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# **Zaxwerks Layer Tools™**

Plug-ins for After Effects®

## **User Guide**

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COVERING

**Layer Manipulator™**

**Z-Distribution™**

**Fit & Face™**

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# System Requirements

## Macintosh

Adobe After Effects 6.5 or 7.0  
Power Mac G4, G5 or Intel based Mac  
Mac OS X 10.3.9 (or later)  
512 MB of RAM  
20 MB of Hard drive space

## Windows

Adobe After Effects 6.5 or 7.0  
Windows XP Service Pack 2  
Pentium IV or better  
512 MB of RAM  
20 MB of Hard drive space

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## Layer Tools Introduction

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The Zaxwerks Layer Tools is a set of plug-ins which enable you to move and manipulate After Effects 3D layers in various ways. These plug-ins are designed to aid the compositor in tasks that are normally very difficult and time consuming.

The Z-Distribution plug-in enables you to distribute layers in Z, and at the same time adjusts the size of each layer so it remains the same size on the screen. This is very useful for setting up Photoshop comps in 3D space, and for doing those magical animations where a group of seemingly random pieces turn into something completely readable when viewed from one point in space.

The Face & Fit plug-ins enable you to quickly make any layer rotate to face towards the camera and can adjust the size of the layer to fit the comp window exactly. There are four methods of doing this each one with distinct advantages based on the type of animation you are doing. This is very useful when needing to create a match frame so you can inter-cut an animation with regular footage.

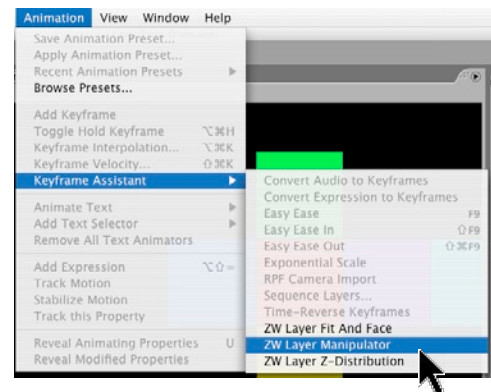
The Layer Manipulator plug-in enables you to manipulate (rotate, scale or move) many layers at once, keeping them all in register with each other. This is very useful when you need to adjust groups of layers but don't want to mess with parenting all the pieces or dealing with pre-comps.

The following documentation will show you the highlight features of each tool, then give you an example workflow so you can see how to apply the tool, and then gives you some tips on using the tool in the creation of your animation.

# Layer Tools Common Features

These plug-ins are called Keyframe Assistants. They are NOT found in the Effect menu. Rather, they are found in the Animation > Keyframe Assistant menu. Selecting one of the Layer Tools will open a floating panel.

To operate the Layer Tools plug-ins, start by selecting 3D layers in your composition, then clicking one of the Apply buttons on a panel. You can do an entire operation in one click or, by using small values and clicking the Apply button over and over, you can nudge the layers into their final positions.



## ZW Layer Manipulator

### Layer Manipulator - Purpose

This tool enables you to manipulate (rotate, scale or move) many layers at once, keeping them all in register with each other. This is done directly in the main comp without needing to set up parents, nulls, scripts or collapsing transforms. During the manipulation the Layer Manipulator treats all selected layers as a group, rotating or scaling them all around a single pivot point that you can change at any time during the manipulation. Layers can be added or removed from the group by simply selecting or deselecting them. Since the layers aren't linked and remain in the main comp, you have more flexibility with your design options.

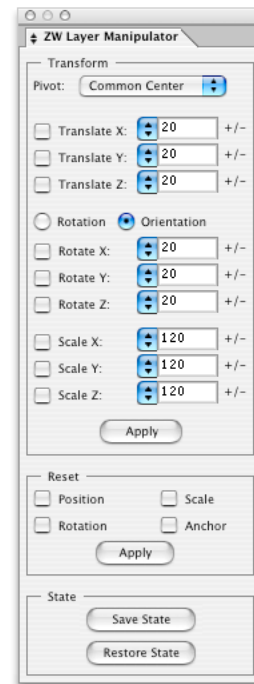
### Layer Manipulator - Feature Highlights

- This plug-in sets keyframes. It doesn't require fancy techniques such as parenting or scripting. It is easy to understand and the results are directly observable. Since it sets standard AE keyframes you are never locked out of adding more keyframes at any time in the future.

