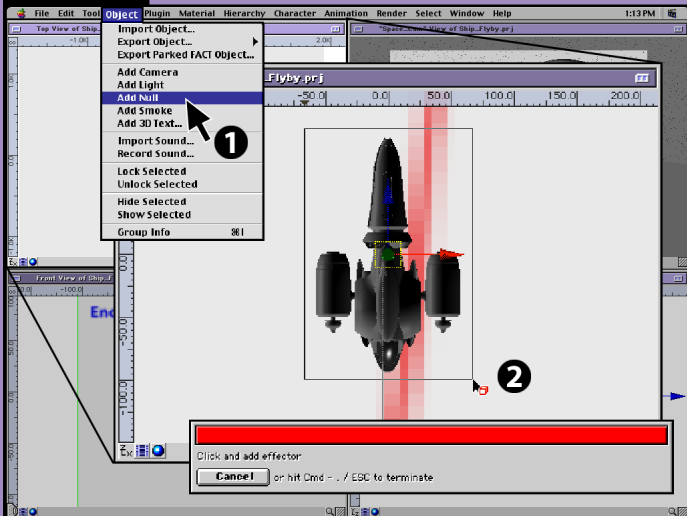




Instead of actually manipulating the ship, we are going to attach the ship to two nulls: A positioning null and a rotational null.

The positional null will move the ship to where we want it, and the rotational null will allow us to rotate it independently of the positioning null. This allows us greater control over the animation and it allows us to swap out models if we need to.





In the Main menu, select Object > Add Null.

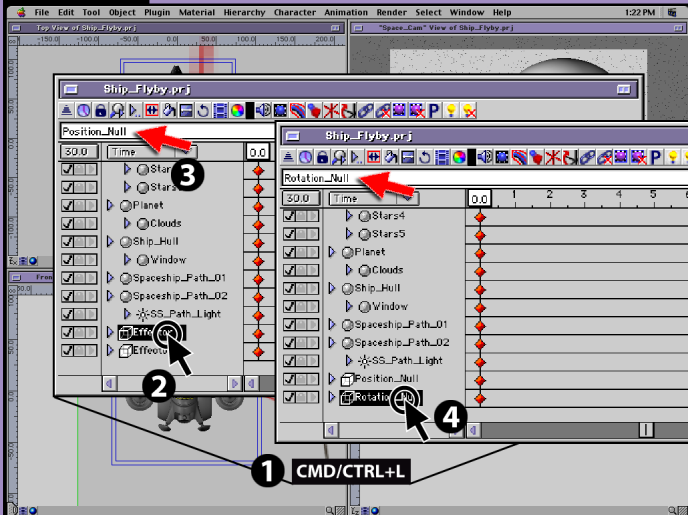
In the Top View window, **[CLK+DRG]** a rectangle around the Spaceship.

We have now added a null around the ship.

We need to add another, slightly larger, null around the null we just created, so add another null around the null in the Top View window.

You should have two nulls around the spaceship when completed with this step.





If it's closed, press **[CMD/CTRL+L]** to open the Project window.

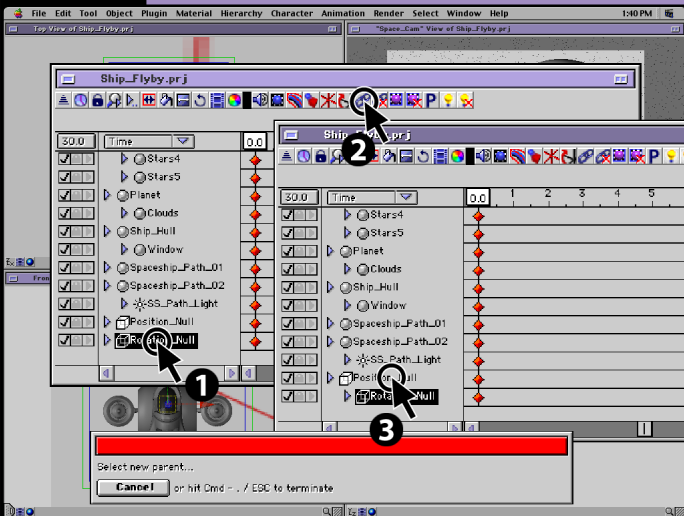
Select the Effector 1 layer.

Rename this layer "Position_Null" then press **[RTRN]** or **[ENTER]** to commit the new name.

Select the Effector 2 layer and rename this null "Rotation_Null."

We now need to link (or parent) the nulls together, along with the ship.



