



METTLE SKYBOX & SKYBOX STUDIO

USER MANUAL

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The SkyBox family of products are a series of Scripts & Plugins to Generate Environment/Reflection Maps as well as for use in 360 | VR productions.

Mettle SkyBox & SkyBox Studio are innovative “Hybrid” solutions for Adobe After Effects CS5 and higher. They consist of both scripted and plugin solutions. The scripted portions automate complex set-ups for 360 production, they take all of the guess work out of 360 | VR productions



Mettle's SkyBox includes 2 modules:



SkyBox Creator (script) automates the creation of all necessary comps and camera relationships to create a 360 | VR authoring Environment in After Effects.

SkyBox Converter (plugin) takes a complex process and makes it super easy. It will convert between a 2D Source, Cubic - Spherical - Equirectangular Maps.



Mettle's SkyBox Studio consists of 4 modules:



SkyBox Creator (script) automates the creation of all necessary comps and camera relationships to create a 360 | VR authoring Environment in After Effects.

SkyBox Converter (plugin) takes a complex process and makes it super easy. It will convert between a 2D Source, Cubic - Spherical - Equirectangular Maps.

SkyBox Extractor (script) converts stitched equirectangular footage into a working environment in After Effects where you can motion-track, do object removal, add motion graphics, vfx etc. It automates the creation of all necessary comps and camera relationships to create a 360 | VR post production Environment in After Effects.

SkyBox Viewer (plugin) emulates what you will see in youtube 360, Oculus Rift and other formats. This is excellent for pre-flight testing of your composites and animations.

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Use SkyBox generated Maps with:

After Effects 3D PLUG-INS

You can create reflection maps and/or environment maps for use with After Effects 3D plugins like Element 3D, FreeForm Pro, Shapeshifter & Zaxwerks. Pretty much any 3D plugin that will accept and use AE layers as reflection or environment maps.

3D APPLICATIONS

Use these reflection maps and/or environment maps with 3D applications like 3ds Max, Blender, Cinema 4D, Lightwave, Maya, Modo etc. Create amazing environments by tapping into the rich motion graphics offerings in After Effects to generate stills and sequences that cannot be done as easily in 3D.

3D GAMES

Use SkyBox with the Unreal Engine or Unity 3D to create elements for your level design. Create a unique world of your own.

WEBGL

SkyBoxes have been supported in hardware in OpenGL and now in WebGL for quite a while. With Mettle's SkyBox you can now create rich & unique environments using After Effects for your WebGL projects.

YOUTUBE 360 | VR FORMAT

Google's Youtube 360 format is growing in popularity and Mettle's SkyBox is the perfect tool to help you bring your own creations into this format. Youtube 360 requires the Equirectangular map format. SkyBox Converter supports this format (along with Cubic Maps and Spherical Maps). You will also need to add some data to your file. Google made this easy, please see: <https://support.google.com/youtube/answer/6178631?hl=en>

VR APPLICATIONS LIKE OCULUS RIFT

SkyBox Converter can take any Cubic Cross or Spherical (as pictured on the next page) and can convert to the Equirectangular format that many VR applications like Oculus Rift require.

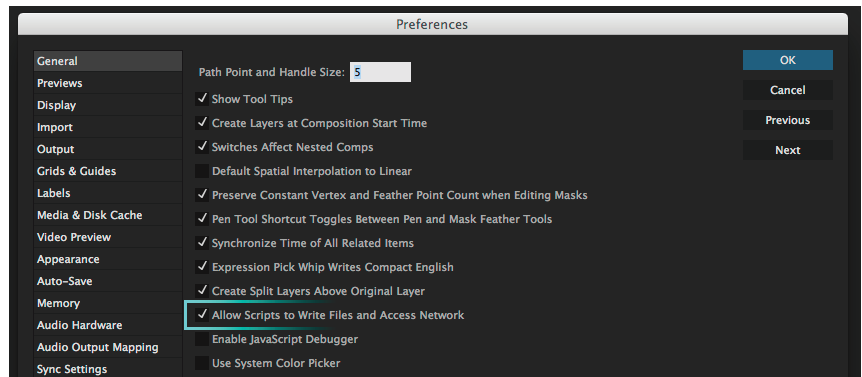
HOW TO INSTALL METTLE'S SKYBOX

Simply launch the installer that was sent to you and follow the instructions. Please note, make sure to disable any anti-virus software temporarily to assure a proper install. Also make sure that After Effects is located in the default location that the Adobe Creative Cloud Installer has designated. Nesting After Effects in another location or folder on your drive is not standard practise and may result in installation problems.

HOW TO REGISTER METTLE'S SKYBOX

Step 1

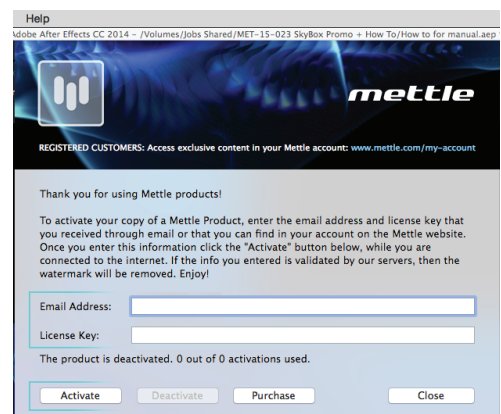
Launch After Effects then go to After Effects > Preferences > General and make sure that "Allow Scripts to write files and Access network" is checked.



