Cinema 4D Lite

Integrating a 3D application into the After Effects timeline using CINEWARE.

In This Lesson

Getting Started

Make sure you have downloaded the file archive for **Lesson 12** (as discussed in *How to Use This Book*) and decompressed it. It contains the project file and sources you need to execute this lesson.

Native After Effects 3D layers have many uses, but many limitations as well. Fortunately, After Effects CC comes bundled with a full 3D application – MAXON CINEMA 4D Lite (C4D Lite for short) – and a pipeline to integrate its output directly into the After Effects timeline.

That pipeline runs through the CINEWARE effect. Inside an After Effects composition you choose Layer > New > MAXON CINEMA 4D File, which creates a 2D layer with CINEWARE applied. This action also opens a corresponding blank project in C4D Lite. You can build 3D objects from scratch in C4D, or "merge" existing projects into your new project file. As you step through the After Effects timeline, CINEWARE requests a frame from the C4D Lite rendering engine and presents the results inside this After Effects layer. If you need to reopen the underlying C4D project file later, you just select the layer with CINEWARE applied and go Edit > Edit Original. CINEWARE also offers a number of useful options, including deciding which layers you've grouped in the C4D project or portions of the 3D render you want to see, whether to use the C4D or After Effects 3D camera, and the ability to extract camera and light data from the C4D file and re-create it inside After Effects.

As nice as this system is, it does have its limitations. One, 3D renders are often much slower than 2D, meaning you will find it slower to move through the After Effects timeline. Two, because CINEWARE is rendering the C4D scene all by itself, its results cannot currently intermingle with After Effects' 3D layers; in other words, there are no intersections or automatic shadows between those worlds. This is the way essentially all "3D" plug-ins in After Effects work – including popular choices 3D Invigorator and

ProAnimator by Zaxwerks and Video Copilot's Element 3D. Also, C4D Lite is indeed a feature-reduced version of the full program. If you already have a full version of CINEMA 4D or another full 3D program, in most cases you're better off using it instead of C4D Lite. But if you need more robust 3D than After Effects itself provides, and you don't have the budget for any of these other solutions, C4D Lite can be very useful.

This lesson assumes you have no prior experience with a full 3D application, but are somewhat comfortable with After Effects' own 3D implementation (if not, go back and work through Lesson 8). Learning modeling and 3D animation is the subject of a book in itself; we'll be only touching on these lightly. But you will learn enough to be dangerous, including creating a videowall, animating text or a flying logo, and integrating an already built 3D model into an existing video scene. Although these are separate tasks, we urge you to go through all of them in order, as you will pick up progressively more tips about using C4D Lite with After Effects in each one. But first, we're going to start with the setup tasks that are common to any project that uses After Effects and C4D.

Additional C4D Reference

There are numerous books available from which to learn more about CINEMA 4D and C4D Lite, including:

- *After Effects and CINEMA 4D Lite* by Chris Jackson: Currently the only book dedicated to C4D Lite; includes its limitations compared to the full version of CINEMA 4D. It's the perfect next step after reading this lesson.
- *CINEMA 4D Apprentice* by Kent McQuilkin: Another book in the *Apprentice* series, with in-depth information organized by topics, such as Lighting and Motion Graphics. Written for the full version of CINEMA 4D.
- *CINEMA 4D: The Artist's Project Sourcebook* by Anne Powers and Kent McQuilkin: Also dedicated to the full version of CINEMA 4D, with numerous small projects.