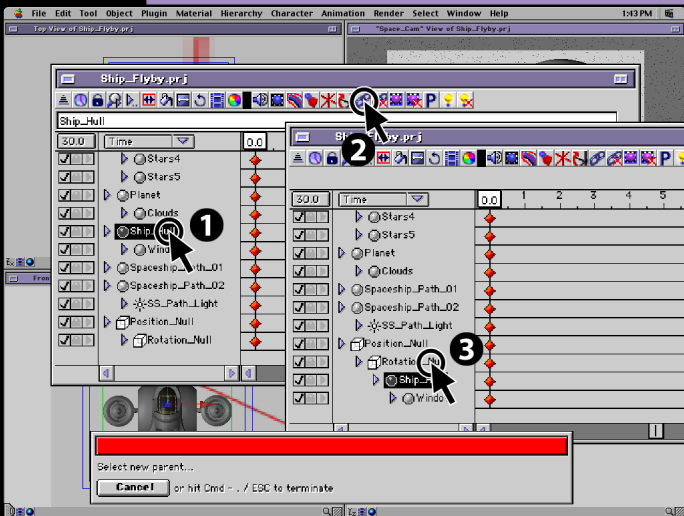


Still in the Project window, select the Rotation_Null and **[CLK]** on the Parent button (7th button from right).

When prompted, **[CLK]** on the Position_Null.

Note: This links the Rotation_Null to the Position_Null so that when we move the ship around, we can now rotate it, too.





Now we need to link the ship to these two effectors.

Select the Ship_Hull object layer and **[CLK]** on the Parent button.

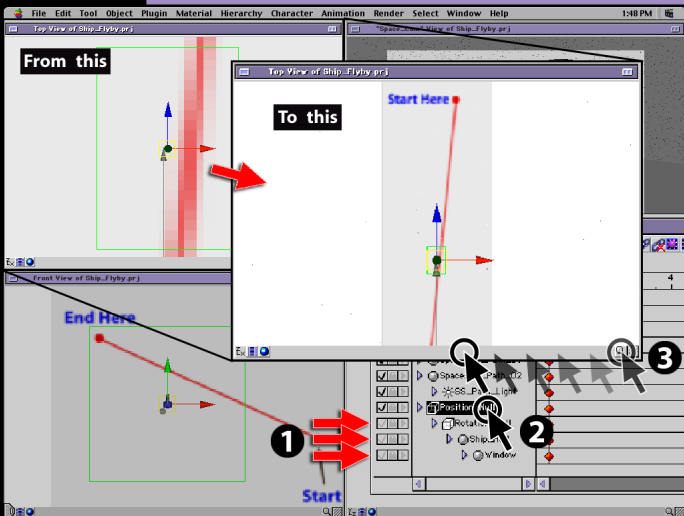
When prompted, **[CLK]** on the Rotation_Null.

We are now set to position and animate the Ship.



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Positioning the Spaceship - Top View



In the Project window, turn off the visibility of the Rotation_Null, Ship_Hull and Window objects. This makes it easier to see and work with what we are about to do. **[CLK]** on the Position_Null to select it.

Move the Project window so that it does not obscure the Top or Front View windows (close it if need be).

In the Top View window, **[CLK+HLD]** on the magnifying glass in the lower right corner of the window then **[DRG]** to the left to zoom out so that you can see the Start Here position on the underlay.

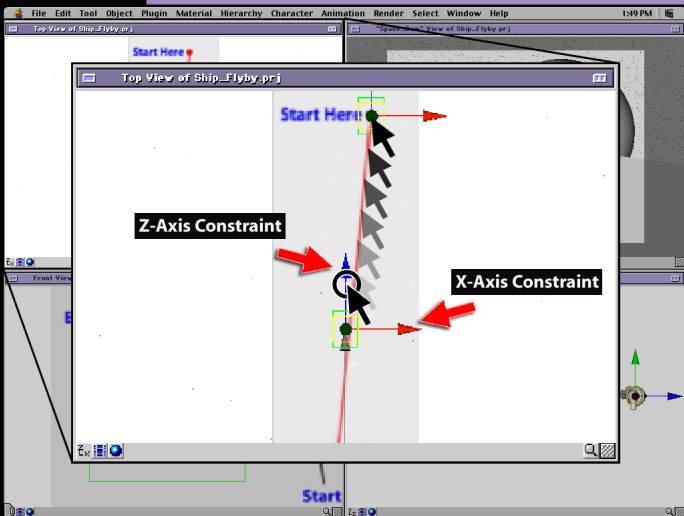
Note: You may need to hold the **[SPACE]** down and position the elements in the window accordingly.



