

**METTLE**  
**SKYBOX STUDIO V2**

User Manual



**[BUY SkyBox Studio V2](#)**

“Mettle Skybox Studio V2 is an amazing package of goodies for 360 content creators. Life just got a lot easier for all of us with this new toolset.”

[Read the Review by Al Caudullo](#)

**METTLE SKYBOX STUDIO V2- USER MANUAL**

SkyBox Studio V2 is a set of 360/VR production tools for Adobe After Effects. It is a combination of Scripts & Plugins that let artists focus on creating 360 videos in a familiar workspace, while Mettle takes care of all the 360 technology and wizardry.

Also generate environment/reflection maps with the same tools.  
Compatible: Mac and WIN

**WHAT’S NEW in VERSION 2: View-based Edit + Stereo Support, + we support more formats, and much more!**

Modules	SkyBox Studio V1	SkyBox Studio V2
<b>Plugins:</b>		
SkyBox Project 2D		●
SkyBox Rotate Sphere		●
SkyBox Converter	●	●
SkyBox Viewer	●	●
<b>Scripts:</b>		
SkyBox Composer		●
SkyBox Creator	●	●
SkyBox Extractor	●	●

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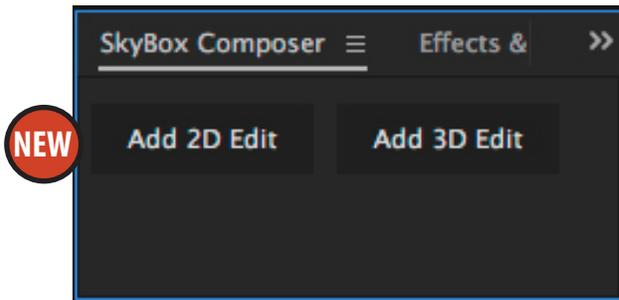
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# Overview:

Mettle SkyBox Studio V2 consists of 7 modules:

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Skybox Studio V2 once again changes the landscape of how the industry works with 360 degree footage. Mettle is thrilled to bring you 'View-based Editing' with **Skybox Composer**, a revolutionary new module that allows you to work with 360 degree content as if it were traditional footage, taking the guess work out of adding and placing visual effect elements. **SkyBox Composer** is a powerful new script that offers users 'View-based Editing', making your 360 work fast and efficient. "View" is what you see through a VR Headset or Smartphone. Great for simple motion-tracking, object removal, adding motion graphics, vfx etc.



**SkyBox Project 2D** is a new plugin that offers a quick solution for simple additions to your scene, giving you re-orient controls over the source layer as well as the element's position in the 360 sphere. **Supports Stereoscopic 1:1 Over/Under and 16:9 footage.**



**SkyBox Rotate Sphere** is a new plugin that offers the ability to re-orient your element's position in the 360 sphere. Similar to Project 2D, Rotate Sphere is more computationally efficient due to its more targeted parameters. **Supports Stereoscopic 1:1 Over/Under and 16:9 footage.**



**SkyBox Converter** has been updated for V2 and now supports more formats including: Fisheye (FullDome), Cube-Map Facebook 3:2, Cube-Map Pano 2VR 3:2, Cube-Map GearVR 6:1, Equirectangular 16:9, as well as Cube-Map 4:3, Sphere Map, and Equirectangular 2:1.



**SkyBox Viewer** is a plugin that emulates what you will see in YouTube 360, Oculus Rift, and other formats. This is excellent to preview your composites and animations in After Effects. It shows one frame at a time.



**SkyBox Creator** is a script that automates the creation of all necessary compositions and camera relationships to create a 360 | VR authoring environment in After Effects.

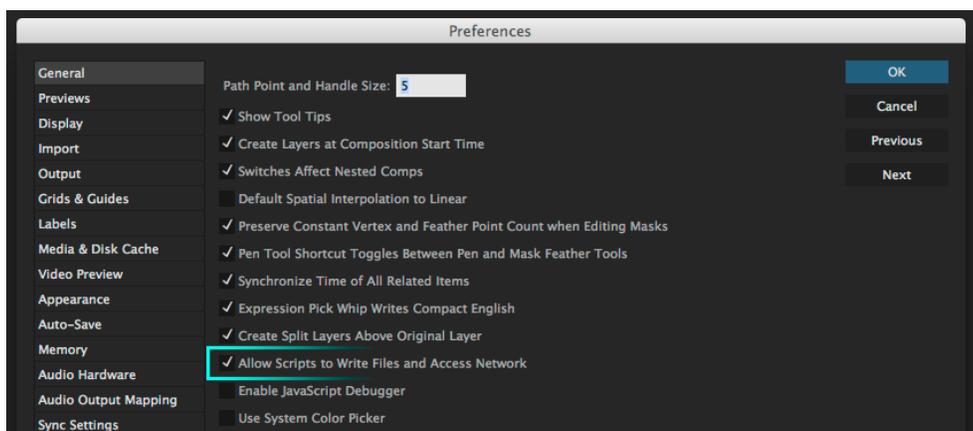


**SkyBox Extractor** is a script that converts stitched Equirectangular footage into a working environment in After Effects where you can motion-track, do object removal, add motion graphics, vfx etc. If you are doing more complex and sophisticated 3D motion graphics sequences, they are easier to visualise with SkyBox Extractor than with SkyBox Composer, because you can see and control the project in a cube format.

**QUICK TIP:** Please make sure to disable any anti-virus software temporarily to assure a proper install.

## HOW TO INSTALL METTLE'S SKYBOX

Simply launch the installer that was sent to you and follow the instructions. 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

In a new Composition, launch After Effects then go to After Effects > Preferences > General and make sure that "Allow Scripts to write files and Access network" is checked.

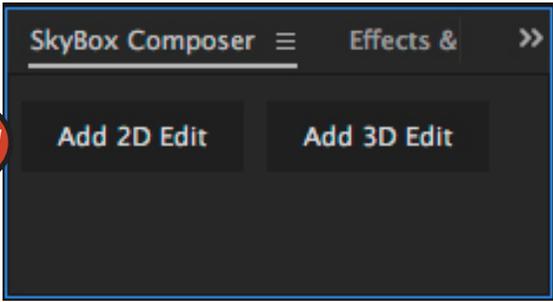


### Step 2

Simply apply SkyBox Converter to any After Effects layer, then click on the Register window and add your email address and license key exactly as it was sent to you by email when you purchased SkyBox Studio V2. (You may also find a 'Register' link at the top of the Effect Controls window, above the Converter parameters.)

*NOTE: To use SkyBox Studio V2 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.*

NEW



## HOW TO USE SKYBOX COMPOSER

Composer is an excellent option for keeping things efficient in the compartmentalized landscape of film, television, and video game production. With Composer, you are now able to export traditional, 16:9, non-warped images, allowing you to leverage the strengths of your Photoshop or Compositing artists for tasks such as paint-out or rig removals. Composer allows these key talents to be part of the 360 degree workflow without having step outside the software package that they're comfortable with.

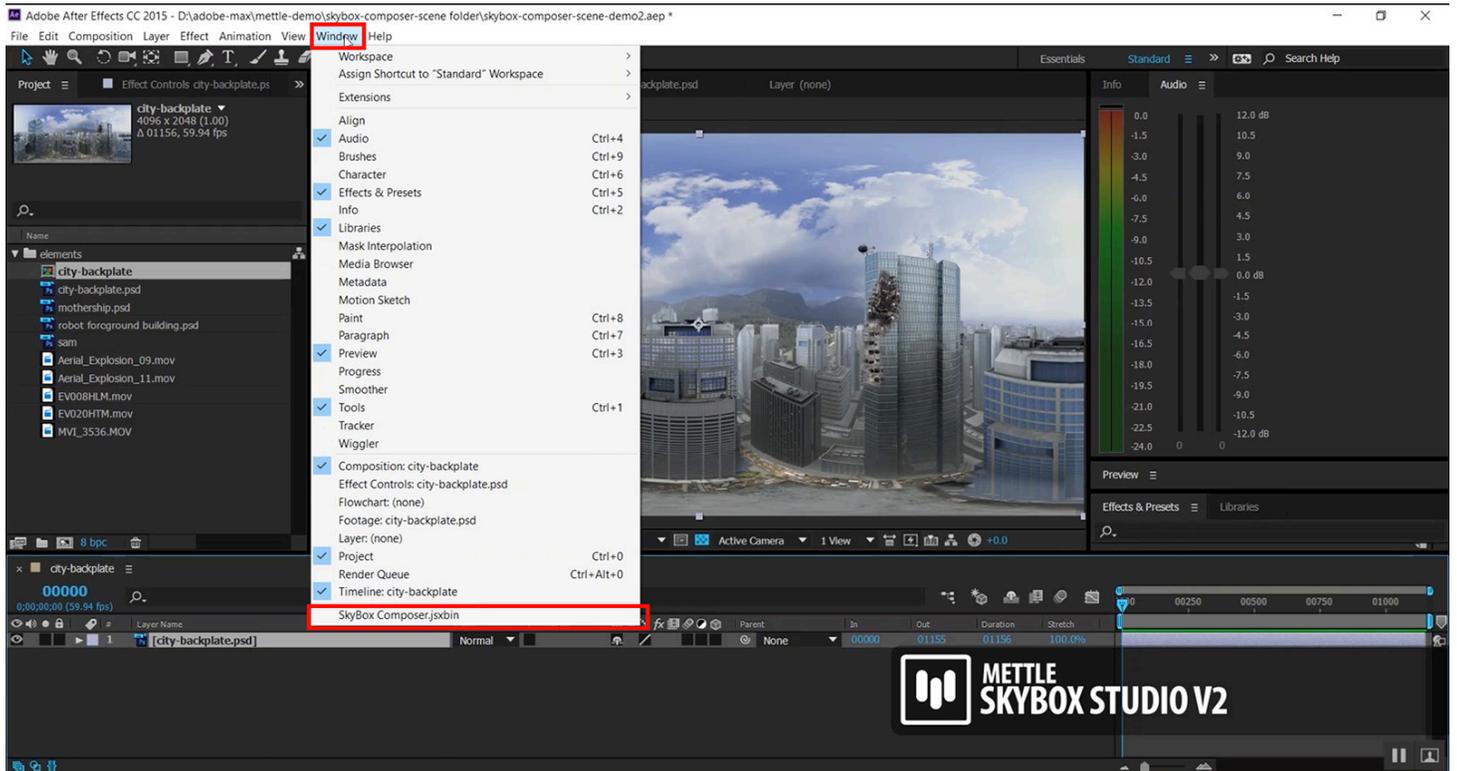
Alternately, you can use the same approach to simply allow your After Effects artists a 'cleaner' view for using tools like the Clone Tool. (To learn more about After Effects' Clone Tool see: [https://helpx.adobe.com/after-effects/using/paint-tools-brush-clone-stamp.html#clone\\_stamp\\_tool](https://helpx.adobe.com/after-effects/using/paint-tools-brush-clone-stamp.html#clone_stamp_tool))

### Step 1

Drag your Equirectangular footage into a new composition.