Step 2

If you have already created a SkyBox Master composition by using SkyBox Creator or SkyBox Extractor, then look in the "SkyBox Output comp". Select the "SkyBox Output (from SkyBox Master)" and then go to the Effects Control Window. Click on the SkyBox Converter Register Window and enter your email address and license key information exactly as you received them by email when you ordered SkyBox.

Or simply apply SkyBox Converter to any Ae layer, then simply click on the Register window and add your email address and license key exactly as it was sent to you by email when you bought SkyBox.

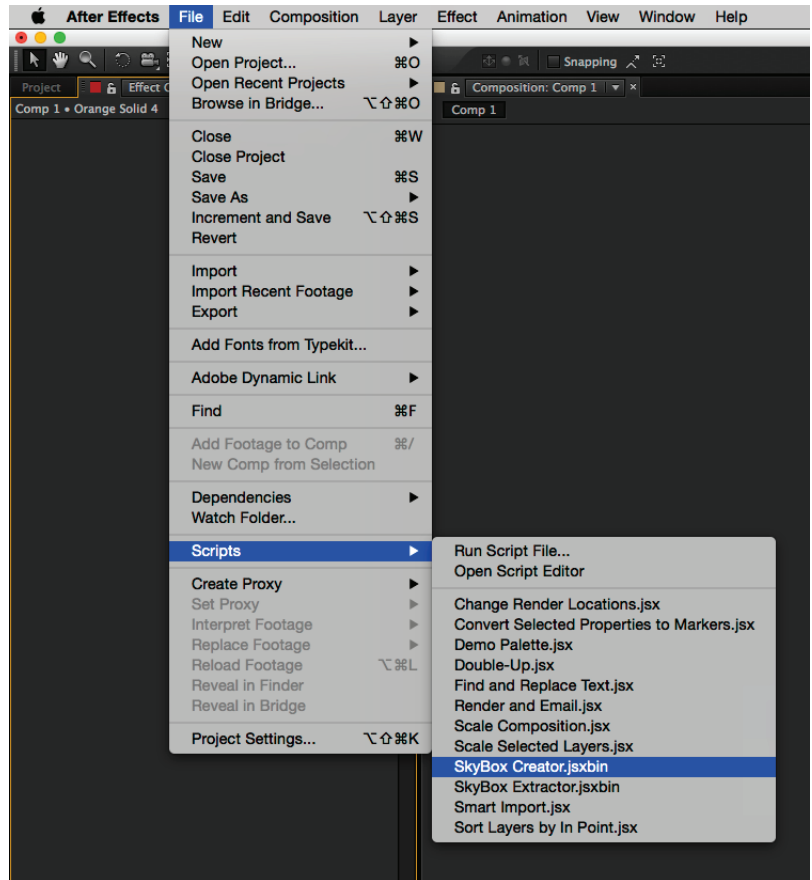


To use SkyBox products on more than one computer you need to either buy more activations or go to the Register Window and click "Deactivate". You can then "Activate" your license on another system.