Getting Started



Positioning the Spaceship - Top View

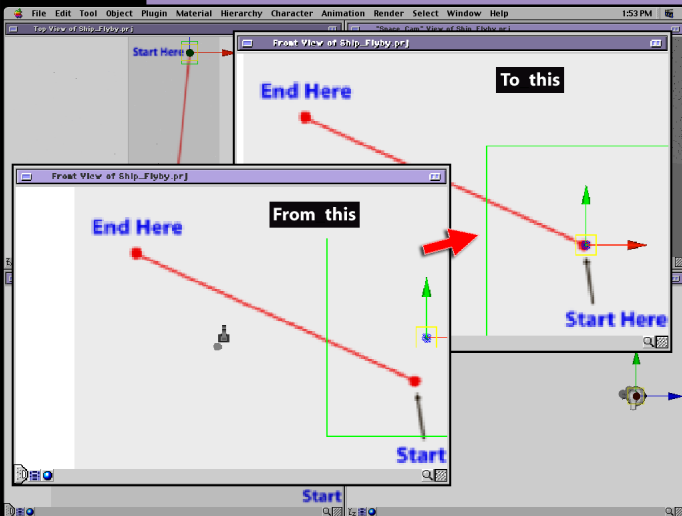


Still in the Top View window, use the constraints (the directional arrows) that are now visible and position the Null over the red dot next to the Start Here text.



Getting Started

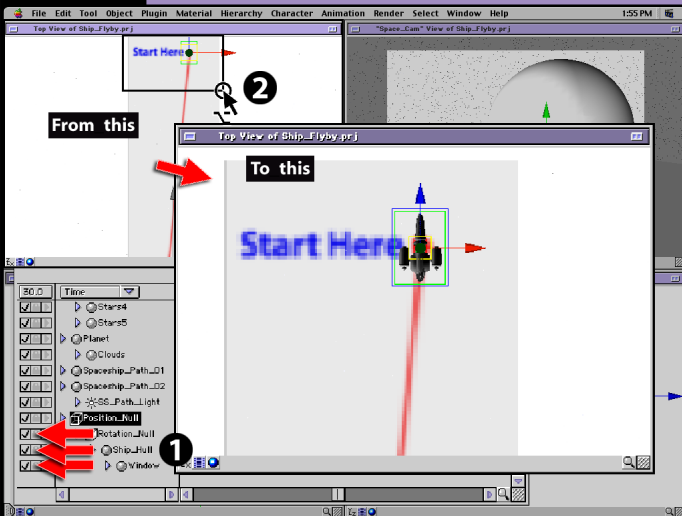




In the Front View window, with the Position_Null still selected, use the constraints to position the null and the ship on the red dot indicated by the 'Start Here' arrow.

Note: You may need to reposition the elements by pressing the **[SPACE]** and **[CLK+DRG]** in the window.



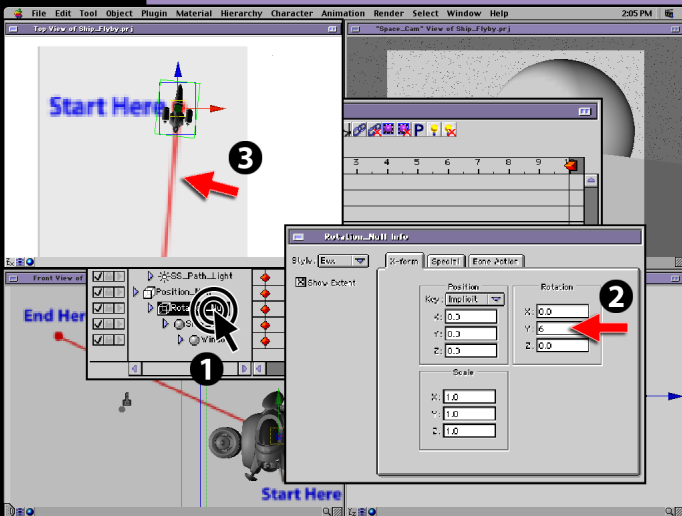


In the Project window, turn on the visibility of the Rotation_Null, Ship_Hull and Window layers.

In the Top View window, **[OPT/ALT+CLK+DRG]** a fairly large rectangle around the spaceship to zoom in so that you can clearly see the ship body but more importantly the underlay underneath it.

What we want to do next is to angle the ship so that it follows the red line on the underlay.