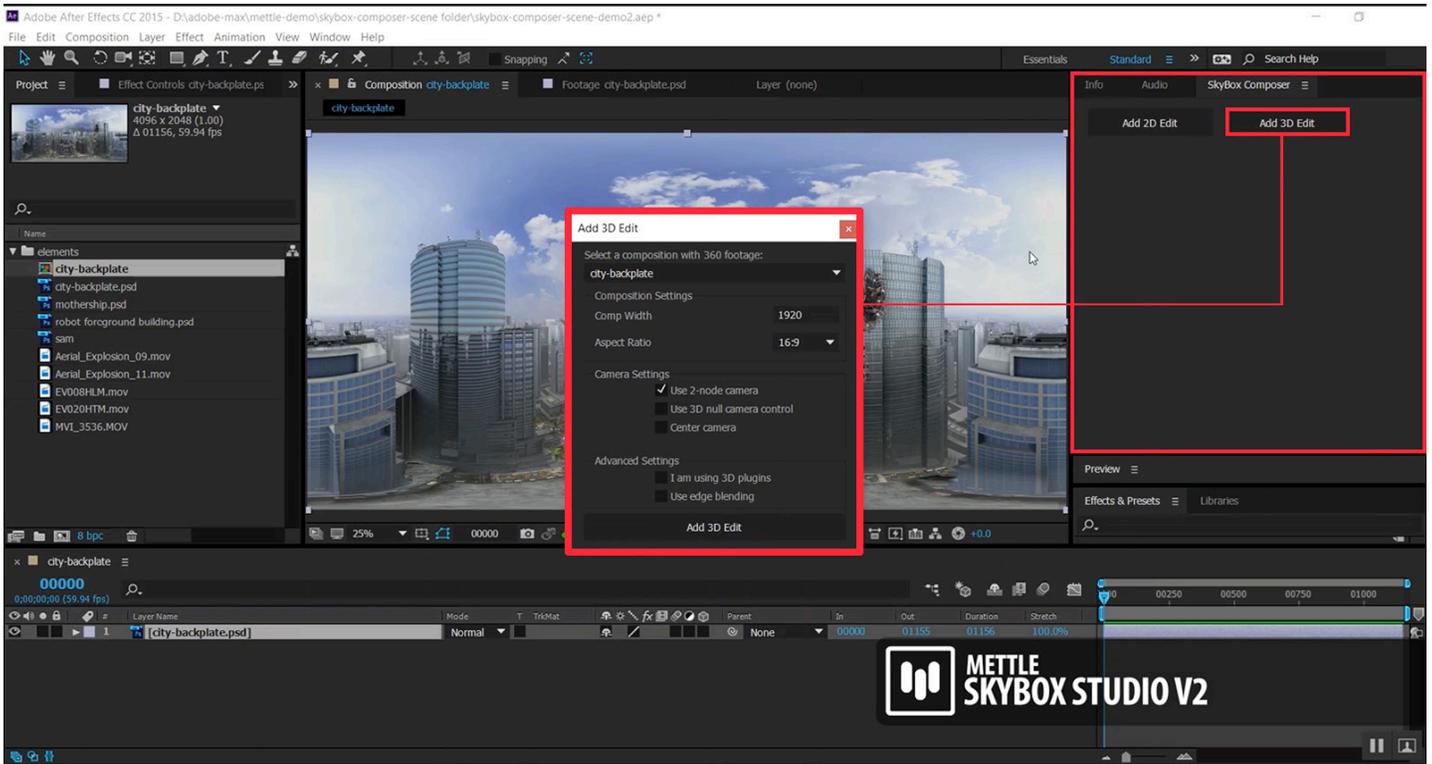
### Step 2

With your 360 footage selected, go to the top menu of After Effects and choose Window > Skybox Composer.jsxbin. Depending on your workspace layout, you should see the panel open on the right, near your Effects & Presets panel.



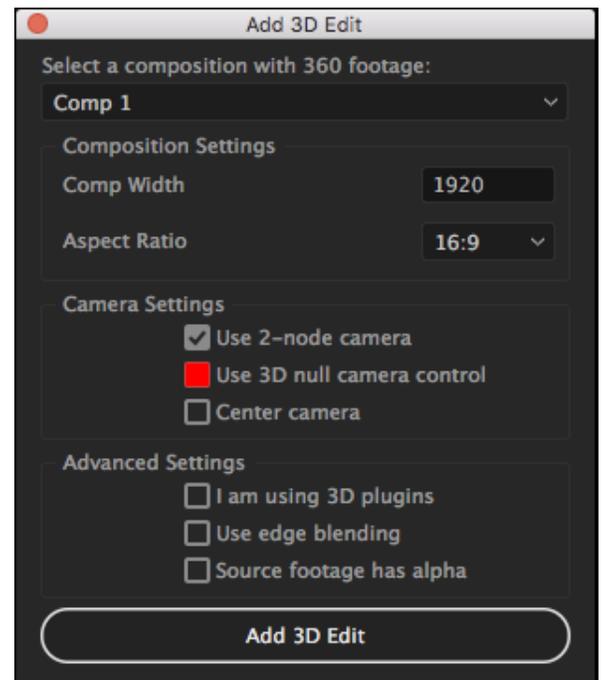
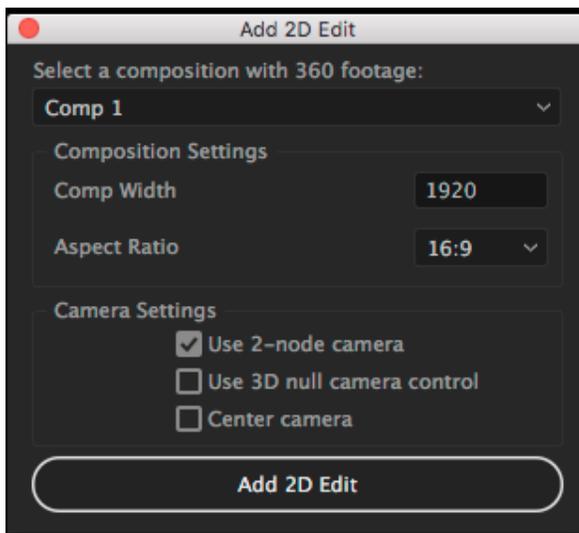
Footage Courtesy [www.unifiedpictures.com](http://www.unifiedpictures.com), Tim Montijo

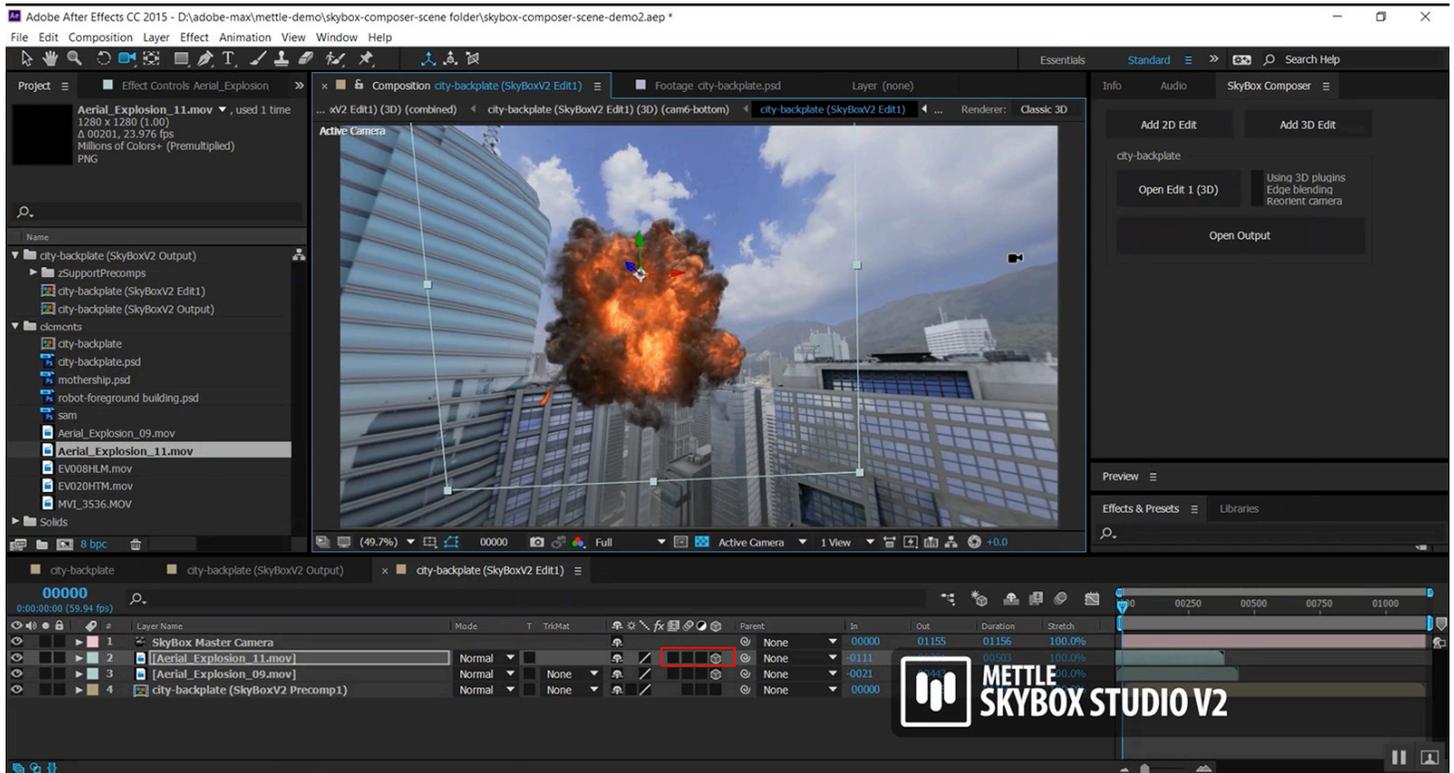




Footage Courtesy [www.unifiedpictures.com](http://www.unifiedpictures.com), Tim Montijo