HOW TO USE SKYBOX CREATOR

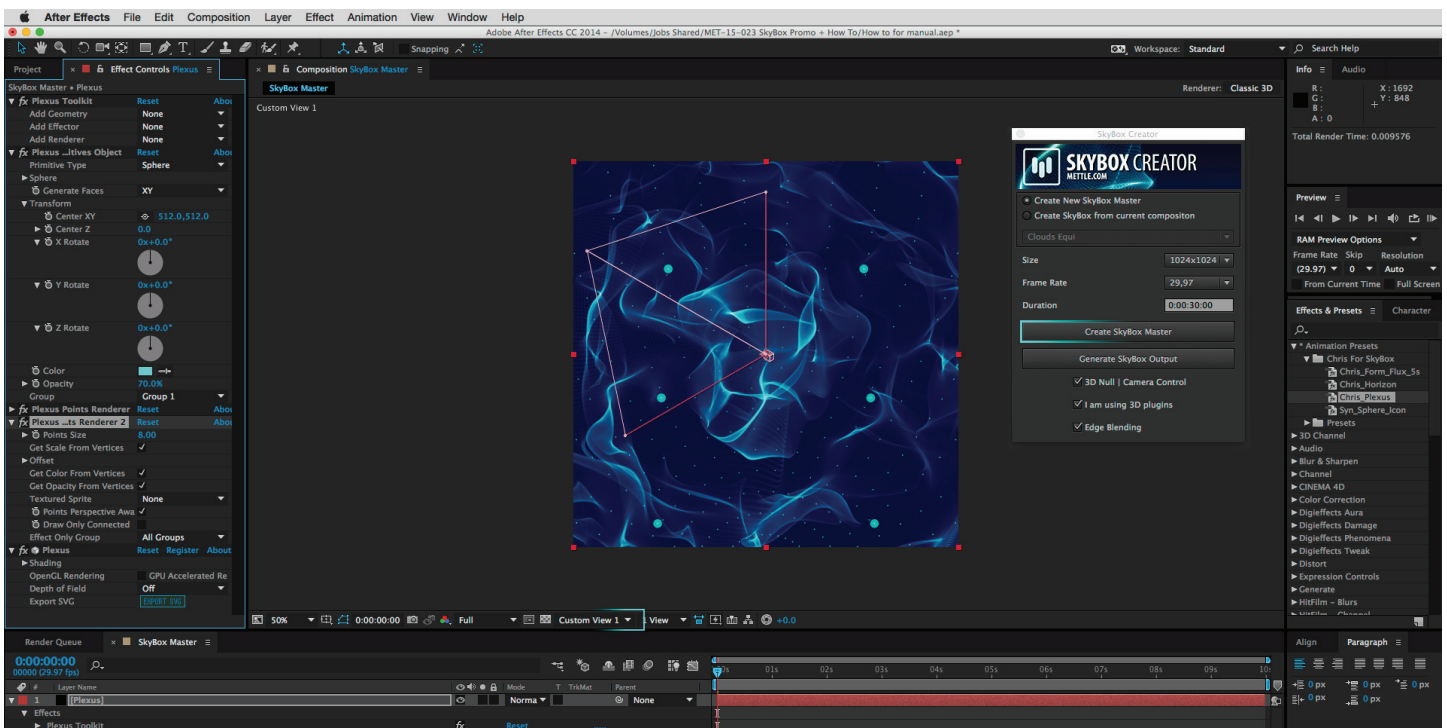
Step 1

To launch SkyBox Creator simply go to: File > Scripts > SkyBox Creator.jsx.bin



Step 2

If you wish to Create a new SkyBox Master from scratch then choose the size you need, 1024 x 1024 will do for most applications of SkyBox. Choose the frame rate and duration of your SkyBox Master, then simply click on "Create New SkyBox Master".





Step 3

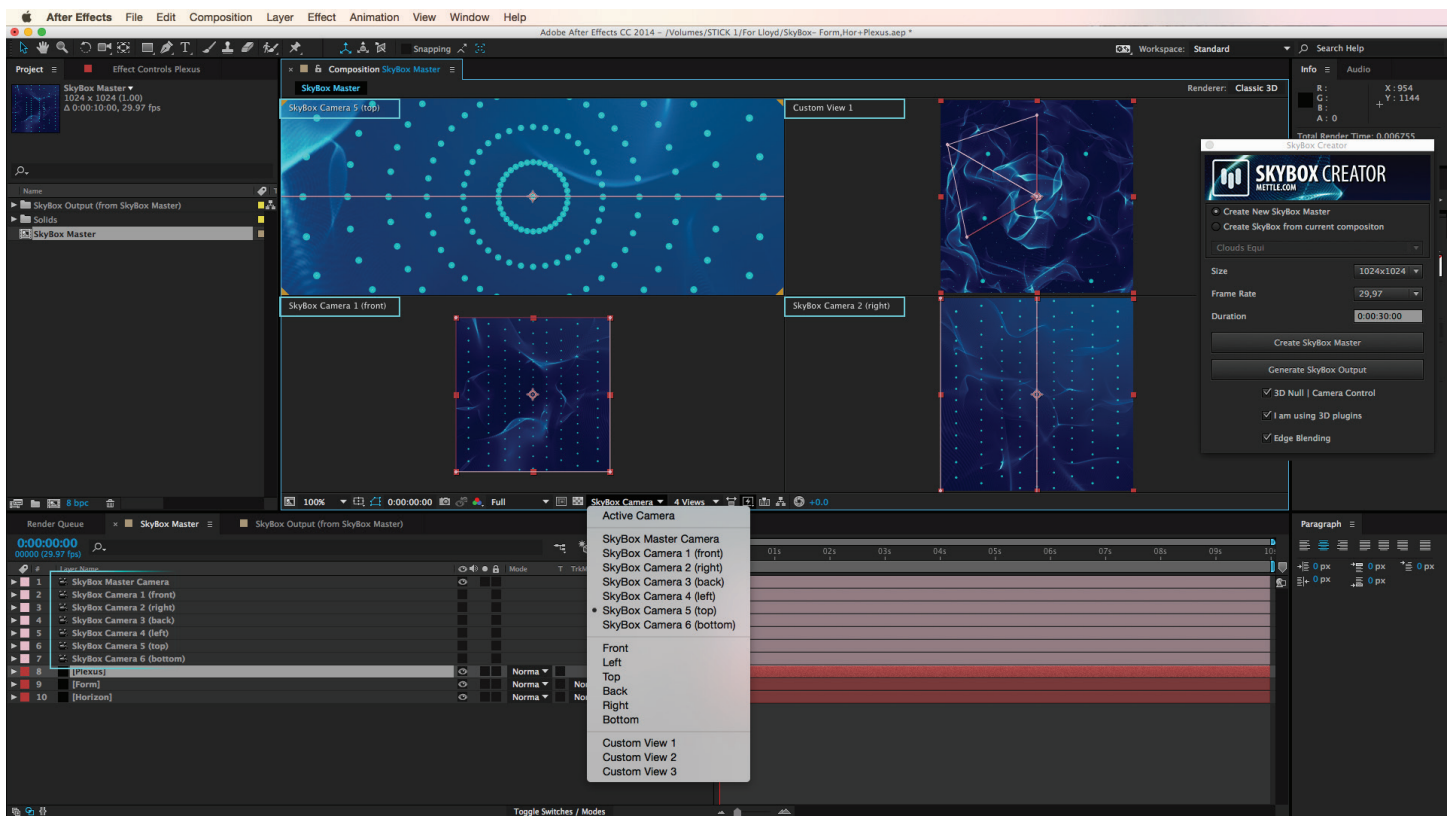
Switch to Custom View 1 and proceed to creating your SkyBox world by adding your favorite Ae 3D plugins and/or AE 3D layers. In the screen capture above, we added Trapcode Horizon, Form & Rowbyte's Plexus.

Step 4

Once you are happy with your creation, simply click on "Generate SkyBox Output". SkyBox Creator takes over from here and creates all the necessary compositions, adds all the cameras and distortion as well as all the expressions that are required to create a Cubic Map. You can then use SkyBox Converter to switch between various output formats. More on that later.