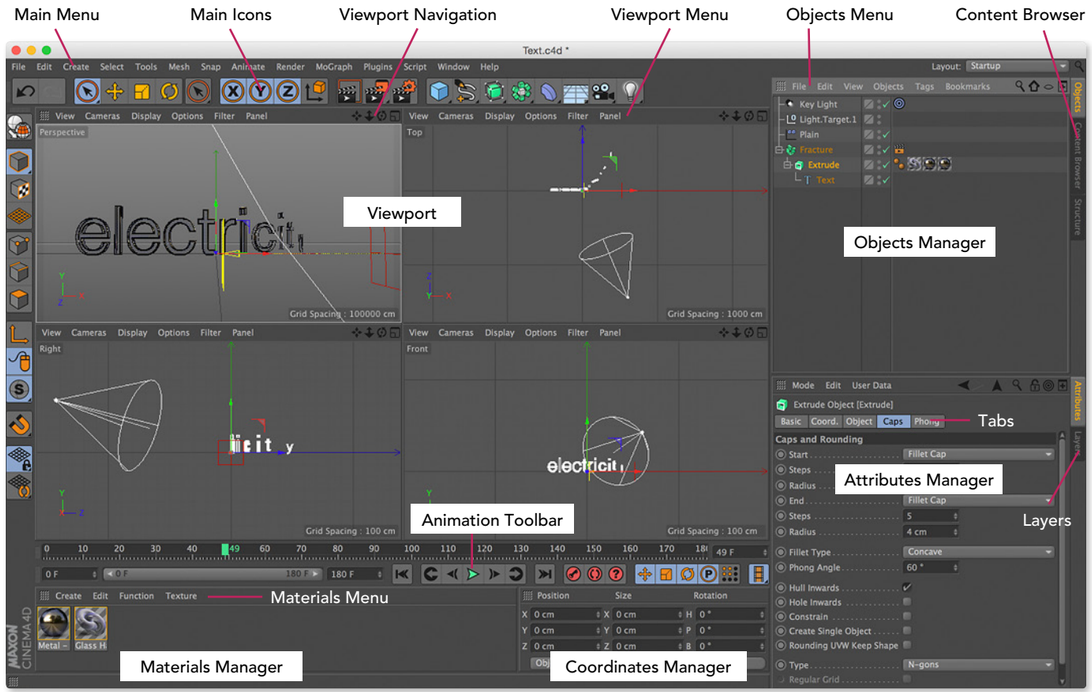
In this lesson, you will learn how to build a videowall (A), animate 3D text (B), and integrate a 3D model into existing footage (C). A movie of each finished exercise can be found in the **12_Finished Movies** folder.

tip

Using the Full Version of C4D

If you own a full version of CINEMA 4D, you can tell CINEWARE to connect to that instead of C4D Lite. With CINEWARE applied to a layer, click on Options along the top of its effect controls. A dialog will open where you can relink which version is used for editing, as well as for rendering.

CINEMA 4D User Interface

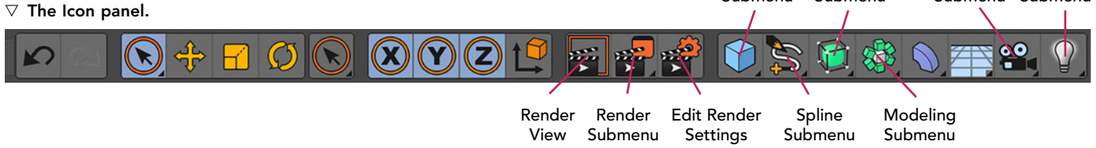


The CINEMA 4D interface (version R16) is divided into major sections, outlined here. Throughout this lesson, we assume you are using the Startup or Standard Layout (selected in the upper right corner). The icons we use in this lesson are called out below.

The CINEMA 4D interface (version R17). Note the new icon for the Spline tool.

▽ **The Animation toolbar.**

▽ **The Icon panel.**



Project Setup

There are a few steps you need to perform every time you use C4D Lite and CINEWARE in an After Effects project. We'll detail those steps here and then just quickly refer to them in the remaining exercises.

1 Open **Lesson_12.aep**. Both the Lite and full versions of CINEMA 4D expect After Effects to be working in a very specific color space, so that color and compositing operations react the same in both programs. Open File > Project Settings, and verify the following changes in the Color Settings section:

- Set Working Space to sRGB IEC61966-2.1; the default for this is None.
- Enable Linearize Working Space; it defaults to Off.
- Optionally set Depth to 16 bits per channel (bpc).

This will reduce color banding in your renders, with the trade-off of slower renders. You can work in the default 8-bit mode for speed, then enable 16-bit mode in the Render Queue > Render Settings dialog.

You only need to do the above once per project file. Be warned that these settings will apply to all compositions inside that project, so we recommend you maintain a separate project file if you need to process other comps with a normal workflow. We have already performed this step for you in **Lesson_12.aep**; it's good to always check when you receive a project from someone else. When you start a new After Effects project that will include C4D layers, you will need to perform this setup again.