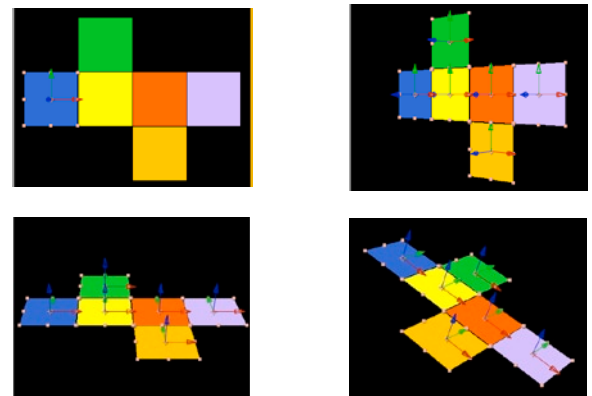
- While layers are selected they are treated as a big group. They rotate as a group, they scale as a group and they move as a group. This keeps them all in register so you can set up very complicated poses without having to manipulate each layer individually. They are not, however, locked together permanently. They are grouped only as long as they are selected. This enables you to change what is being manipulated by changing the selection state of the layers.

- Rotations, Translations and Scaling can be done around the common center of all selected layers, or around any layer/null/camera/light in the project. This enables you to do things like swing the whole set of layers around the center of any of them. The pivot point can be changed at any time. Nudge things a little this way and a little that. Easy, interactive and fast.

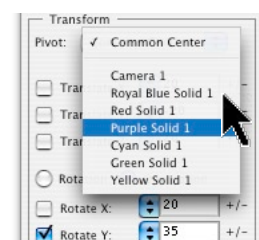
- Once a layer is selected as the pivot point all manipulations are done using that layer's local axes. This makes it very easy to move groups of layers around even when they have been rotated to odd angles.



The Layer Manipulator panel.

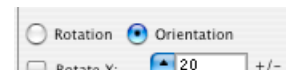


Layer Manipulator can rotate many layers at once.



The Pivot menu sets the center of rotations.

- You can select whether the manipulation affects the layer's rotation params or their orientation params. This enables you to use the Layer Manipulator plug-in to adjust the layer's orientation leaving the rotation params untouched and available for further animation.



- The Layer Manipulator plug-in has a Save State button so you can save the state of your group of layers at any time and restore that state with a single click. This feature enables you to set up the layers, save the state and then play with them. If you need to return to their saved state click the Restore State button. This feature is invaluable for the times when AE's Reset button resets too much and the Undo button will undo something that you want to keep.



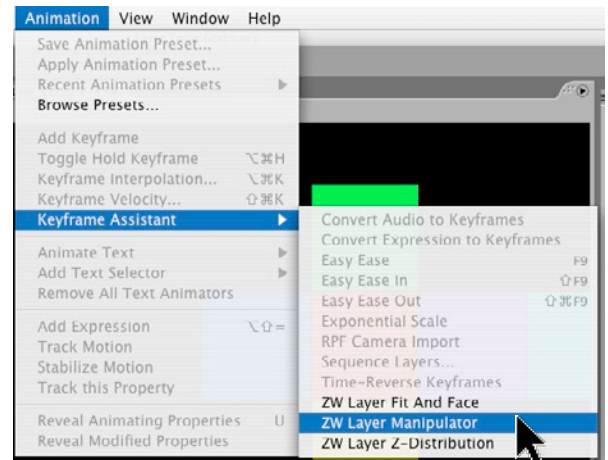
- The Layer Manipulator plug-in also has a Reset section that will reset the Position, Rotation, Scale and Anchor points of all selected objects with a single click. This is useful for the times when you need to reset, say, the rotations of all layers, but not their positions.



## Layer Manipulator - Example Workflow

**To use the Layer Manipulator do the following steps:**

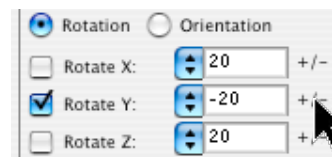
- 1 - Select the 3D layers you want to manipulate. The Apply buttons won't be active if you select 2D layers.
- 2 - Open the Layer Manipulator panel by following this sequence of menus:  
Animation > Keyframe Assistant > ZW Layer Manipulator
- 3 - Turn on the checkboxes for the manipulation you want to occur.
- 4 - Type a number for the amount of manipulation you want.
- 5 - Click the Apply button.  
The plug-in will move the layers and update their transform values. If you have animation turned on it will also set a keyframe at the current time.