Step 5

You can switch to 4 views and verify that objects are in frame in all 6 views (see above). Try to avoid having things come too close to the centre of your scene, clipping on one or more of the views may occur or one or more of the views may be obscured. If this happens then adjust the 3D plugin parameters to avoid this.



Step 6

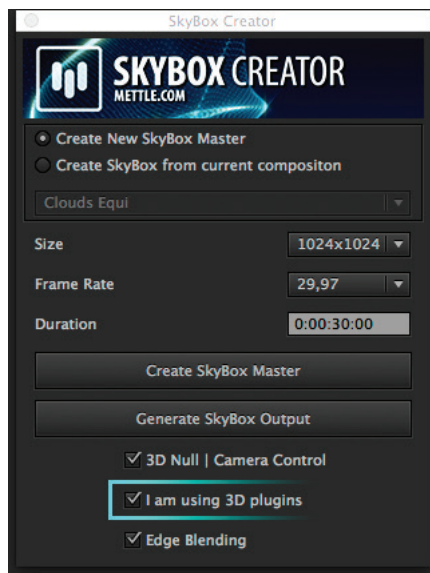
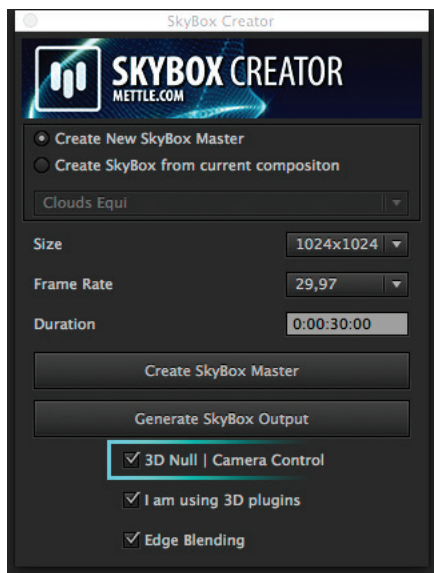
Want to modify your SkyBox Master and apply these changes to your SkyBox Output comp? Simply click on 'Refresh SkyBox Output' once you are done with your modifications. SkyBox Creator will take care of deleting all comps and recreating them based on the last set of modifications you made to your "SkyBox Master" composition.



Use the **"3D Null | Camera Control"** if you know you want to control your SkyBox Camera via a 3D Null layer. Using the pick whip to Parent to the AE camera will not work well. You need to do this via a proper Expression, we did that for you by simply making sure that this check box is selected.

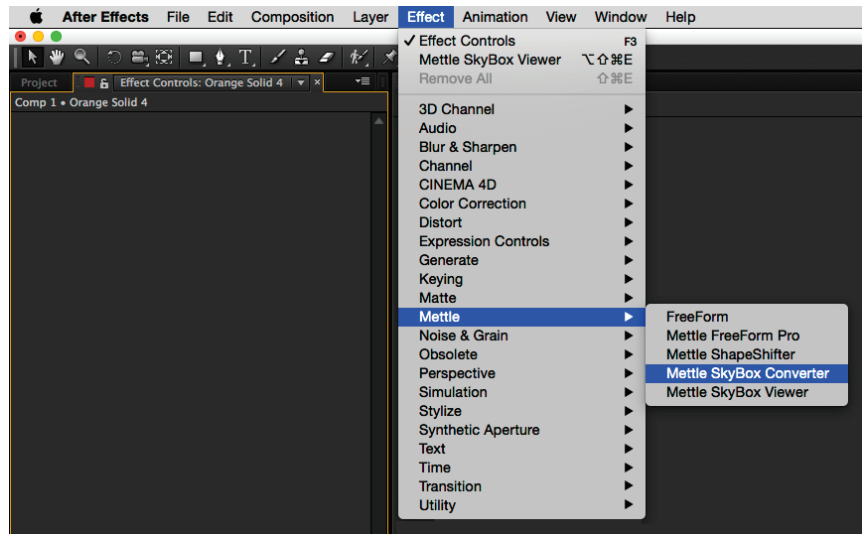
Make sure to keep the **"I am using 3D Plugins"** box checked if you know that you will be using 3D plugins. Due to the After Effects architecture, third party 3D plugins and even AE's very own Shatter are treated very differently than AE 3D layers. As a result, SkyBox Creator will set things up very differently if you plan on only using AE 3D layers versus including 3D plugins.

Some 3D plugins like Mettles FreeForm Pro, Shapeshifter, Video Copilot's Element 3D, Trapcode Mir, are true 3D plugins so they do not need the **"Edge Blending"** enabled. Others like, Rowbyte's Plexus, Trapcode 3D Stroke, Form & Particular exhibit issues at times. This is where **"Edge Blending"** can help but it will not completely resolve these issues. Ultimately Boris, Cycore Systems, Rowbyte & Trapcode (amongst others) need to address this, internally in their code, with their offerings.