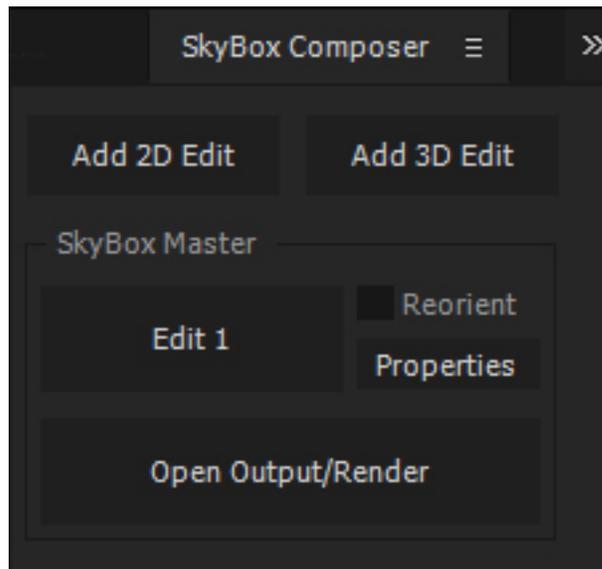
Choosing either option will open a new dialogue window, allowing you to adjust size and aspect ratio settings for your added element independently of the size and aspect ratio settings of your composition window. Make sure the "Select a composition with 360 footage:" drop-down menu has the correct composition selected.





**QUICK TIP:** If you chose 'Add 3D Edit' at Step 3, then make the element that you add in Step 6 into a 3D Layer via the 3D Layer toggle and position the element in X, Y, or Z space as desired.

Click 'Add 2D Edit' or 'Add 3D Edit'. On the right side, you'll see additional buttons appear. This is where you will select which composition window is active.



**QUICK TIP:** Use the buttons in the Composer panel to select which composition window you wish to make active. By pressing the 'Edit 1' button, the 'Edit 1' Composition becomes active. Now you may work directly in the 'Edit 1' Composition window. By pressing 'Open Output/Render', your Equirectangular Composition should become active and update itself, making your additions to the 'Edit 1' Composition visible and appear properly warped to match the Equirectangular layout.



**QUICK TIP:** When working with masks, duplicate the bottom layer, place the duplicate above the element that you are adding to your composition, then subtract the parts that you want to make invisible from the duplicate, rather than applying a mask to the new element layer.

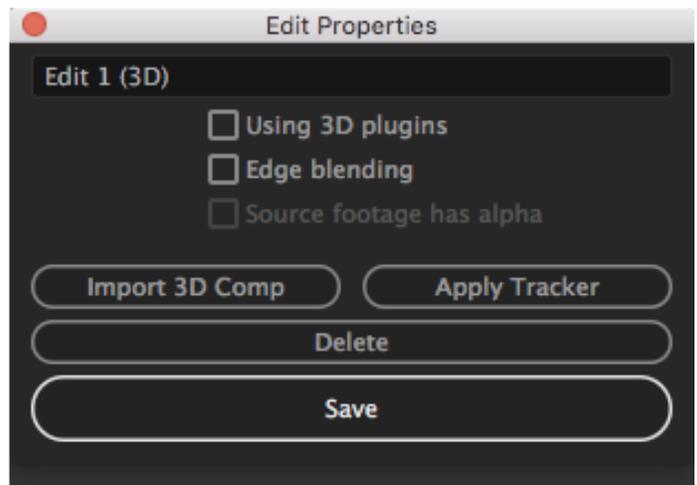
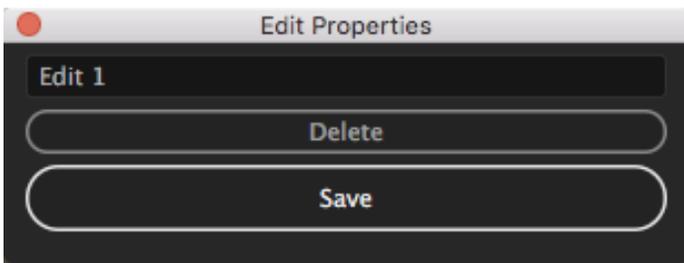


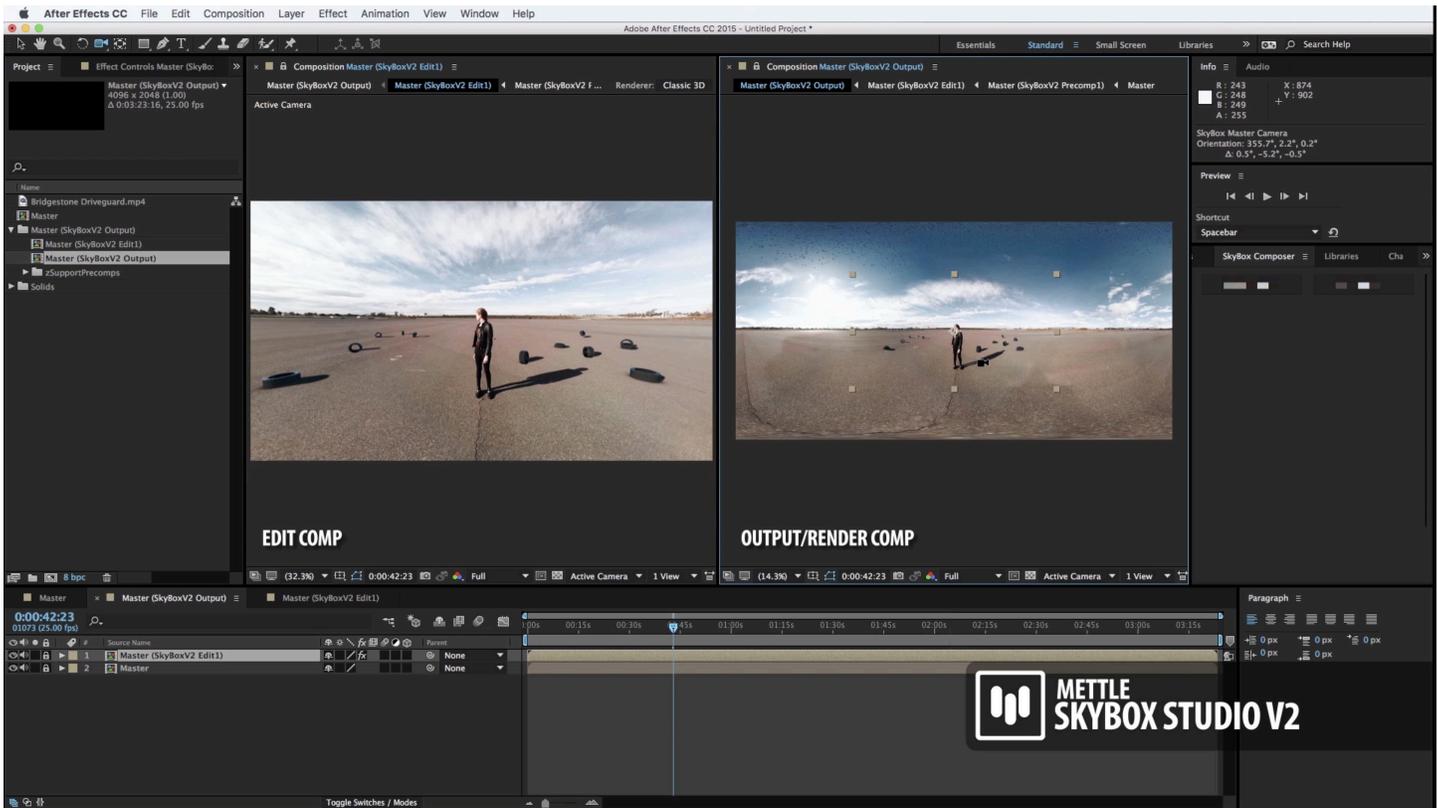
You will see that Composer has created two new composition timelines, one for the 'Edit 1' Composition and one for the 'Output' Composition.

Looking at the newly created 'Edit 1' Composition, you will also see that a new camera, the 'Skybox Master Camera', has been created in your timeline. The footage in your 'Edit 1' Composition window now appears as non-warped, 16:9, traditionally shot footage, rather than the Equirectangular layout seen in your 'Output' Composition.

#### Step 4

This step is optional, but we recommend opening a second composition window and placing it beside the first, allowing you to see your 'Edit 1' Composition window (a 16:9 view of your footage) and your 'Output' Composition window (the Equirectangular view of your footage) side by side.





Footage courtesy: FisheyeVR

**QUICK TIP:** If you chose 'Add 3D Edit' at Step 3, then make the element that you add in Step 6 into a 3D Layer via the 3D Layer toggle and position the element in X, Y, or Z space as desired.

#### Step 5

In your 'Edit 1' Composition window, use the After Effects camera tool to click and drag, orbiting your Field of View to see it as it would look to an end user with a Virtual Reality headset such as a PSVR, Oculus Rift, HTC Vive and more. Much like the Skybox Viewer module, this will allow you to 'reframe' your Field of View, in order to find the specific Field of View in your 360 degree footage that you would like to add elements to.

#### Step 6

Add your element, whether that is a visual effect or text element, animated or not, directly to your 'Edit 1' Composition. You should be able to see that element also appear in the 'Output' Composition, with the necessary Equirectangular warp applied to the element (if not, click the Open Output/Render button on the right to refresh the 'Output' Composition window). Now, you are ready to output your final video.

#### QUICK TIP: SkyBox Composer - Best Practises

##### For 2D editing

Create a Edit 2 instance... use the AE camera to point at a view you wish to work on... clone or add 2D element. Create another Edit 2 instance... use the AE camera to point at another view you wish to work on... clone or add another 2D element. etc. Make sure you use the SkyBox Composer Interface to navigate the Edit and Output comps for best results.

##### For 3D Editing

Create a Edit 3 instance... use the AE camera to point at a view you wish to work on... add 3D element. In this case, you can point at another view and continue to populate with 3D assets. Make sure you use the SkyBox Composer Interface to navigate the Edit and Output comps for best results.