## Layer Manipulator - Usage Tips

- You can use the Layer Manipulator as a nudge tool. Set the number to something small like 10 or 20, then click the Apply button repeatedly to nudge the layers into the position you like best.

- If you move something too far you can either undo back to the proper position, or you can click the +/- hot spot to flip the sign on the number and then click Apply to move the layers in the opposite direction.

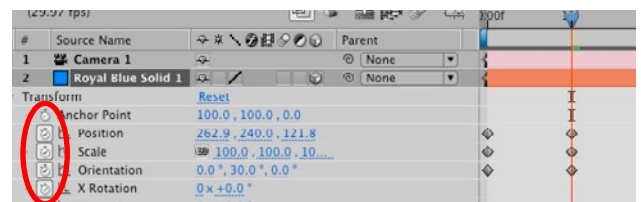


Click here to flip the sign of the number.

- Once you get ready to do a manipulation always remember to click the Save State button. Use this feature as a backup so that if you get into trouble you can get back to the starting position in a single click..



- This plug-in won't set keyframes unless you turn on AE's Animation stopwatches.



Turn on the stopwatches to set keyframes.

- This plug-in doesn't make any link between the layers or create any kind of scripting on the layers. It just sets keyframes.

- This plug-in only works on the selected layers. If one or more layers don't appear to be doing what you want them to do, check to see if they are selected. This includes using the Reset and Restore State buttons. Only layers that are selected will be reset or restored.



Be sure to select the layers so you can manipulate them.

# ZW Layer Z-Distribution

## Z-Distribution - Purpose

The Z-Distribution tool enables you to distribute any number of layers in Z, based on the camera's view direction, and at the same time adjust the size of each layer so it remains the same size on the screen.

The distribution works from any camera angle, with any type of layer, and can be done at any time in your project, even when you are already animating the layers.

When working in 3D, moving a layer away from the camera makes it shrink in size due to perspective. This shrinking can cause a composition, that looked fine in 2D, to end up looking bad in 3D. The Z-Distribution plug-in compensates for camera perspective leaving the composition looking exactly the same after the Z-movement as it did before.

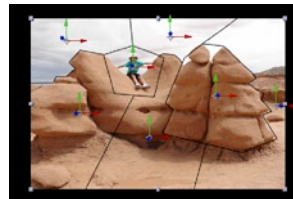
This plug-in has the additional feature of being able to very quickly distribute a group of layers so they look like unrelated pieces from a side view, but look completely readable from the view of a chosen camera. This effect is very difficult to do by hand but extremely fast and easy when using this plug-in.

## Z-Distribution - Feature Highlights

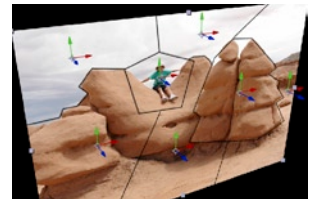
- Operates on any set of images or layers, whether they come from a Photoshop comp, masked layers, Illustrator files or a batch of individual images.
- Has distribution controls to easily set the positions of many layers with a single click. All selected layers will be distributed.
- Will distribute layers based on selection order, layer size or randomly.
- Sets standard AE keyframes so you can use the plug-in even if you already have keys set.
- Works with non-square comps and non-square pixels.
- Works from any camera angle.
- Doesn't require pre-planning. Use it any time.
- Doesn't change the rotation points of your layers so you can continue to add other keyframes without causing rotation problems.



The Z-Distribution panel.



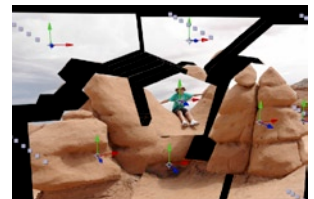
Camera 1 before the distribution.



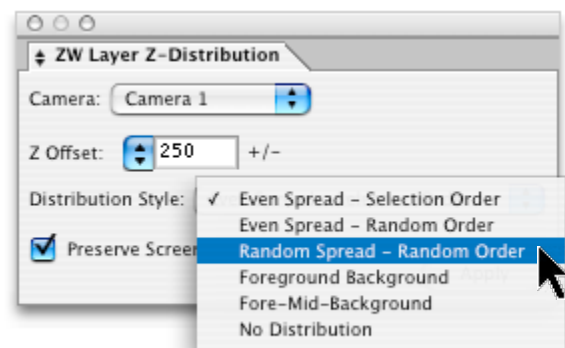
Camera 2 before the distribution.