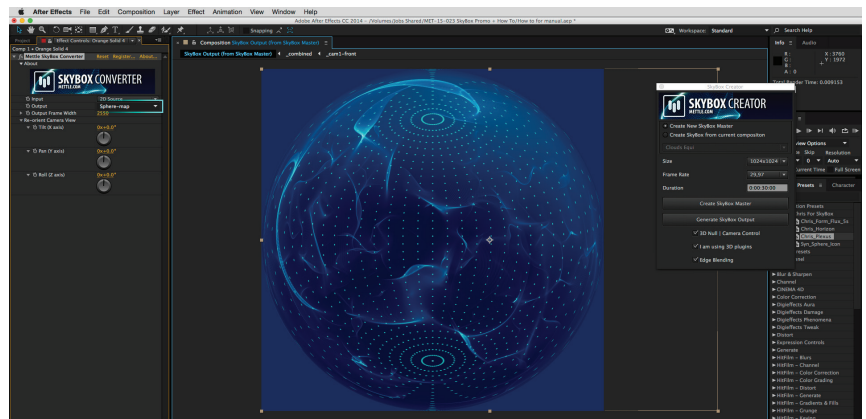
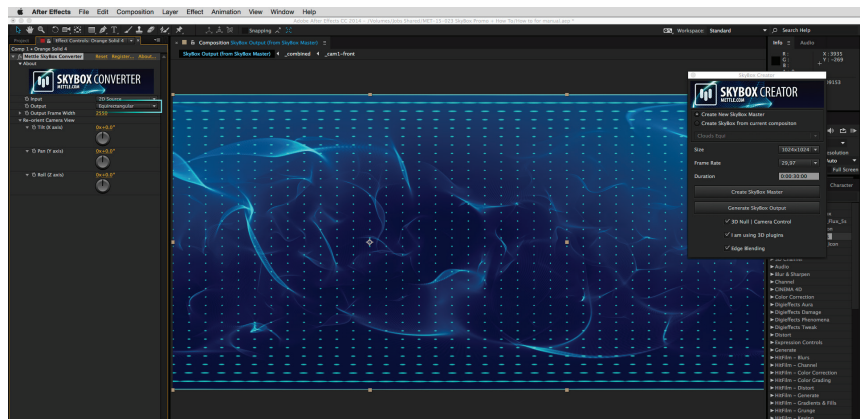
HOW TO USE SKYBOX CONVERTER

SkyBox Converter is an After Effects Plugin. As such, you can load it from Effect > Mettles > SkyBox Converter. You can use SkyBox Converter in conjunction with SkyBox Creator, Extractor & Viewer. You can also use SkyBox Converter on its own if you want to convert images from your stock library from Cubic to Spherical or Equirectangular. You can also change the camera orientation in your footage. Or even add simple supers, logos or images patches that you retouch in Photoshop to your footage.



SkyBox Converter Can Convert Between Various Formats

Following are just a few formats that you can convert to for Output. The “Input” should match the original format, then select the “Output” format you wish to convert to and SkyBox Converter will take care of the rest.



SkyBox Converter - Reorient Camera Controls

Tilt (X-Axis), Pan (Y Axis) & Roll (Z Axis) controls are available in SkyBox Converter. No need to re-stitch your camera views or shoot just to change the camera orientation. Pictured below is one possible use. In this case the camera rig front faces the front view of the automobile, with a simple Pan (180 degree rotation on the Y Axis), we now face the car.

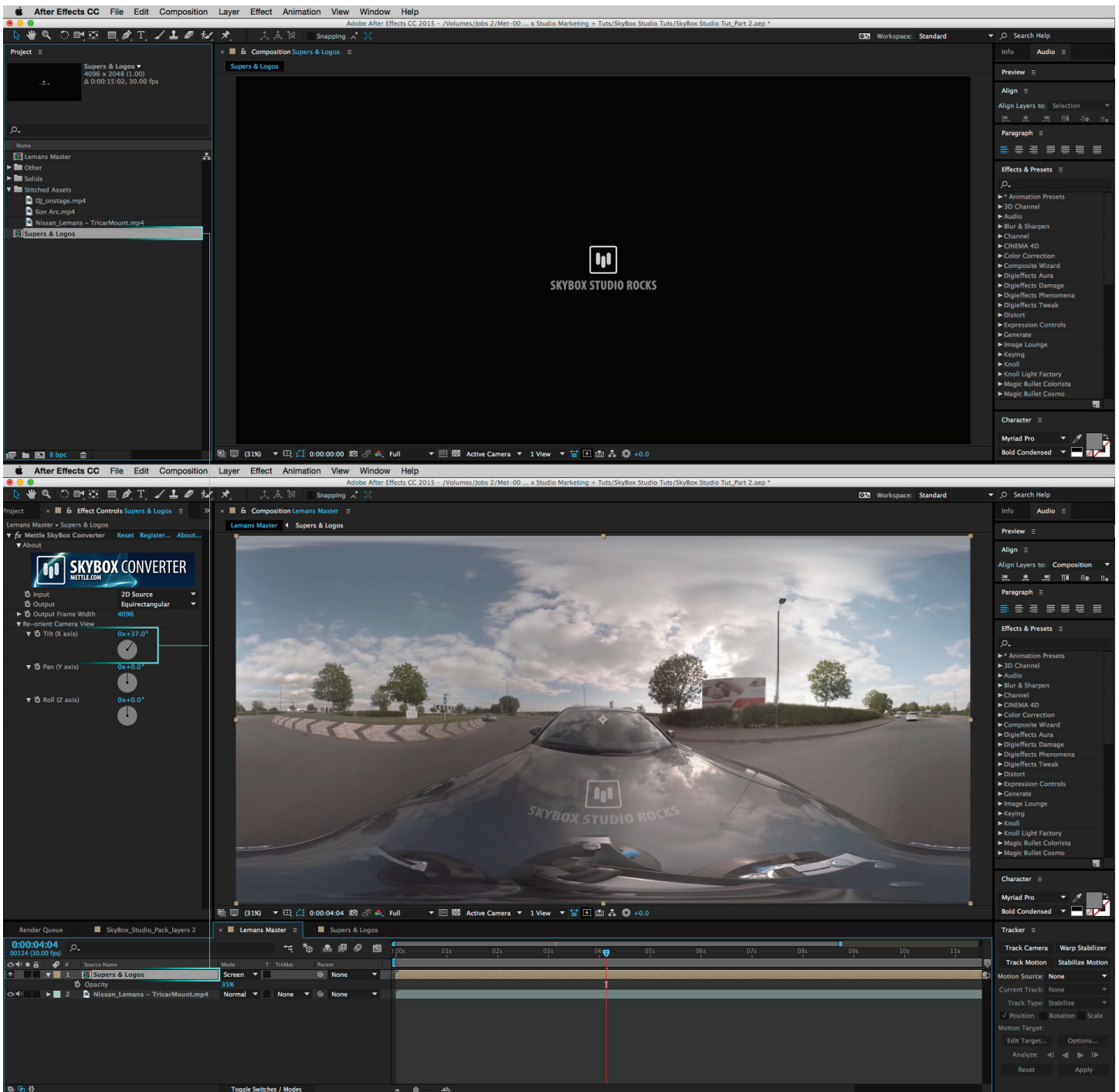
The controls are also keyframeable so animated Camera Tilts, Pans & Rolls are possible as well.