## HOW TO USE SKYBOX PROJECT 2D

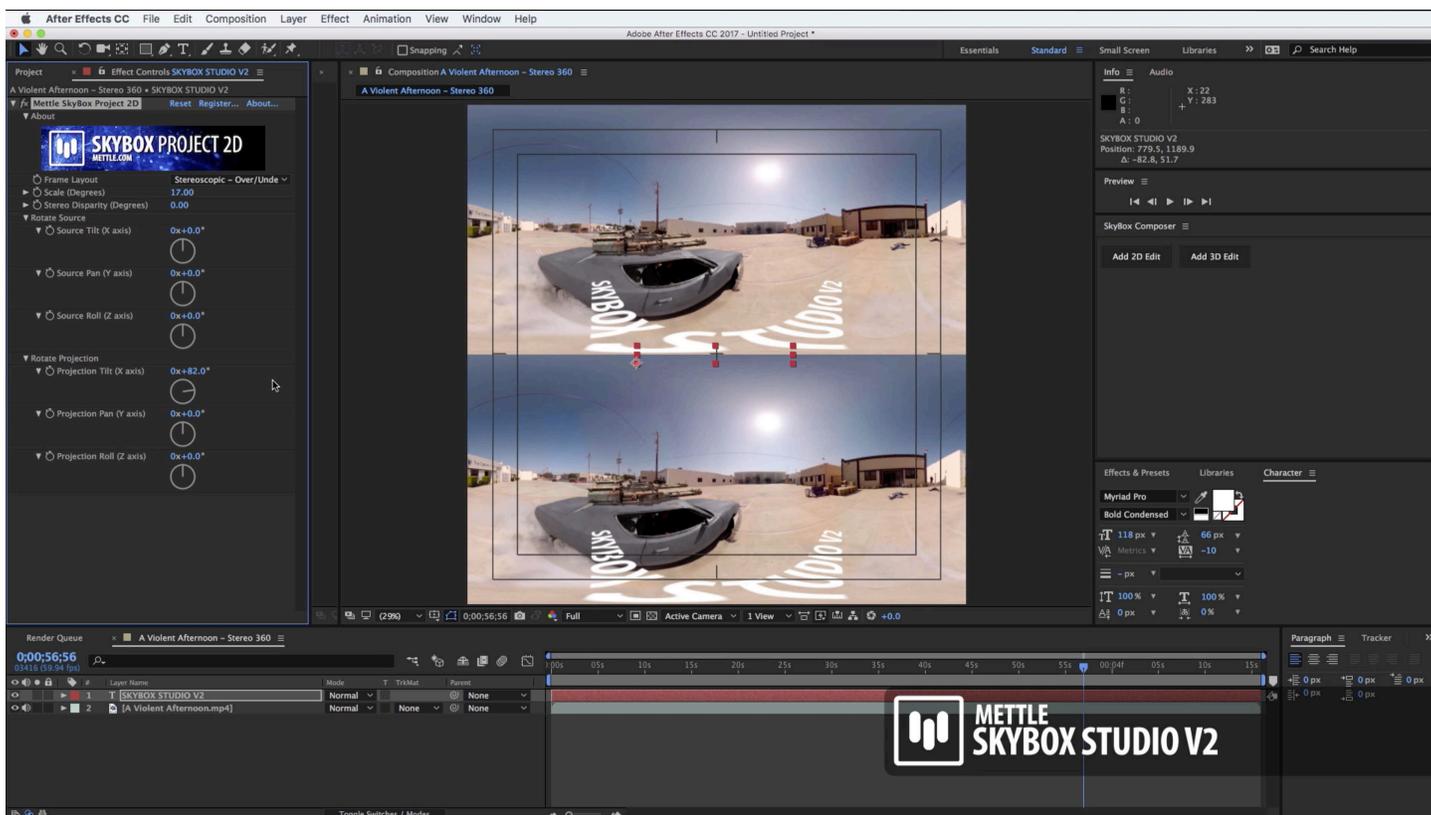
Skybox Project 2D is a great new feature that makes adding 2D elements to your project even easier! This is a fantastic option for integrating logos, text, and other 2D elements quickly and efficiently. You can even use it with additional footage, such as animated visual effect or motion graphic elements. It is a great option for those who need a straight-forward, linear workflow. **Works with monoscopic and stereoscopic footage.**

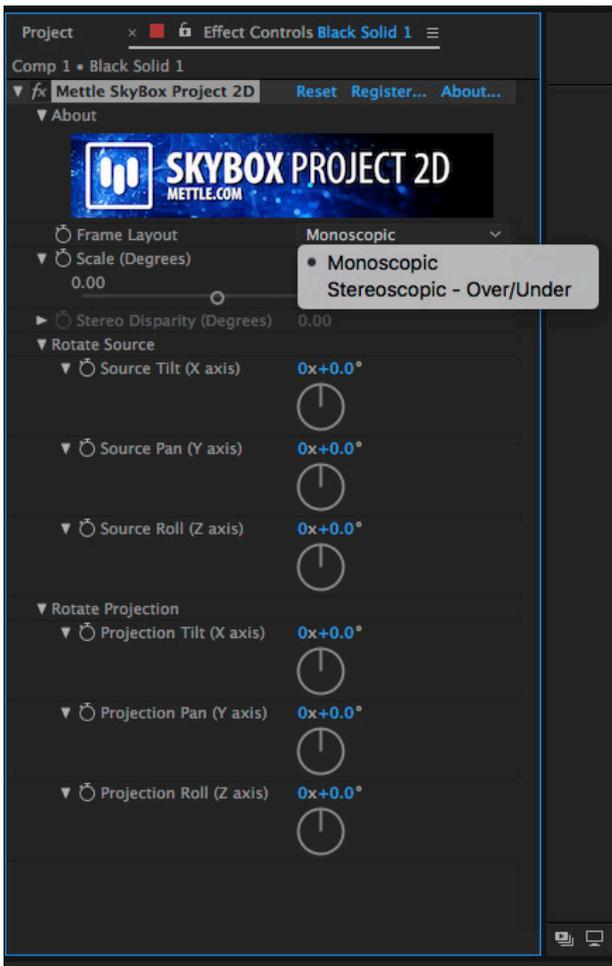
### Step 1

Import or create the 2D element that you want to add to your composition.

### Step 2

From the Effects & Presets window, apply the Skybox Project 2D to your 2D element layer.





### Step 3

Adjust your Effect Controls parameters as desired. These include:

#### Frame layout

- Monoscopic is for non-stereo(non 3D) output.
- Stereoscopic is for stereo 3D output. This setup uses Over/Under for its 3D layout.

#### Scale (Degrees)

This allows you to adjust the size of your element. Use these controls rather than the element's native Transform parameters.

#### Stereo Disparity (Degrees)

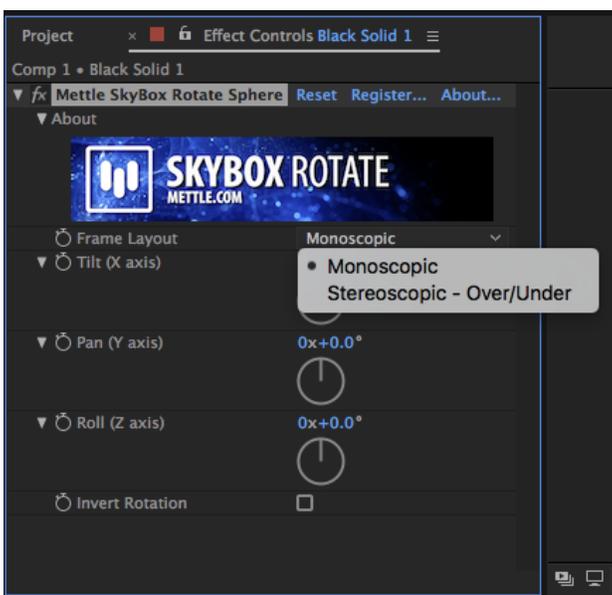
This allows you to set the distance between the left and right view to increase or decrease the amount of the 3D 'pop out' effect. This is keyable to allow for a change in the stereo effect over time.

#### Rotate Source

These are keyable attributes to adjust the X, Y, or Z rotation of the added element according to its own anchor point

#### Rotate Projection

These are keyable attributes to adjust the X, Y, or Z rotation of the element's position within the 360 degree spherical environment, by assuming an anchor point at the centre of the 360 degree spherical environment.



## HOW TO USE SKYBOX ROTATE SPHERE

**Skybox Rotate Sphere** is a feature similar to Project 2D, in that it allows you to use keyable attributes to adjust the X, Y, or Z rotation of the element's position within the 360 degree spherical environment. Its functionality is limited to these parameters in order to keep things computationally light for busy production companies and tight delivery schedules. **Works with monoscopic and stereoscopic footage.**

Adjust your Effect Controls parameters as desired. These include:

#### Frame layout

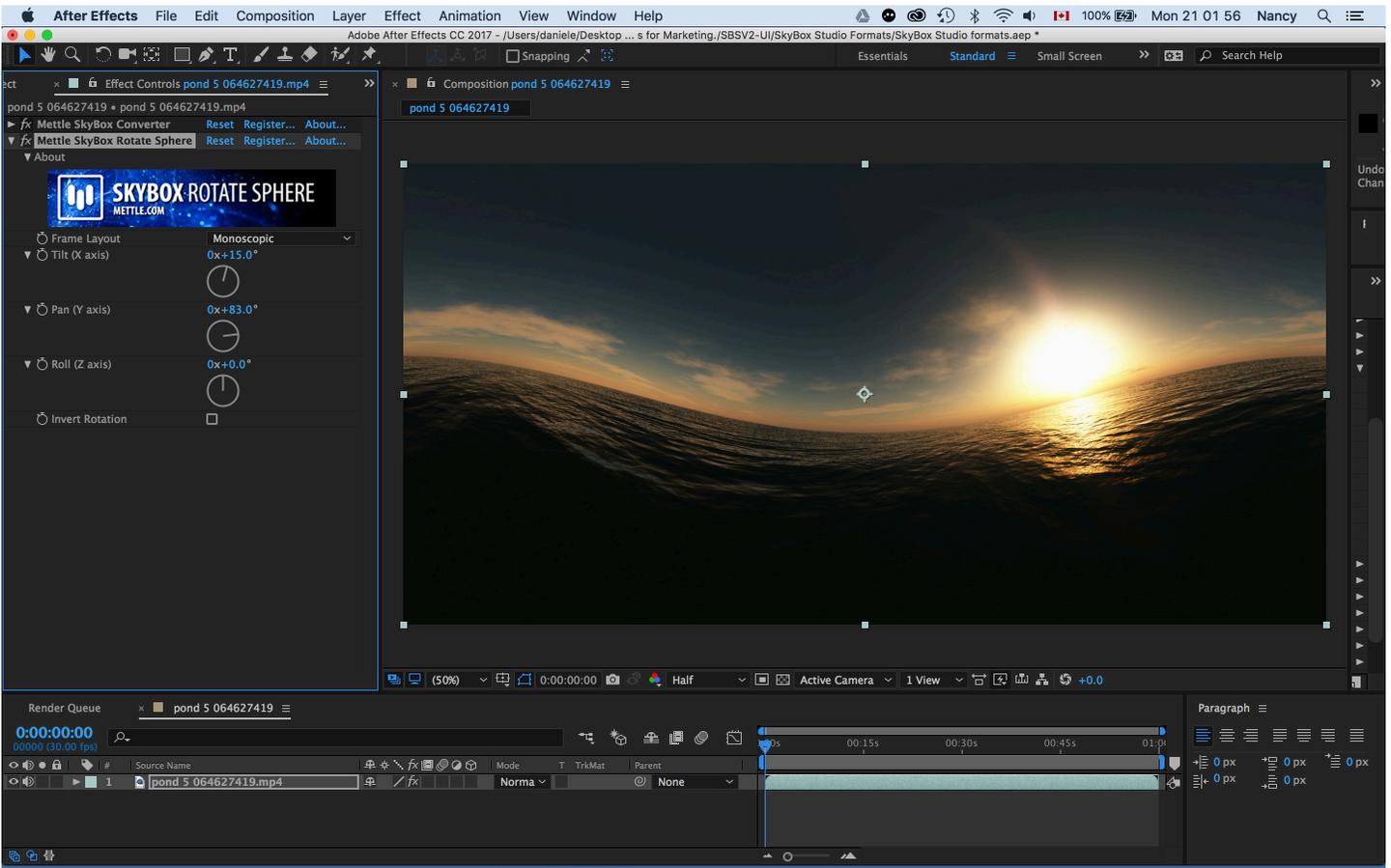
- Monoscopic is for non-stereo(non 3D) output.
- Stereoscopic is for stereo 3D output. This setup uses Over/Under for its 3D layout.

These are keyable attributes to adjust the X, Y, or Z rotation of the added element according to its own anchor point. No need to re-stitch your camera views or adjust your shoot just to change the camera orientation.

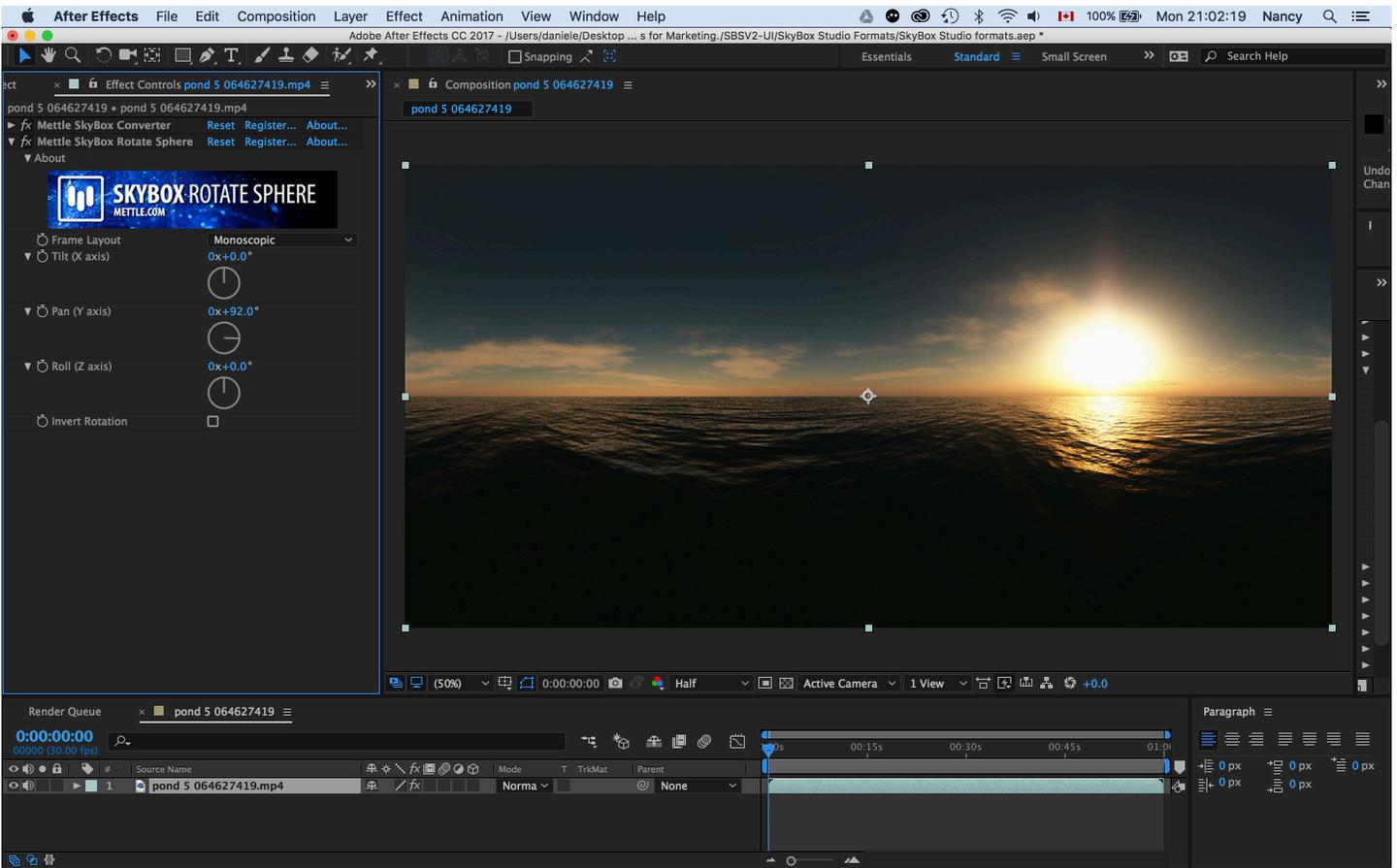
These controls are keyframeable, so animated Camera Tilts, Pans, and Rolls are possible as well.

#### Invert Rotation

Takes all the values for the Tilt, Pan and Roll, and inverts them.



*Tilt (X axis), Pan (Y axis), Roll (Z axis) can be used to readjust the focal point and straighten the horizon, and add camera movement in post. Keyframeable.*

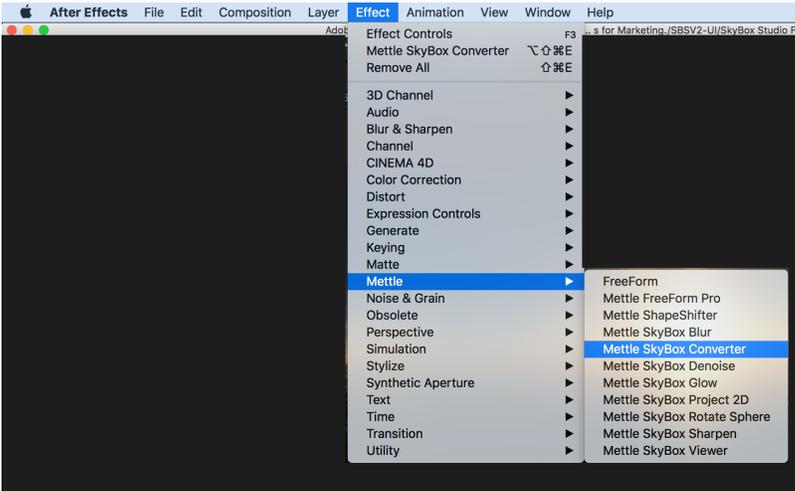


UP-  
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## HOW TO USE SKYBOX CONVERTER

SkyBox Converter is an After Effects Plugin. As such, you can load it from Effect > Mettle > Mettle SkyBox Converter.



You can use SkyBox Converter in conjunction with all the other SkyBox modules. You can also use SkyBox Converter on its own if you want to convert images in your stock library from Cubic to Spherical, Equirectangular, or many other layout options. You can also change the camera orientation in your footage. Or even add simple supers, logos, or image patches that you retouch in Photoshop to your footage.

### SkyBox Converter Can Convert Between Various Formats

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 FORMATS

### NEW INPUT FORMATS IN V2:

Fisheye (FullDome), Cube-map Facebook 3:2), Cube-map Pano2VR 3:2, Cube-map GearVR 6:1, Equirectangular 16:9. The original formats from Version 1 are also included: 2D Source, Cube-map 4:3, Sphere-map, Equirectangular 2:1.

### NEW OUTPUT FORMATS IN V2:

Cube-map Facebook 3:2), Cube-map Pano2VR 3:2, Cube-map GearVR 6:1, Equirectangular 16:9. The original formats from Version 1 are also included: Fisheye (FullDome), Cube-map 4:3, Sphere-map, Equirectangular 2:1.

NEW



NEW





## SkyBox Converter: Re-orient Camera View

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

These controls are keyframeable, so animated Camera Tilts, Pans, and Rolls are possible as well.