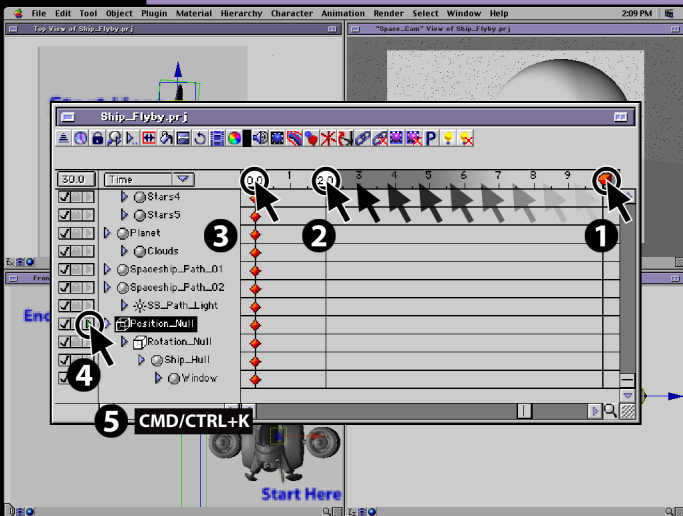


In the Project window, **[DBL+CLK]** on the Rotation_Null to open the Rotation_Null's Info window.

Rotate this Null about the Y-axis so that the ship is parallel with the red line on the underlay in the Top View window.

Close the Info window.





Now that our ship is in position, we are ready to animate it flying by the camera.

First, we want the animation to occur over 2 seconds.

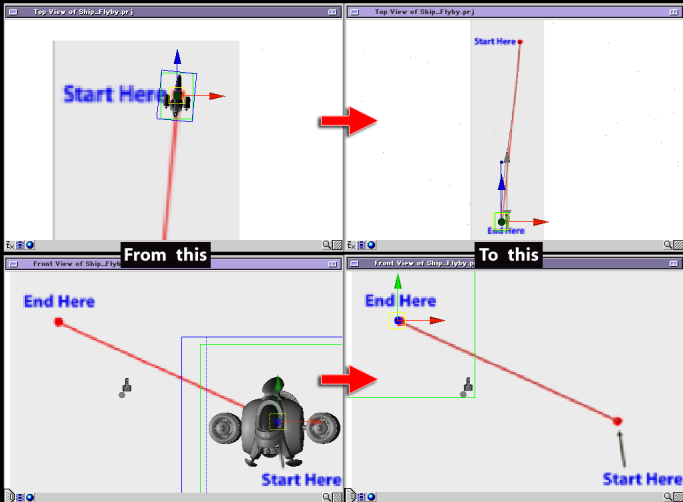
In the Project window, **[DRG]** the red triangle from the 10 second mark to the 2 second mark.

Reposition the Time indicator back at the beginning.

[CLK] on the animation triangle for the Position_Null to make it active.

Select the Position_Null, and press **[CMD/CTRL+K]** to set a keyframe at this position.





Drag the Time indicator to the end of the animation.

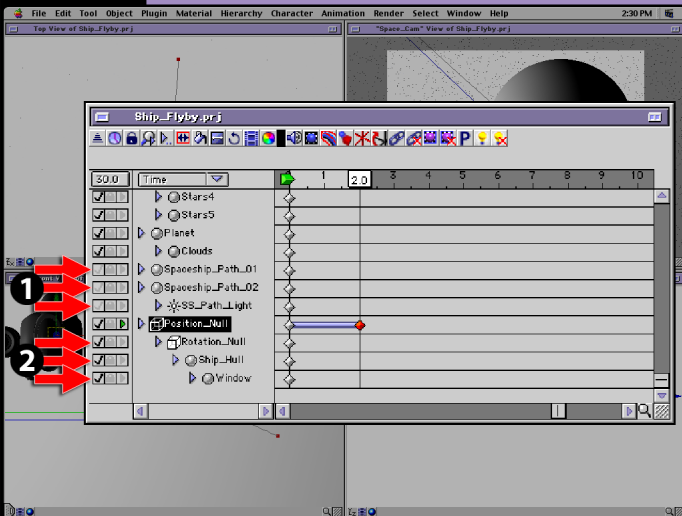
In the Top View window, zoom out so that you can clearly see the red dot denoting the "End Here" position.

Again, using the constraints on the Position_Null, move the null and spaceship to the "End Here" position marked on the Underlay.*

In the Front View window, position the Position_Null at the "End Here" position too.

Note: If you need to, as before, turn off the visibility of the Rotation_Null, Ship_Hull, and Window layers.