SkyBox Converter - Input - 2D Source

On many occasions 360 | VR productions may call for you to either add watermarks to your 360 footage, add simple supers or even logos. This feature in Converter will come in very handy. Pictured below is one use of 2D Source as an Input type.

This example consists of a pre-composition, “Supers & Logos”. This pre-comp needs to be created to the same size as your master, in this case 4096 x 2048 pixels. We added AE text and the Mettle Logo. This pre-comp is then added to your master comp that contains the stitched 360 footage. SkyBox Converter is applied to this “Supers and Logos” layer and we simply added a Camera tilt (X Axis) to position the text on top of the hood of the car. Animation is possible both in the pre-comp as well as via the Re-orient camera controls.

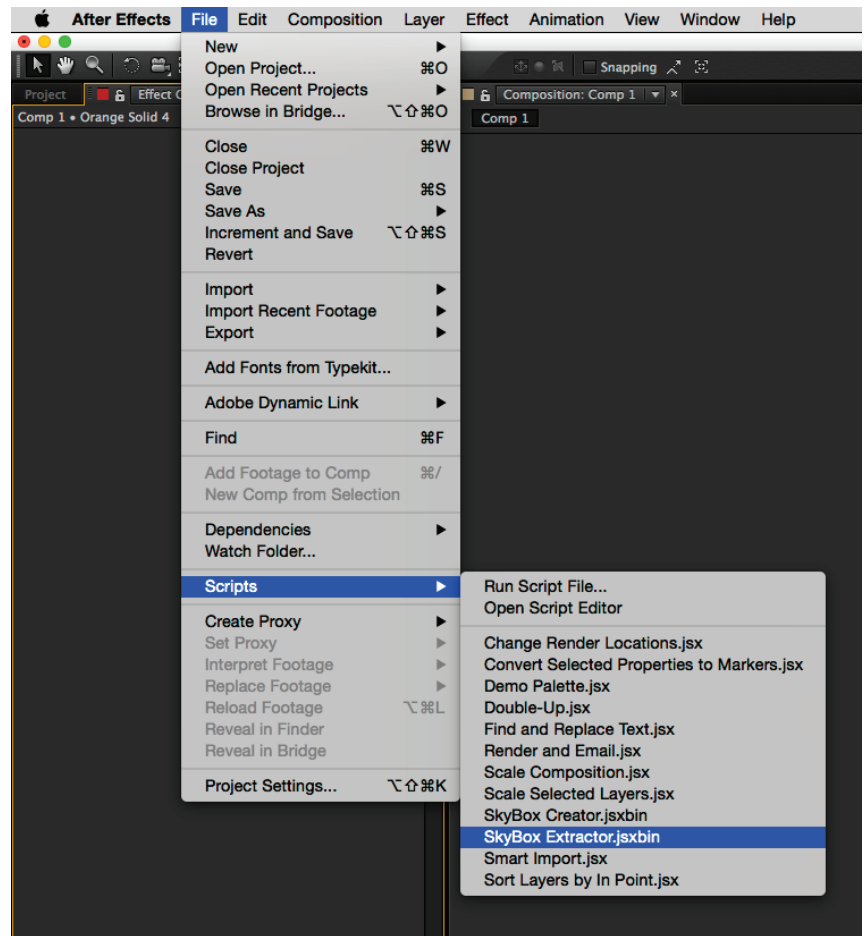


Footage courtesy Ben Kidd - Hamilton+Kidd - UK

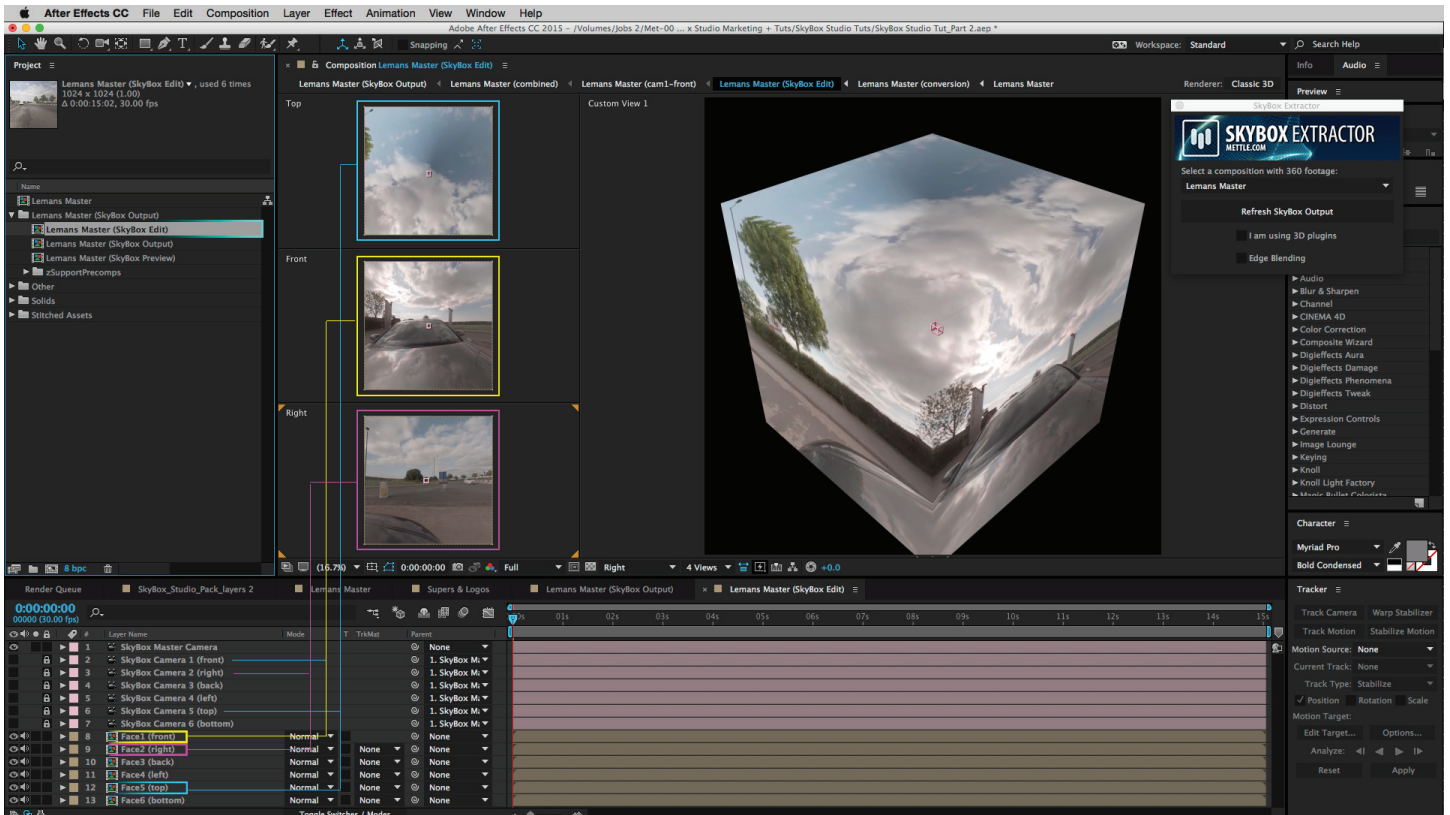
How To Use SkyBox Extractor

SkyBox Extractor is only available in SkyBox Studio. Extractor makes dealing with stitched 360 footage easy. SkyBox Extractor is a Scripted solution.

To access SkyBox Extractor go to File > Scripts > SkyBox Extractor.



SkyBox Extractor removes the Equirectangular distortion in 360 footage and then extracts 6 camera views. Extractor then positions them in a cube formation in After Effects in a “SkyBox Edit” comp pictured below.



In the “SkyBox Edit” comp, you can render the view(s) you need so that you can then motion track, camera track much more easily. You can also do object removal, add motion graphics, CG and VFX etc. SkyBox Studio modules play well with third party 3D products like Mettles FreeForm Pro, ShapeShifter, Video CoPilot’s Element 3D, Trapcode products etc.