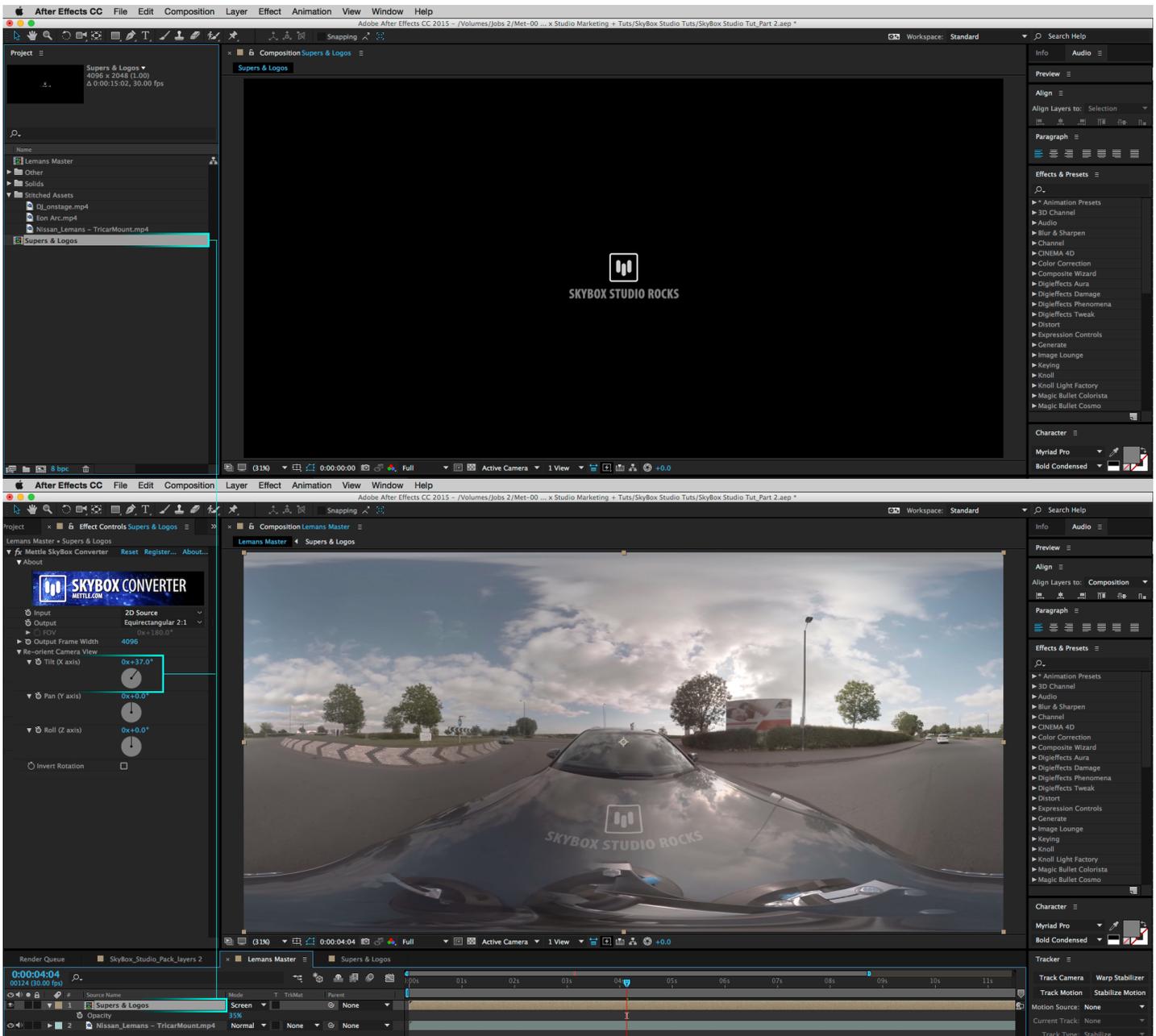
Footage courtesy Ben Kidd - Hamilton+Kidd



## 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 After Effects text and the Mettle Logo. This pre-comp is then added to your master comp that contains your stitched 360 footage. SkyBox Converter is applied to this "Supers & 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.



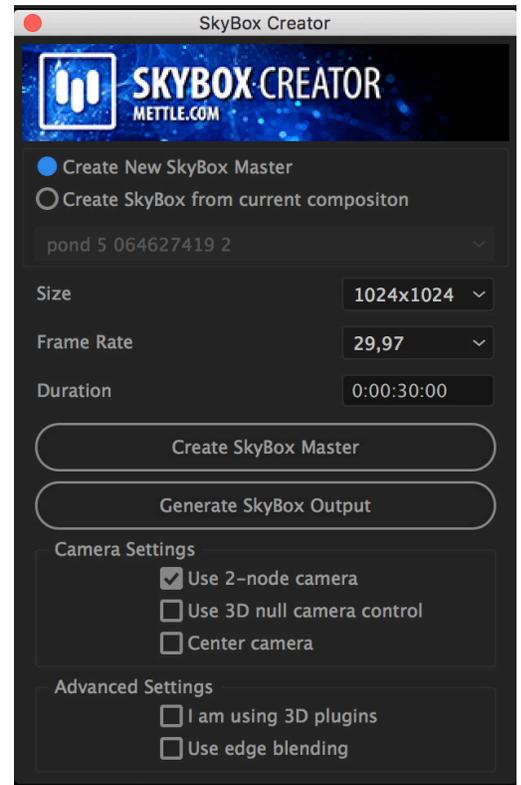
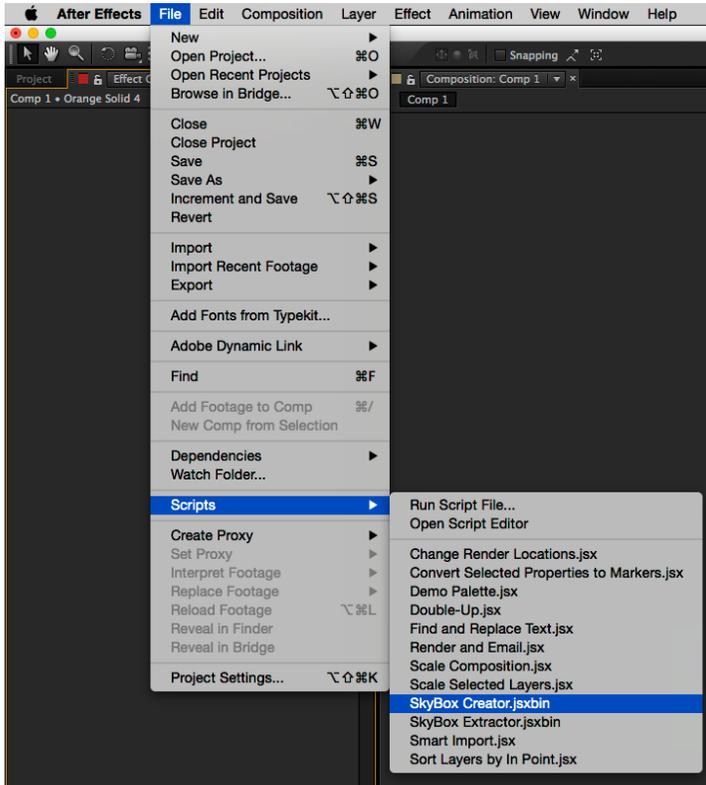
Footage courtesy Ben Kidd - Hamilton+Kidd



## HOW TO USE SKYBOX CREATOR

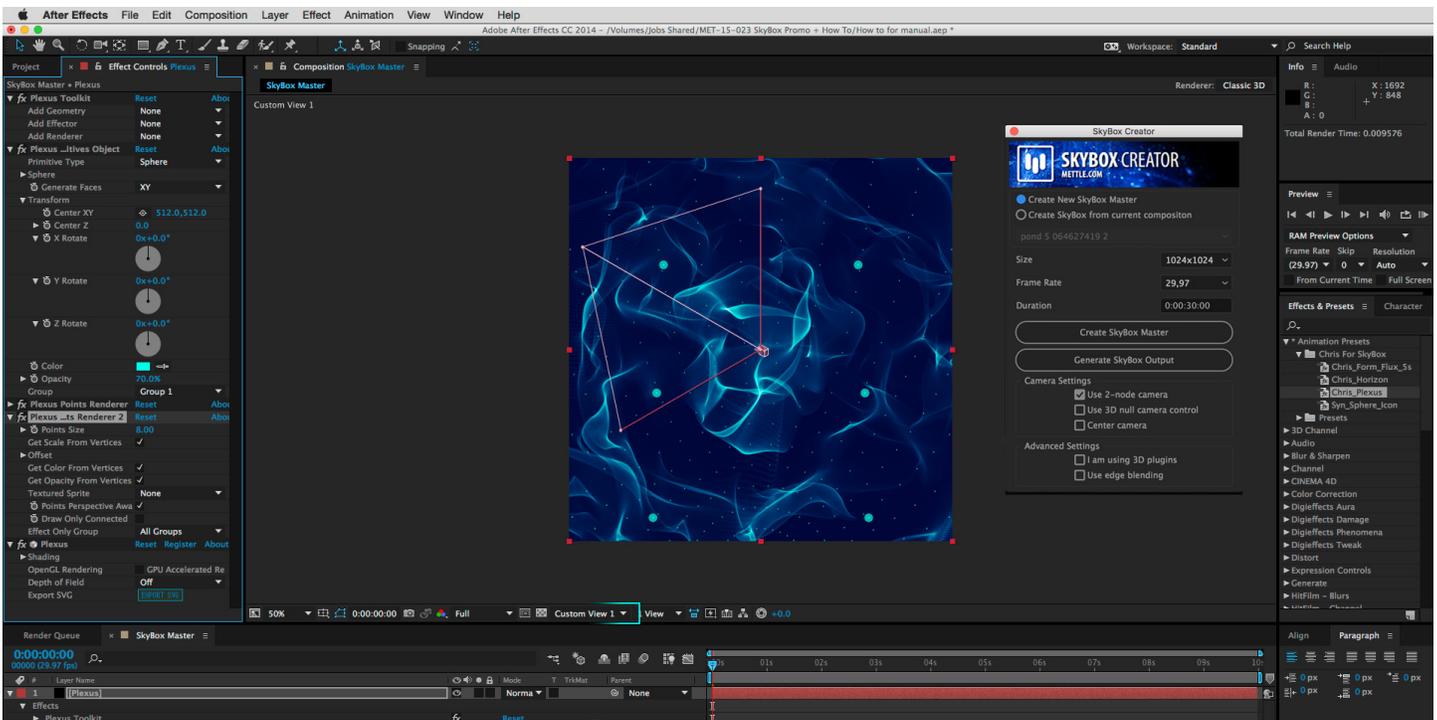
### Step 1

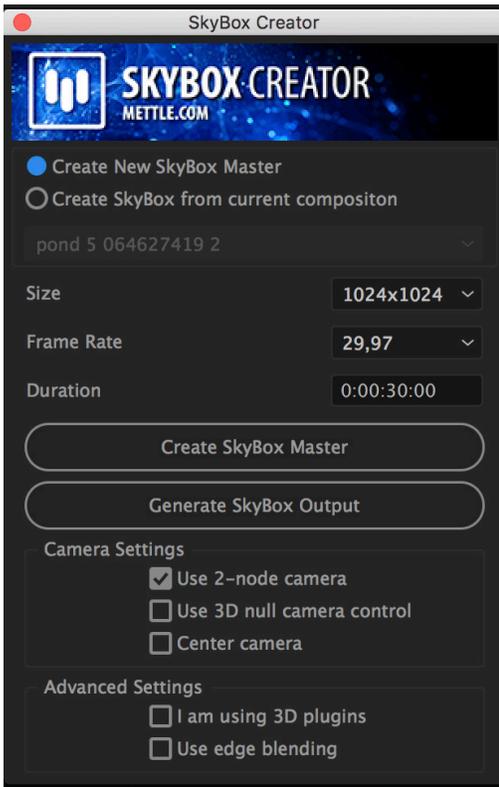
To launch SkyBox Creator simply go to: File > Scripts > SkyBox Creator.jsx.bin. If you wish to create a new SkyBox Master from scratch then choose the size you need, 1024 x 1024 will do for most applications of SkyBox.