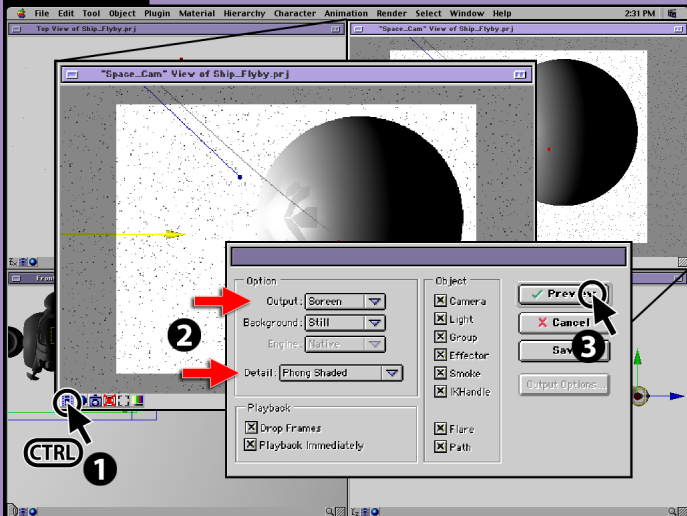


In the Project window, turn off the visibility of the underlays: Spaceship_Path_01 and Spaceship_Path_02, and the SS_Path_Light that is associated with it.

Turn the visibility back on for the Rotation_Null, Ship_Hull and Window layers.

When that is done, press [**CMD/CTRL+S**] to save the project.





Close or move the Project window so that you can see the Camera View window.

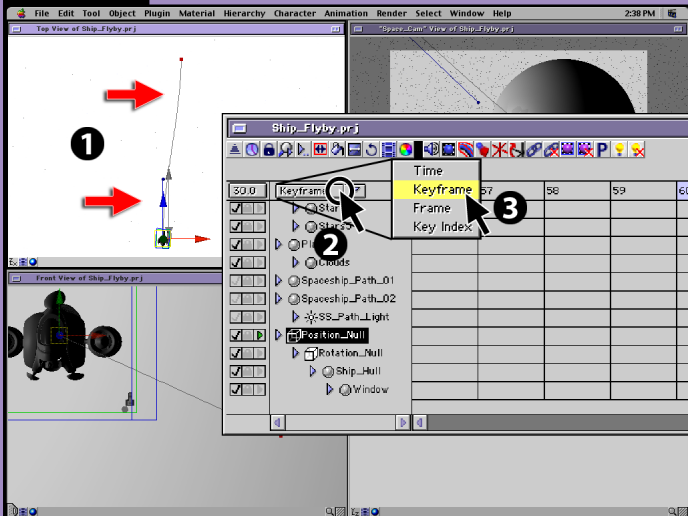
[CTRL/R+CLK] the Preview button in the lower left corner of the window.

Set the Output to Screen and, depending on your processor and graphics card, set the Detail accordingly. Phong is usually preferred.

[CLK] the Preview button.

Note: Not too bad; it's a start. The ship's movement is kind of bland and needs something to liven it up, like a little rotation to the side as it flies by.





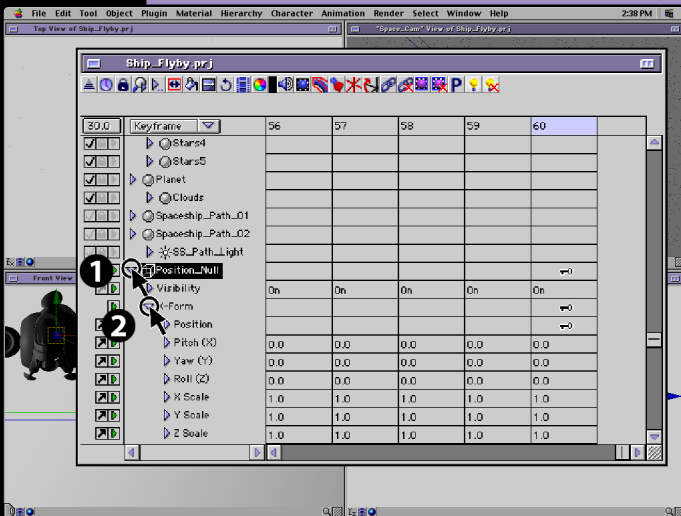
One thing that we need to do before we move on is tweak the animation that we already have...

If you look at the Top View window, you can see that our animation path is not straight. It's curved. We want our ship to fly a straight path. To fix this, we need to delve deep into the Project window...

In the Project window, above the layer names **[CLK]** on the Time button, which now reveals some other attributes... this is the viewing mode of the Project window.

Select the Keyframe mode. The Project window is now being displayed in a spreadsheet form.