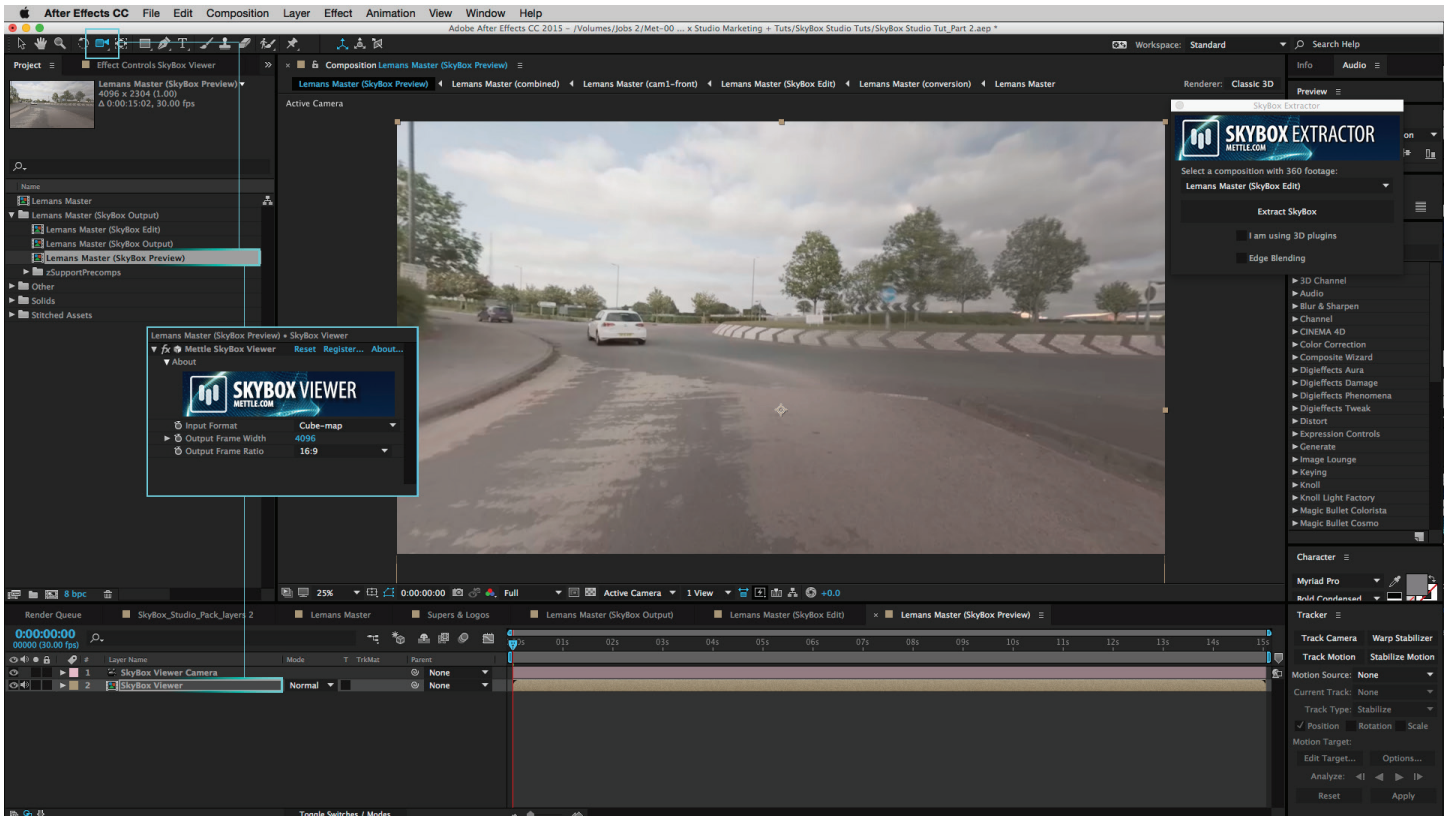
Notice that Extractor adds a Master SkyBox Camera as well as 6 more camera views that are parented to the Master Camera. Also notice that we generate 6 “Faces”... Front, Right, Back, Top, Left & Bottom. These are strategically positioned to form the cube you see pictured above.

SkyBox Extractor creates a “SkyBox Output” Comp. This what you will render out for youtube 360 etc. once you are done. All the work you do in your “SkyBox Edit” will make it’s way through to the “SkyBox Output” comp. SkyBox Extractor harnesses the power of SkyBox Converter to convert from a Cube Map formation (as is set up in the SkyBox Edit comp) to equirectangular which is necessary for youtube 360 and many other 360 | VR formats.



SkyBox Extractor adds a “SkyBox Viewer” Comp. Another SkyBox Studio module is used to achieve this, SkyBox Viewer. This module is only included in the SkyBox Studio offering.

The “SkyBox Viewer” is meant to simulate the view you see in youtube 360 and other 360 | VR formats. This is excellent to check you work before rendering out, compressing and uploading to youtube 360 or other 360 players.



PREPARING YOUR SKYBOX CREATION FOR YOUTUBE 360

Mettle's SkyBox is excellent to help get your SkyBox creations in After Effects to the Youtube 360 format. Make sure you use the Equirectangular format, then follow the instructions in this link: <https://support.google.com/youtube/answer/6178631?hl=en>

The screenshot shows a web browser window with the URL <https://support.google.com/youtube/answer/6178631?hl=en>. The page is the YouTube Help center, specifically the 'Upload 360 degree videos' article. The header includes the YouTube logo, a search bar, and a 'Sign In' button. The main content area has a red sidebar on the right with a list of topics, including 'Upload 360 degree videos' which is highlighted. The main text explains that YouTube supports 360 degree spherical videos on desktop Chrome and the Android app, and lists compatible cameras: Ricoh Theta, Kodak SP360, Giroptic 360cam, and IC Real Tech Allie. It also mentions encoding requirements for the best results.

YouTube Help

Search YouTube Help

Sign In

YOUTUBE HELP FORUM

Upload videos > Upload instructions and settings

Subscribe to the [YouTube Help channel](#) for video tips, tricks, and how-to's.

Upload 360 degree videos

YouTube supports uploading and playback of 360 degree spherical videos on desktop Chrome and the Android app. In order to upload a 360 degree video file, you'll need to modify the file with an app or script before uploading.

Create the video

The following 360 cameras are compatible with YouTube and are available today or coming soon:

- [Ricoh Theta](#)
- [Kodak SP360](#)
- [Giroptic 360cam](#)
- [IC Real Tech Allie](#)

For the best results, encode your video at a high resolution and according to [YouTube's advanced specifications](#). YouTube currently supports 360 degree videos with 24, 25 or 30 frames per second. Support for higher frame rates is coming soon.

Upload instructions and settings

- Upload videos
- Upload videos longer than 15 minutes
- Set default upload settings
- Upload audio or image files
- Use webcam to record video
- Formatting tags
- Upload a video on Xbox One
- Import videos from Google+
- Upload 360 degree videos**
- Supported YouTube file formats