### Step 2

Choose the frame rate and duration of your SkyBox Master, then click on “Create SkyBox Master”.





### Step 3

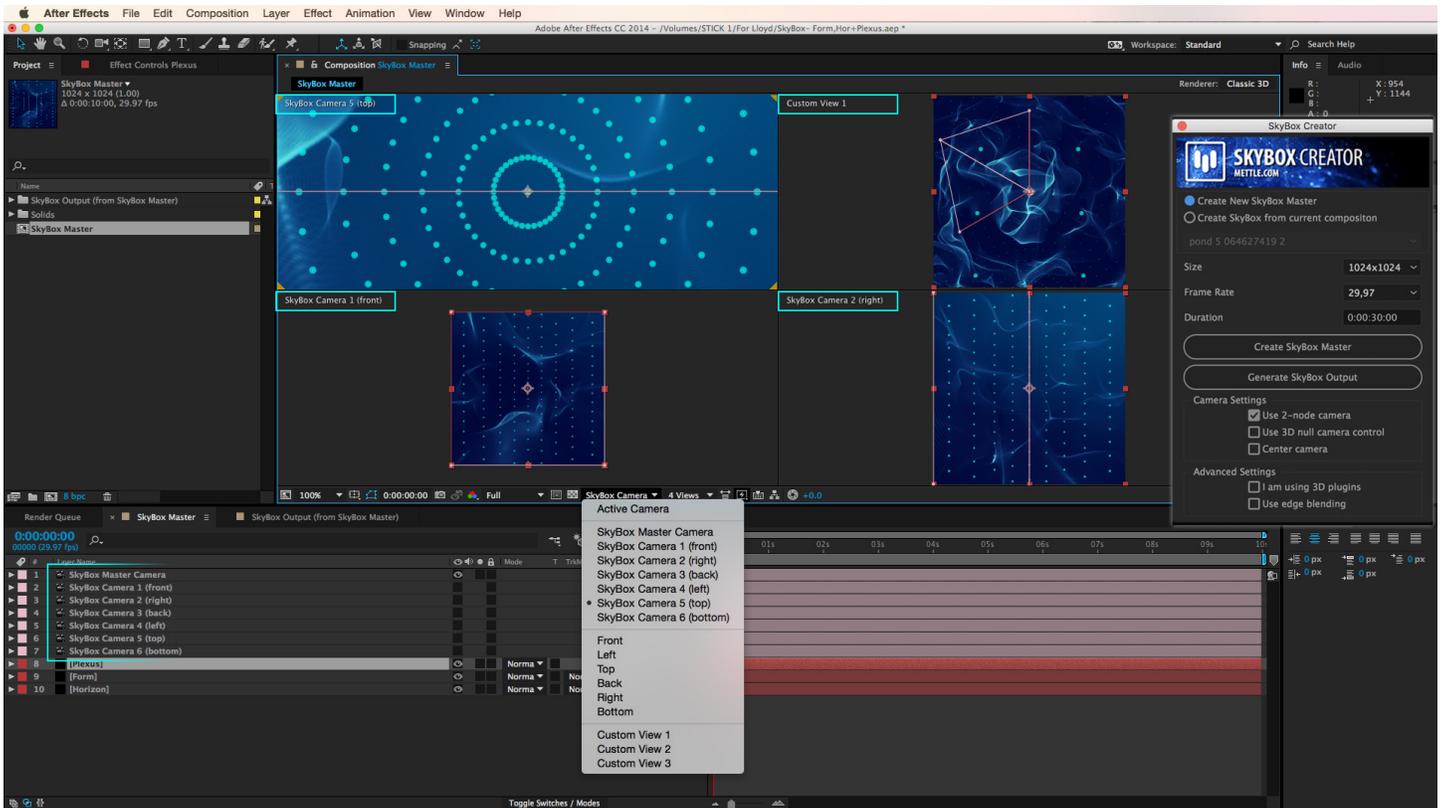
At the bottom of your Composition window, switch your Camera View to Custom View 1 and proceed to create your SkyBox world by adding your favorite After Effects 3D plugins and/or 3D layers. In the screen capture on the previous page, we added Trapcode Horizon, Form & Rowbyte's Plexus.

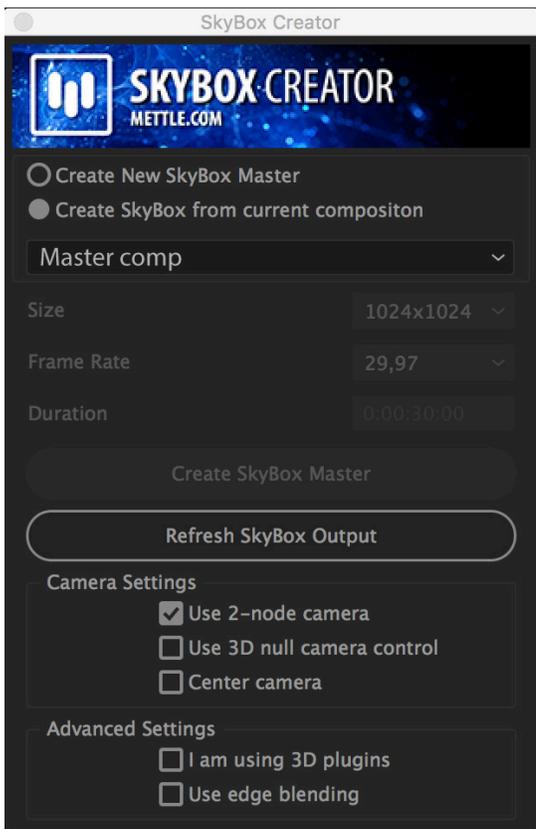
### Step 4

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 of the expressions that are required to create a Cubic Map. You can then use SkyBox Converter to switch between various output formats. (See section on SkyBox Converter.)

### Step 5

At the bottom of your Composition window, you can switch your display from 1 View to 4 Views. This will help you verify that objects are in frame in all 6 views. 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. Adjusting the 3D plugin parameters will help you avoid this issue.





### Step 6

Want to modify your SkyBox Master and apply these changes to your 'SkyBox Output' Composition? 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 After Effects camera will not work well. This must be done via a proper Expression however, we made it simple for you - just make 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.

Some 3D plugins like Mettle's 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 the issues. Ultimately Boris, Cycore Systems, Rowbyte, and Trapcode (and others) need to address this, in the code of their offerings.

**QUICK TIP: Due to the After Effects architecture, third party 3D plugins, and even After Effects's very own Shatter are treated very differently than After Effects 3D layers. As a result, SkyBox Creator will set things up very differently if you plan on only using After Effects 3D layers versus including 3D plugins.**