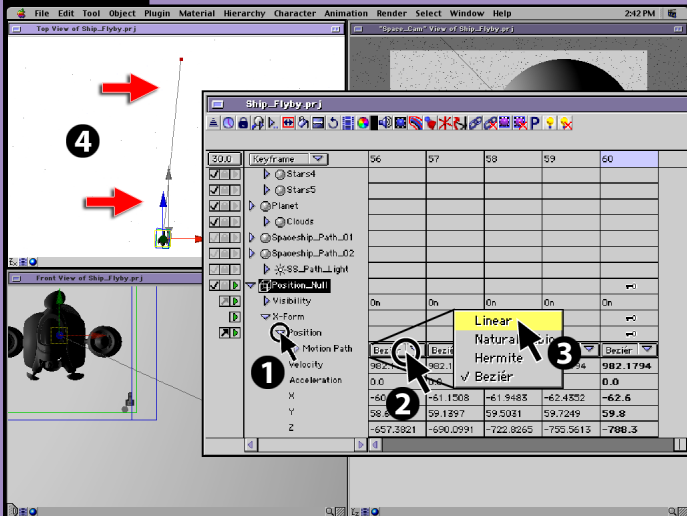


Still, in the Project window, **[CLK]** on the twirly triangle next to the Position_Null. Doing this is very similar to double clicking on the Layer name itself to reveal the properties of this Null.

[CLK] on the twirly triangle next to the X-Form property.

Note: This yields all of the positioning attributes for this effector.



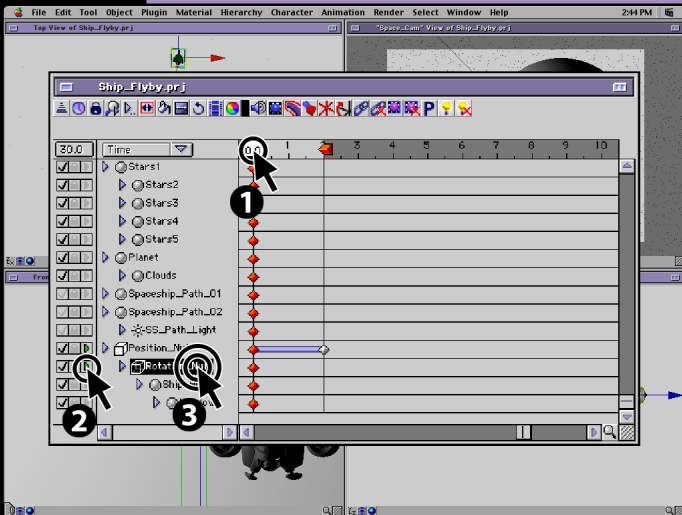


[CLK] on the twirly triangle next to the Position property.

In the Motion Path line, [CLK] on the Bezier option and in the resulting pull down menu select Linear.

This changes the interpolation factor of the animation so that now it is a constant, linear movement. Which is what we want. Notice that the animation path in the Top View window is now straight. Collapse the twirly triangles and set the view mode back to Time.





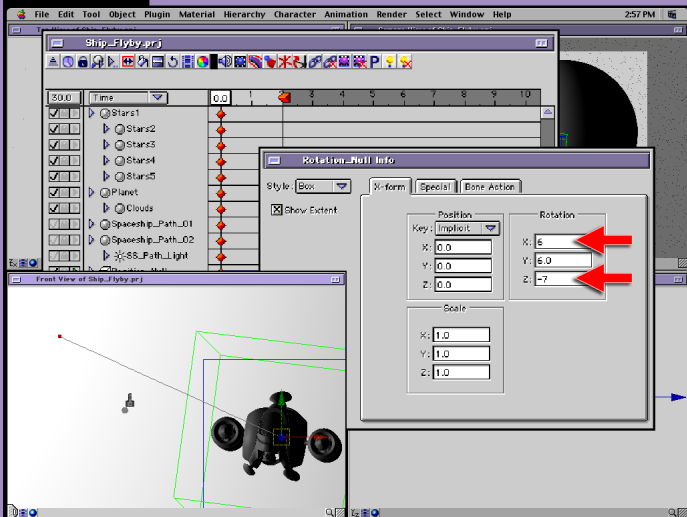
As we mentioned during the Preview, the movement of the ship is lacking. It's very bland. To add something to this, we will animate a little rotation to the ship. Yawing from one side to the other as it flies by.

In the Project window, move the Time indicator back to the beginning.

[CLK] on the animation triangle for the Rotational_Null.

[DBL+CLK] on the Rotational_Null.