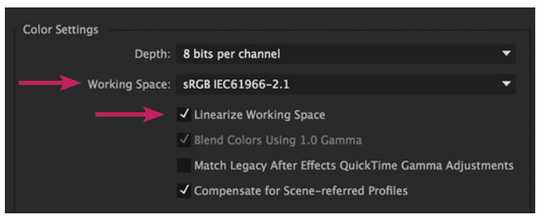
2 In the Project panel, double-click **01-Project Setup*starter** to open it. Open Composition > Composition Settings to note its frame size (960×540 pixels) and frame rate (29.97 frames per second); click OK when done. Go to the end of the comp and note the frame number count under the time display in the upper left corner of the Timeline panel – C4D thinks in terms of frames, not SMPTE timecode. Then return the current time indicator to the start of the comp.

3 Choose Layer > New > MAXON CINEMA 4D File. A file dialog will open; name the file based on the content you're about to create (let's say **Test.c4d**) and save it next to your After Effects project or where you're keeping its sources. Click Save, and C4D Lite will open.

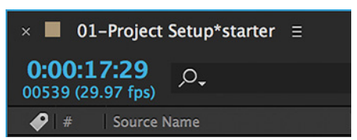
First Launch

The first time you launch CINEMA 4D Lite, you will see a Registration screen. Do register, as it activates additional tools that you need to complete this lesson.

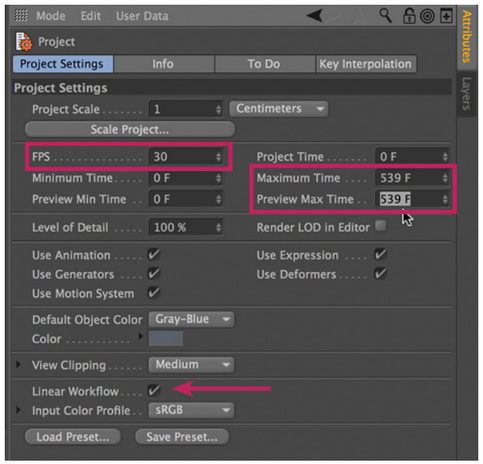
You may also see an Updates screen; if you don't, to access it choose Help > Check for Updates from the Main menu along the top. Update to the latest version of CINEMA 4D. Also click on the Optional tab and download the Help Documentation/Language Pack (and, if available, the QuickStart) for your language. After you do so, you can right-click on virtually any tool or parameter in C4D Lite and be taken directly to the Help section on that subject.



1 CINEMA 4D defaults to sRGB working space and linear color blending; duplicate this in After Effects' Project Settings.



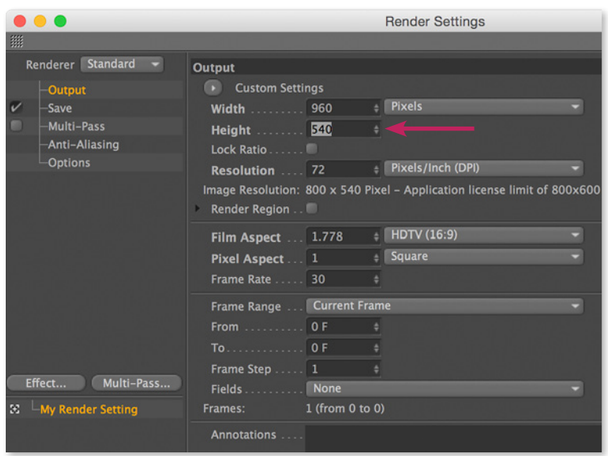
2 The number in small type underneath the main time display for the Timeline panel in After Effects is the frame count; this is how C4D measures time. If you prefer to always count in frames, ⌘ on Mac (Ctrl on Windows) click on the value to switch the time display (as covered on page 68 in Lesson 2).



4 Transcribe your After Effects composition's frame rate and duration into C4D Lite's Project Settings (you may need to round up the frame rate to the nearest whole number).