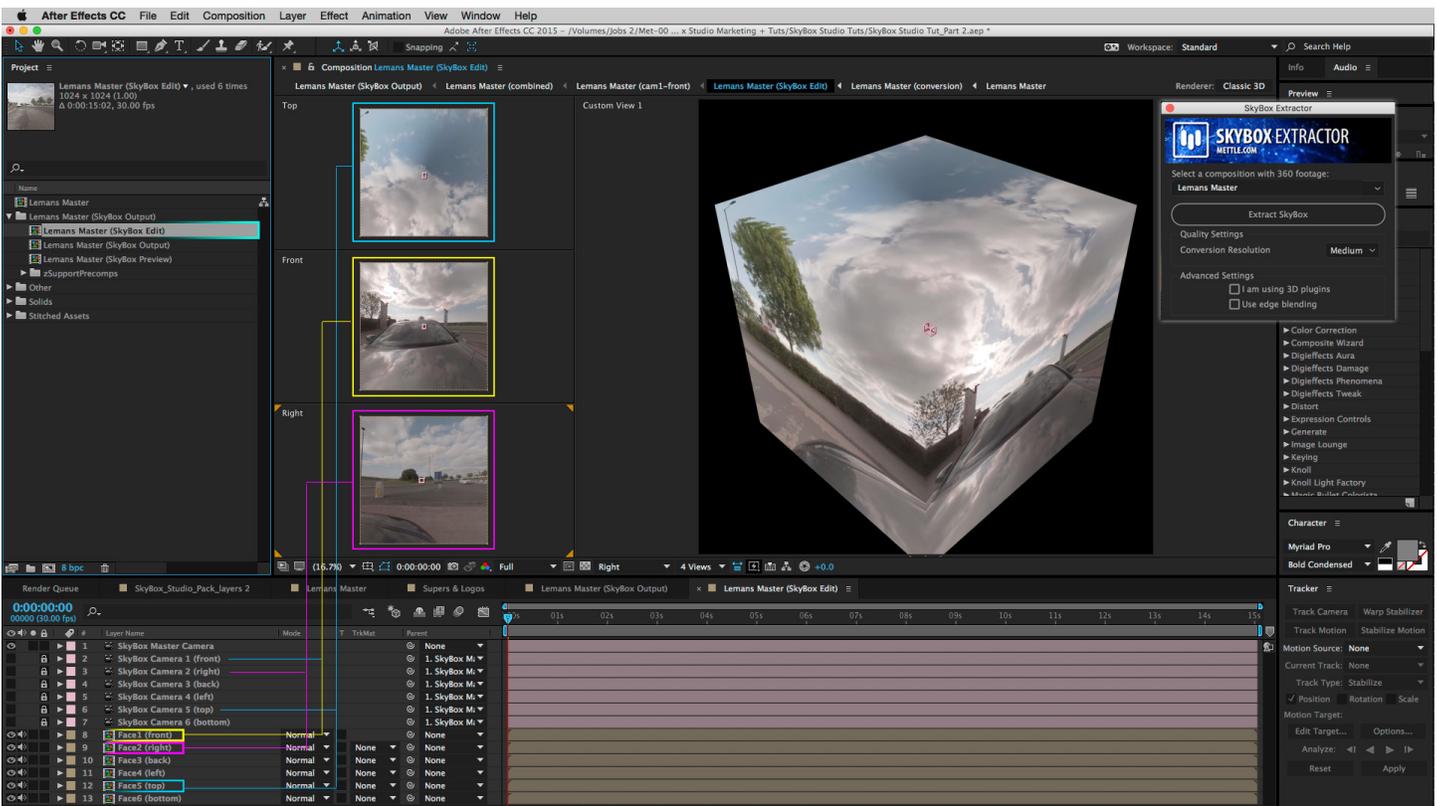
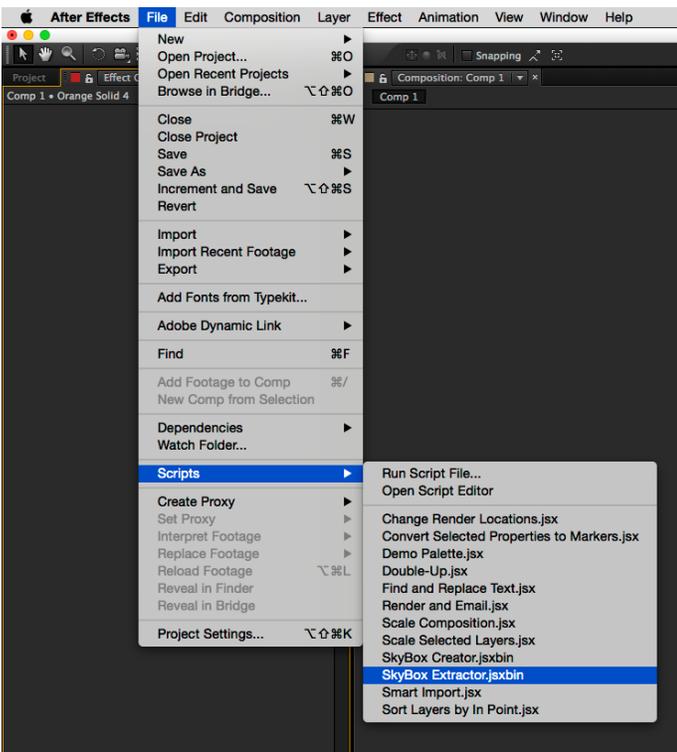
## HOW TO USE SKYBOX EXTRACTOR

SkyBox 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' Composition (pictured below).

In the 'SkyBox Edit' Composition, you can render the view(s) you need so that you can motion track or camera track them more easily. You can also do object removal, add motion graphics, CG, VFX, etc. SkyBox Studio modules play well with third party 3D products like Mettle's 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, and Bottom. These are strategically positioned to form the cube you see pictured here.

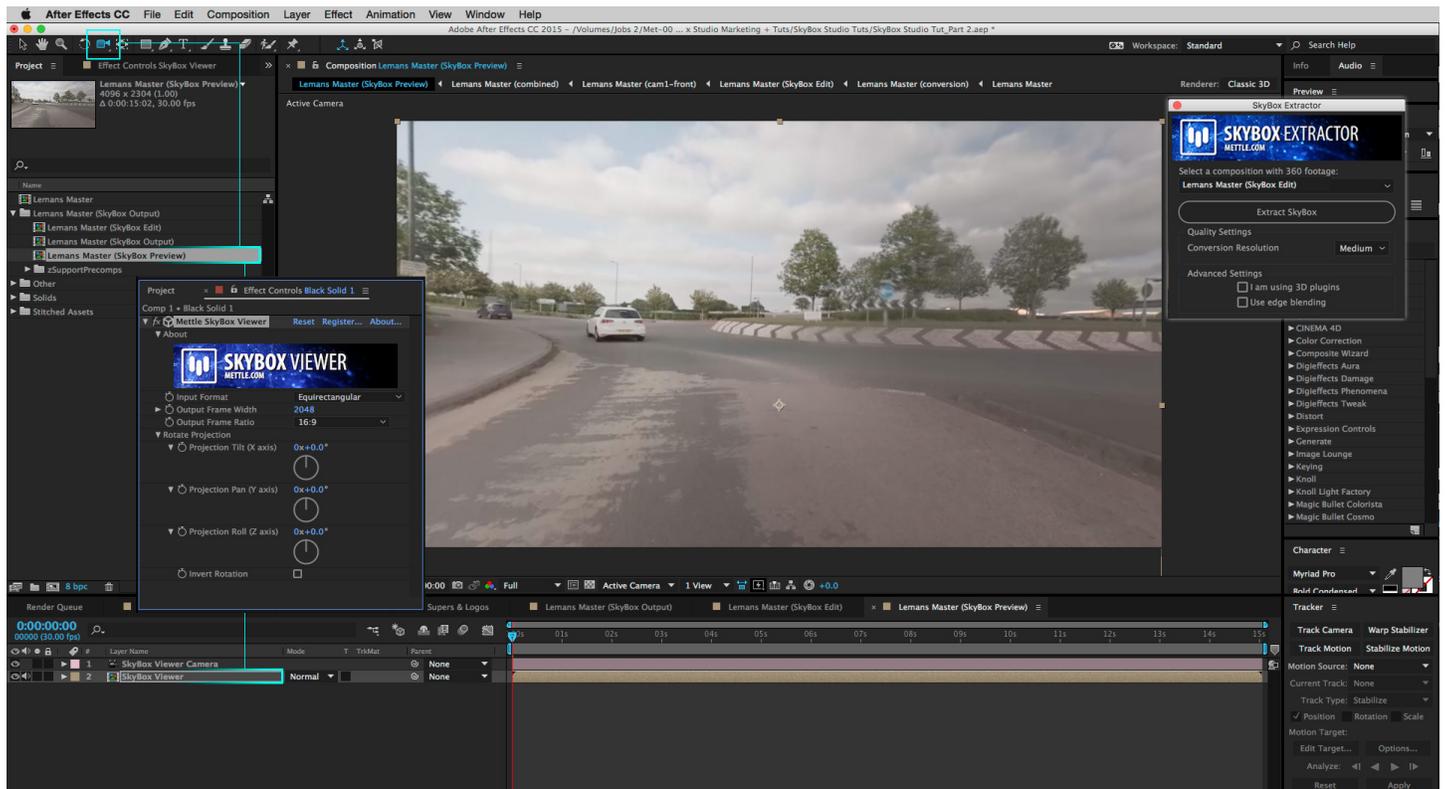


Footage courtesy Ben Kidd - Hamilton+Kidd

**SkyBox Extractor** creates a 'SkyBox Output' Composition. This is what you will render out for YouTube 360 etc. once you are finished your work. All the work you do in your 'SkyBox Edit' Composition will make its way through to the 'SkyBox Output' Composition. SkyBox Extractor harnesses the power of SkyBox Converter to convert from a Cube Map layout (as is set up in the 'SkyBox Edit' Composition) to Equirectangular, which is necessary for YouTube 360 and many other 360 | VR formats.



**SkyBox Viewer** adds a 'SkyBox Viewer' Composition. SkyBox Viewer is another module, built to simulate the view that you see in YouTube 360 and other 360 | VR formats. This is an excellent way to check you work before rendering out, compressing, and uploading it to your preferred 360 players.



Footage courtesy Ben Kidd - Hamilton+Kidd

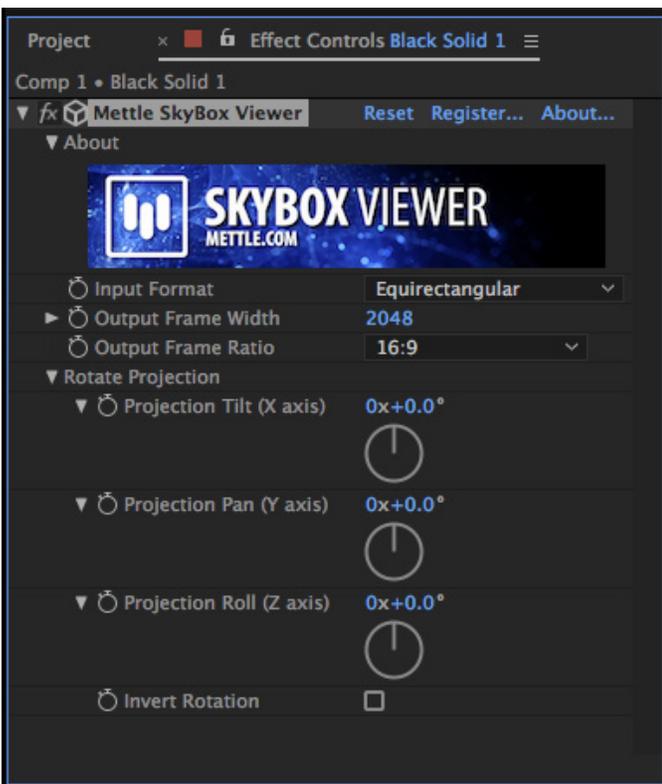




## HOW TO USE SKYBOX VIEWER

SkyBox Viewer is a plugin lets you preview your camera's point of view in After Effects. Orbit around your scene using the Camera Orbit Tool. This is a stationary view of a single frame, non-animated.

You can load it from Effect > Mettler > Mettler SkyBox Viewer



## PREPARING YOUR SKYBOX CREATION FOR YOUTUBE 360

Mettle SkyBox is excellent in helping you get your SkyBox creations from After Effects into the YouTube 360 format quickly and efficiently. Make sure you export your project in the Equirectangular format, with meta-data injected.

See: <https://support.google.com/youtube/answer/6178631?hl=en>

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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.

#### VR APPLICATIONS LIKE OCULUS RIFT, SAMSUNG GEAR VR

SkyBox Converter can convert to the Equirectangular format that many VR applications like Oculus Rift require.

Written by:  
Chris Bobotis and A.J. King

*Thank you for choosing Mettle Skybox Studio V2!*