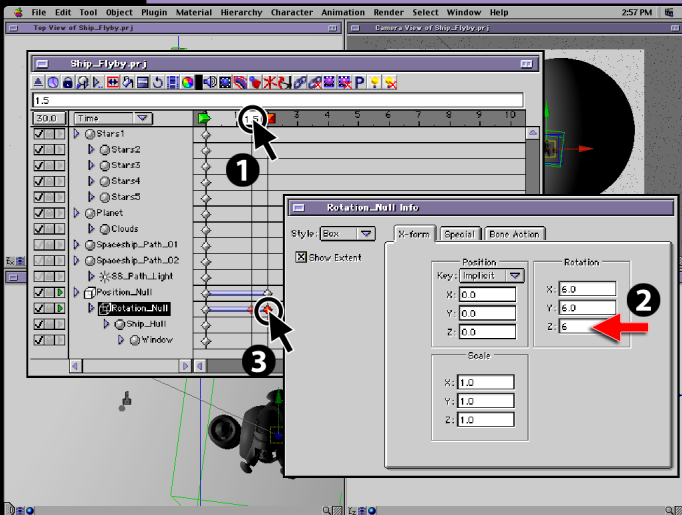


Right now the composition of the shot is very flat and unappealing. We need to break the symmetry of this to make this shot look interesting and engaging.

For starters, since the ship is flying above us, it should be angled slightly to depict that. Second, let's add some secondary motion to the ship as it flies by us, another rotation.

In the Rotation_Null Info box, rotate the ship so that it is pitching up slightly (negative Z value) and angle the ship so that the top is pointing at the upper right corner of the screen (positive X value).





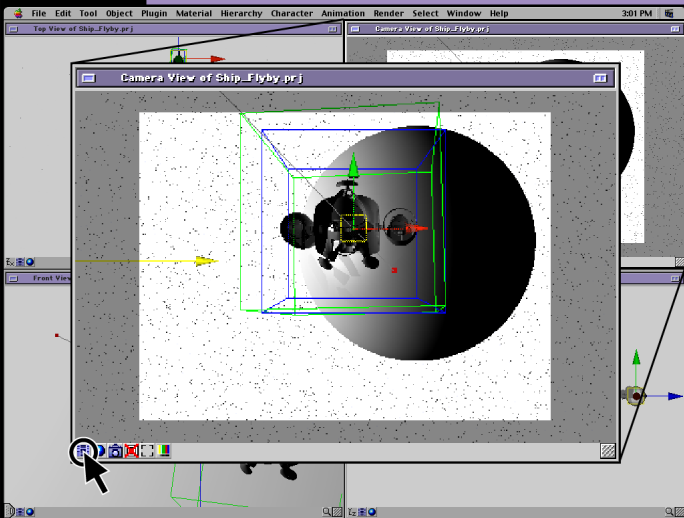
In the Project window, move the time indicator to around 1.5 seconds.

Since the ship is off the screen at the end of the animation, we need to set the rotation here to see what it will look like. We will then move the keyframe to the end of the animation

We want the ship to yaw or roll away from us, so we need to rotate the ship around the Z-axis (a positive value).

When you have something you like, close the Rotation_Null Info window and drag this keyframe to the end of the animation.



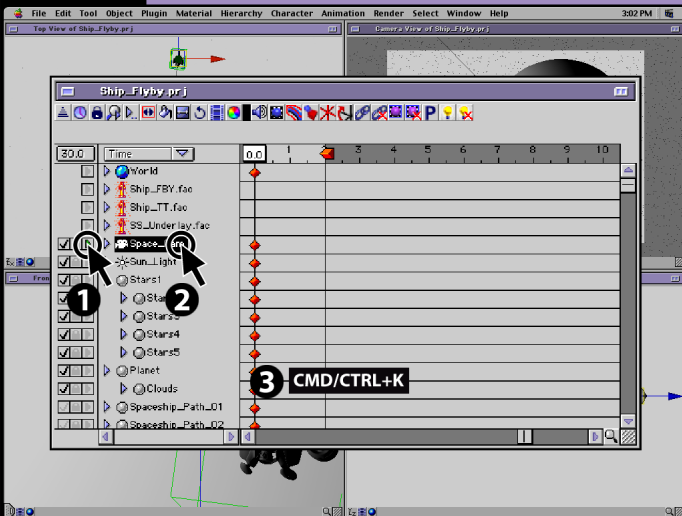


In the Camera View window, **[CLK]** the Preview button to view the motion of the animation.

Note: It's very close. Very close indeed. However, there is one last thing that we are going to do.... we will add a subtle little movement to the camera.

When photographing a shot, unless it's a still or the script calls for a lock off, the camera is usually moving in some way to help pull the viewer into the shot. Sometimes it's so subtle it is hardly noticed.