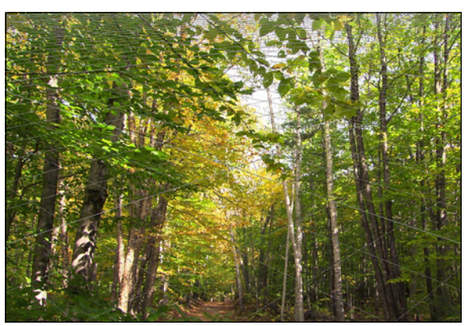
4 In C4D Lite, choose Edit > Project Settings from its Main menu. It will open in the Attributes Manager in the lower right. Set the Maximum Time and Preview Max Time to equal the last frame number in your After Effects comp. Copy your frame rate into the FPS field. Note that CINEMA 4D does not support fractional frame rates; 29.97 gets rounded to 29(!) – so set it to the nearest whole number (60 for 59.94, 30 for 29.97, or 24 for 23.976), and we'll fix the difference in After Effects. You'll also note at the bottom of this dialog that Linear Workflow has been enabled and the Input Color Profile has already been set to sRGB.

5 Click on Edit Render Settings from the main icons above the Viewport, or choose Render > Edit Render Settings. Choose Output along the left and change Output > Width and Height to match your After Effects composition in pixels. Ignore the Image Resolution warning that appears; the connection between C4D Lite and After Effects is resolution independent. In general, this panel pertains to rendering frames directly out of C4D Lite; we're only setting the frame size here so CINEMA 4D's viewer shows you the correct aspect ratio when you arrange your objects. Close this dialog when finished.

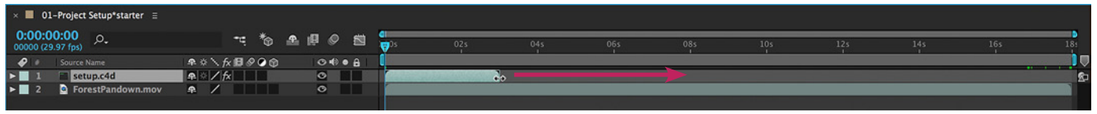


5 Transcribe your After Effects composition's frame size into C4D Lite's Render Settings.

6 Choose File > Save from the Main menu. You must save your changes in C4D Lite for them to appear in After Effects. Then return to After Effects: You will see a grid overlaid in your composition; this is the ground plane in your C4D layer. Also note that your .c4d file appears as a source in After Effects' Project panel; feel free to move it into your **Sources** or **Media** folder.



6 When you return to After Effects, you will see the ground plane grid from C4D in your Comp panel. Clip FCL220 courtesy Artbeats.com.



7 You will notice that the new layer in your comp for the C4D file has been pretrimmed to 3 seconds long, which is the default file duration in C4D Lite. Retrim its end to match the end of your composition.

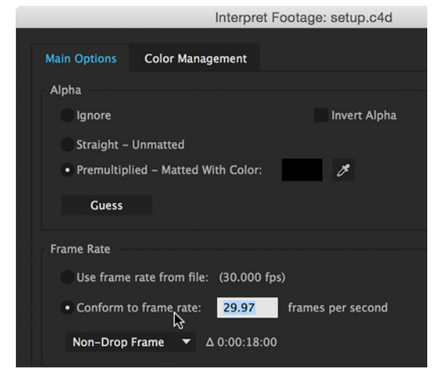
7 Retrim the length of the C4D layer to match the comp's duration.

8 *This step only applies if your comp has a fractional frame rate such as 23.976, 29.97, or 59.94 fps.* To compensate for CINEMA 4D supporting only integer frame rates, do the following:

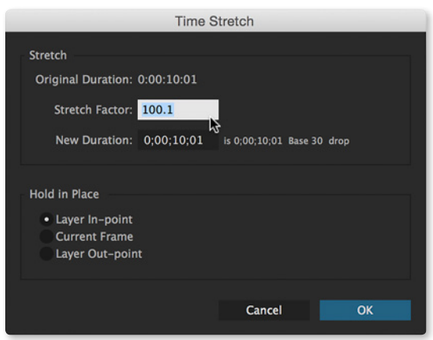
- Right-click on the CINEWARE layer (the one that ends in ".c4d," such as **setup.c4d**) and choose Reveal Layer Source in Project. The Project panel will be brought forward with this footage item selected.
- Choose File > Interpret Footage > Main, and set Frame Rate > Conform Frame Rate To so it matches your original fractional frame rate (i.e., 29.97 in this case).
- If you extract any 3D scene data from the CINEWARE layer in your composition – such as the camera move, which you will in the next exercise (Step 25) – select that extracted layer and choose Layer > Time > Time Stretch. Set the Stretch Factor to 100.1: This slows down the extracted data back to the original fractional frame rate (i.e., 30 to 29.97).