After the distribution, the picture looks the same from Camera 1...



...even though Camera 2 shows the layers to be clearly separated.



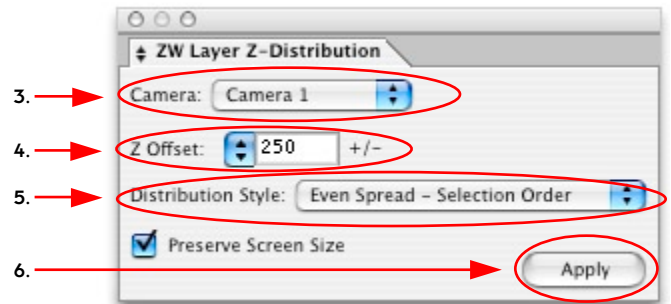
There are many different ways to distribute layers in Z.



## Z-Distribution - Example Workflow

### To use the Z-Distribution tool do the following steps:

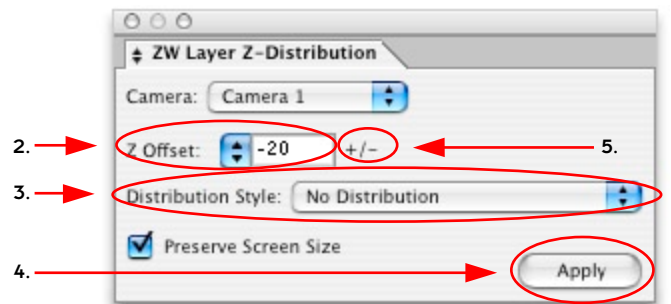
- 1 - Select the 3D layers you want to distribute in Z. The Apply buttons aren't active if you select 2D layers.
- 2 - Open the Z-Distribution panel by following this sequence of menus:  
Animation > Keyframe Assistant > ZW Layer Z-Distribution
- 3 - Choose which Camera axis to distribute the layers along.
- 4 - Type in the amount of offset you want to occur.
- 5 - Choose the style of distribution you'd like to use.
- 6 - Click the Apply button.  
The plug-in will move the layers and update their transform values. If you have animation turned on it will also set a keyframe at the current time.



Once you have done the overall distribution, you might want to fine tune the position of individual layers.

### To fine tune (nudge) the position of individual layers do the following:

- 1 - Select the 3D layer you want to fine tune.
- 2 - In the Z-Distribution panel set the Z Offset to a small value such as 10 or 20.
- 3 - Set the distribution style to No Distribution.
- 4 - Click the Apply button. Each click will nudge the layer a little.
- 5 - If you move the layer too far you can either Undo the move or click the +/- hot spot to flip the sign on the value and move the layer in the opposite direction.



## Z-Distribution - Usage Tips

- This plug-in sets keyframes. It doesn't require fancy techniques such as parenting or scripting. It is easy to understand and the results are directly observable. Since it sets standard AE keyframes you can use it once you have already set keyframes, and are never locked out of adding more keyframes at any time in the future. This plug-in increases flexibility and design options.

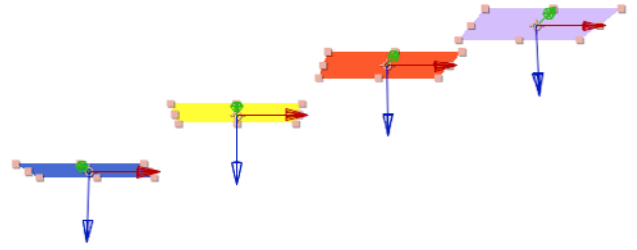
- Layers can be at any angle, they don't have to be flat to the camera, they don't have to be aligned with the world axes. Use the Layer Manipulator plug-in to move and rotate the layers into the proper position, then use the Z-Distribution plug-in to add the final touches to the effect.

- The distribution works based on the current view of a chosen camera. If the camera is animated you may get a different distribution based on the position of the camera at the time when you click the Apply button.