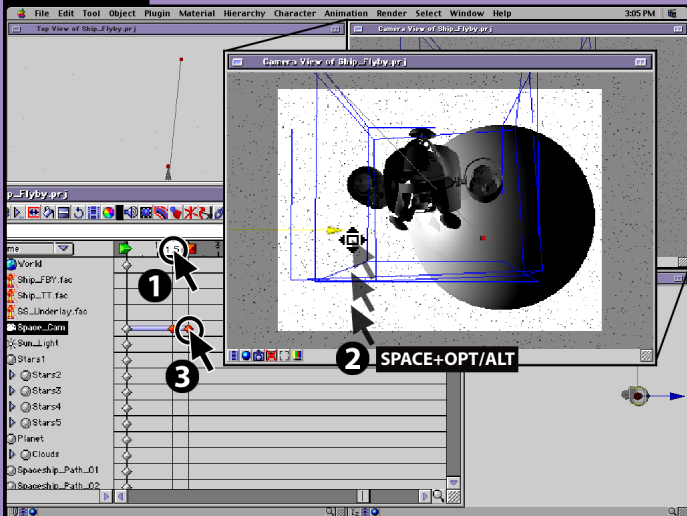
Since the ship is flying over us, it would be nice to tilt the camera upwards slightly as the ship flies over us. This would give the viewer a perceived sense of motion that we are really out there trying to photograph the ship as it flies past us.

In the Project window, **[CLK]** on the animation triangle of the camera to make it active.

[CLK] on the Space_Cam to select it.

Move the time indicator to the beginning of the animation and press **[CMD/CTRL+K]** to set a keyframe.



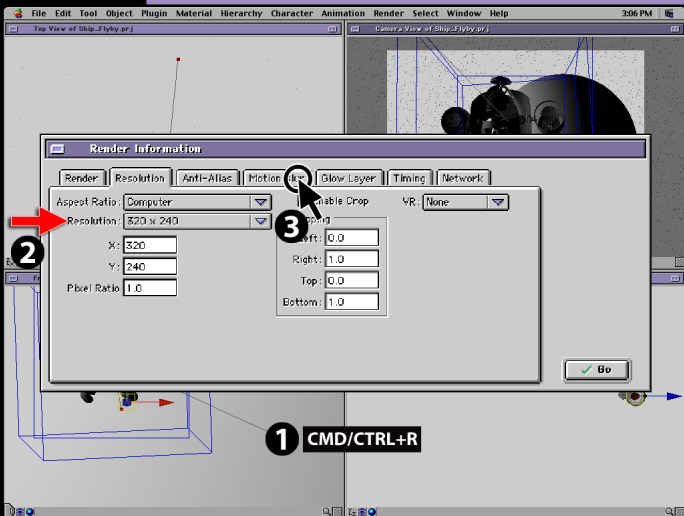


Move the time indicator to around 1.5 seconds. Again, we want to set this keyframe and then move it to the end of the animation when we're done.

In the Camera View window, press [**SPACE+OPT/ALT**] then in the camera window itself, [**CLK+DRG**] downward to position the camera's reference point higher, depicting a tilt up of the camera.

When you're happy with the positioning, go to the Project window and [**CLK+DRG**] the keyframe that was created to the end of the animation





You are now ready to view the animation...

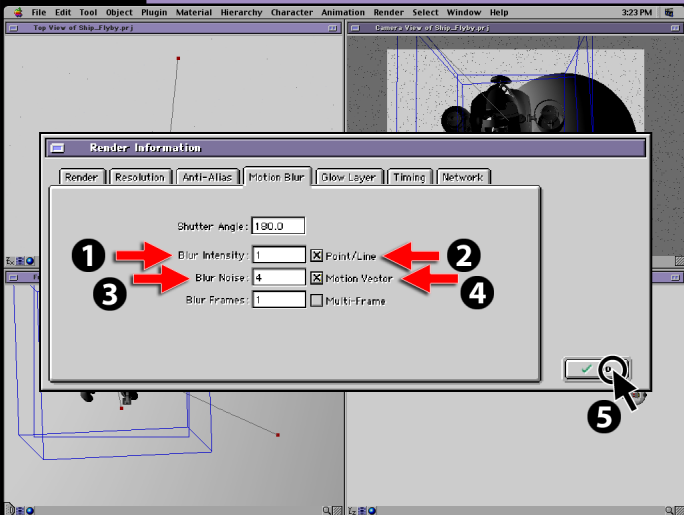
Press [**CMD/CTRL+R**] to open the Render Window.

Set the resolution to 320x240.

Before we render the animation, we need to add some motion blur to the shot.

[**CLK**] on the Motion Blur tab.





Set the Blur Intensity to 1 and check the Point/Line option. This will blur the stars as the camera tilts up.

Leave the Blur Noise set to 4 and check the Motion Vector option. This will create the motion blur of our Spaceship.

[CLK] “Go” to begin rendering.

Note: You will need to save your project file and direct and name your render. Later, you can open it in After Effects and Quicktime (with the proper plug-ins). You can also set Render Output to Quicktime if you don’t have the other options.