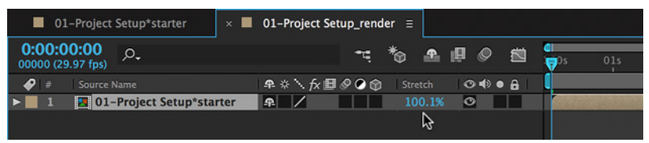
(There is a possibility that you may not need to perform the Stretch Factor adjustment in future versions. We'll update this book's online page at www.routledge.com/cw/meyer *if that's the case.)*

Yes, that last step was tedious, but crucial to make sure your C4D animation does not fall out of sync with the rest of your After Effects composition.



8 To compensate for CINEMA 4D's lack of support for noninteger frame rates, you need to conform the frame rate of your .c4d footage items to the correct fractional frame rate in the Interpret Footage dialog.

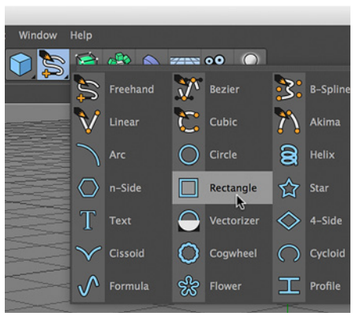




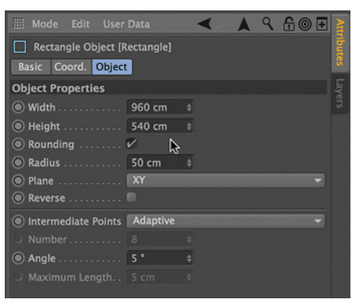
8 *continued* You also need to stretch any animations you extract from .c4d layers by 100.1%. You can stretch layers either in the Layer > Time > Time Stretch dialog (left), or by revealing the Stretch column in the Timeline panel (above).

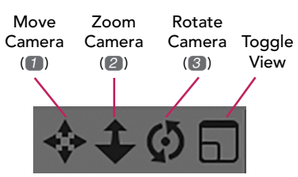
Part 1: Creating a Videowall

A common motion graphics task is to create a virtual "videowall" and to move around it. In this exercise you will create a simple model from scratch and "texture" it with a sports video.



3 Create a new Rectangle (above) and size it to match your video's aspect ratio (below).





△ To use a hotkey, press and hold down the key then drag the mouse in the viewer.

1 In After Effects, close your previous comps. In the Project panel, open **Comps > 02-Videowall*starter**. Open Composition > Composition Settings and note the frame rate (29.97), frame size (960×540), and duration (10 seconds × 30 fps = 300 frames) of the comp, and close the dialog.

2 Choose Layer > New > MAXON CINEMA 4D File. Change the name to "**Videowall.c4d**" and save it alongside **Lesson_12.aep**.

- Update C4D Lite's Project and Render Settings as outlined in first exercise's Steps 4 and 5 (page 364). Save your C4D Lite project and return to After Effects.
- Locate **Videowall.c4d** in the Project panel, choose File > Interpret Footage > Main, and enter "**29.97**" for Frame Rate > Conform Frame Rate To. Save your After Effects project and return to C4D Lite.

3 We want to create a rectangular videowall face that has the same aspect ratio as the video we plan to map onto it. To start, click on the Spline submenu icon above the Viewport (its tooltip will say Freehand), and choose Rectangle. (You can also choose Create > Spline > Rectangle from the Main menu.) A Rectangle object will be added to the Objects Manager, and a square outline will appear in the Viewport centered at the origin (0,0,0). When that object is selected, its parameters will appear in the Attributes Manager.

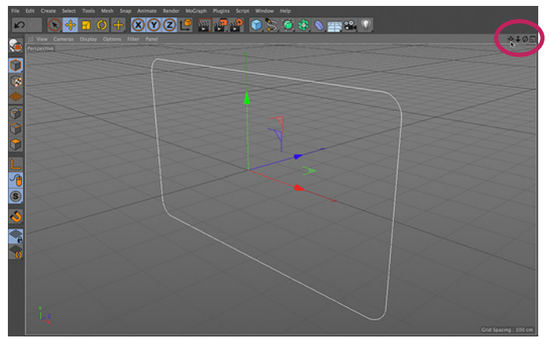
With **Rectangle** selected, click the Object tab in the Attributes Manager and set its Width to 960 and Height to 540 to match the aspect ratio of the comp and video (you can ignore units like "cm"). To make the corners more interesting, enable the Rounding checkbox; the initial Radius value of 50 is fine for now.

4 The outline may be larger than your Viewport display, so it's time to get familiar with zooming and panning around it. There are four icons in the Viewport Navigation section in the upper right corner; you can click and drag the three leftmost ones to pan, zoom, and rotate your view, akin to After Effects' Camera tools. You can also press and hold down 1, 2, or 3 as you click and drag to get the same actions. Pan and zoom the rectangle so you can see it comfortably inside the Viewport (see figure on opposite page), with some room around the edges.

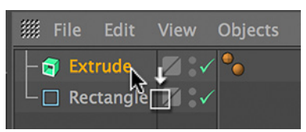
If you accidentally deselect your model, select **Rectangle** in the Objects Manager or click its outline in the Viewport.

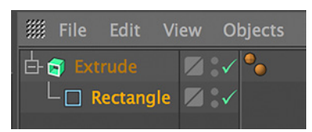
5 You want to turn this outline into an object with volume and depth. To do that, you'll use the Extrude object. Click on the Generators icon (its tooltip will say Subdivision Surface), and choose Extrude. (You can also choose Create > Generators > Extrude from the Main menu.) In the Objects Manager, click on **Rectangle** and drag it onto **Extrude**; watch for the cursor to change to a downward-pointing arrow, which indicates the object you're dragging is about to become the child of the object underneath the cursor. Release, and now you'll see a gray slab in the Viewport.

Click the Toggle View icon in the upper right corner of the Viewport to see the Perspective view along with the Top/Right/Front all at the same time. If necessary, pan and zoom the other views to make sure you can see the entire rectangle.

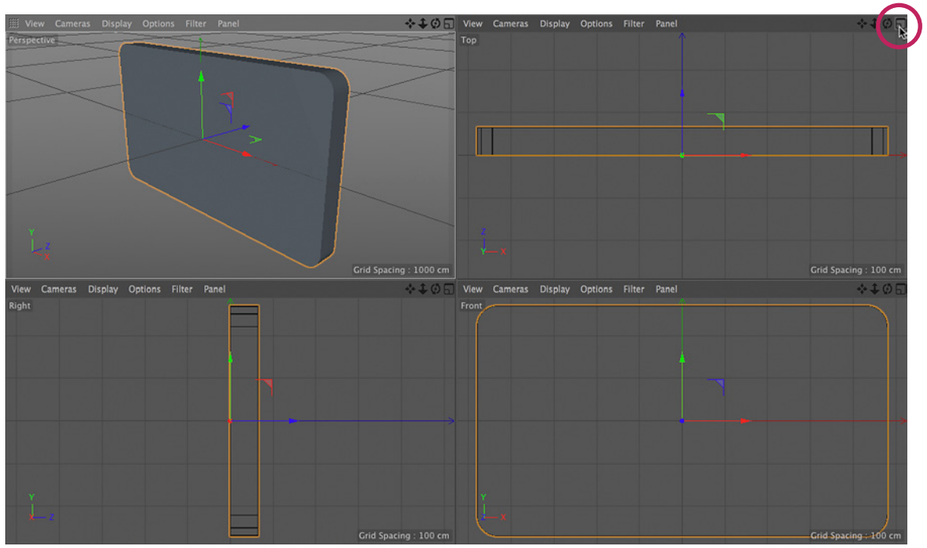


4 Click and drag the three Camera tools in the upper right of the Viewport to fit the rounded rectangle outline inside your display.





5 Add an Extrude object (left), and drag **Rectangle** on top of it (center) so it becomes a child of **Extrude** (right).



△ Click the Toggle View icon in the upper right corner of the Viewport to see the Perspective view along with the Top/Right/Front all at the same time. Click the Toggle View icon in any individual view (Top view is circled) to solo that view.

5 *continued*
The rectangular outline will now be extruded into a gray slab.