- There are several different styles of distribution. They are:

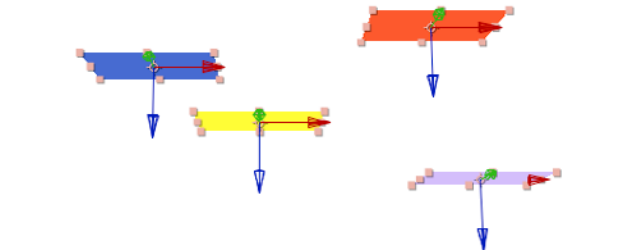
#### Even Spread - Selection Order

This method divides the Z-Offset equally between the selected layers, and then it applies the offset in the order that the layers were selected. For instance if you selected the layers in A, B, C order, layer A will end up closest to the camera, and layer C will be moved furthest away from the camera. If you select the layers in C, B, A order, layer C will be the closest and layer A will be furthest away.



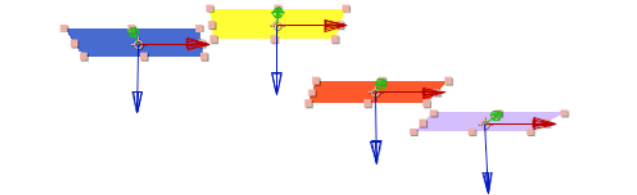
#### Even Spread - Random Order

This method divides the Z-Offset equally between the selected layers, but then it randomly chooses which layer is nearest and which layer is furthest.



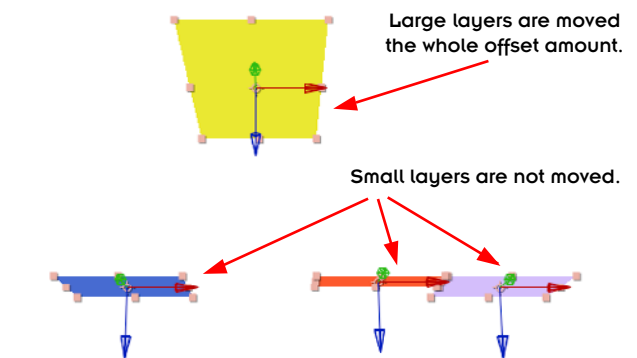
#### Random Spread - Random Order

This method randomly assigns a different offset to each layer. The Z Offset value sets the maximum amount of offset.



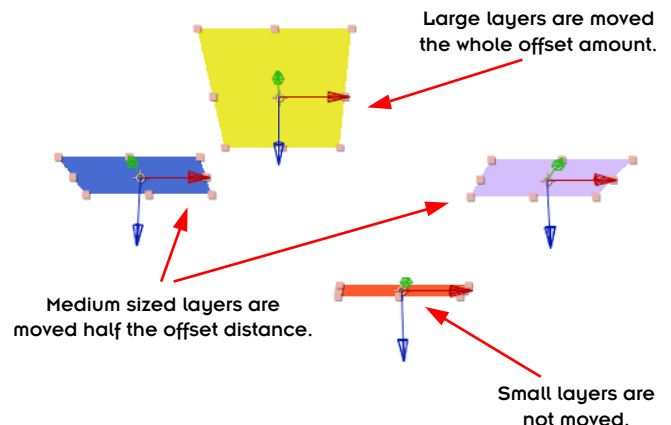
#### Foreground Background

This method looks at the size of each layer. The small layers are not moved in Z so they become foreground objects. The large layers are moved the full Z Offset distance so they become the background objects. Once the layers have been split into foreground / background groups fine tune their position using the nudging technique given below



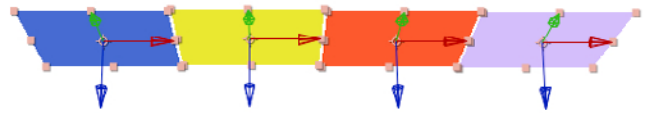
#### Fore-Mid-Back

This method looks at the size of each layer. The small layers are not moved in Z so they become foreground objects. Medium sized layers are moved half the Z Offset distance so they become midground objects. The large layers are moved the full Z Offset distance so they become the background objects. Once the layers have been split into fore-mid-back groups, fine tune their position using the nudging technique given below.



### No Distribution

This method moves all selected objects the full Z Offset distance. Useful for nudging individual layers to make final adjustments.



All layers are moved the offset distance.

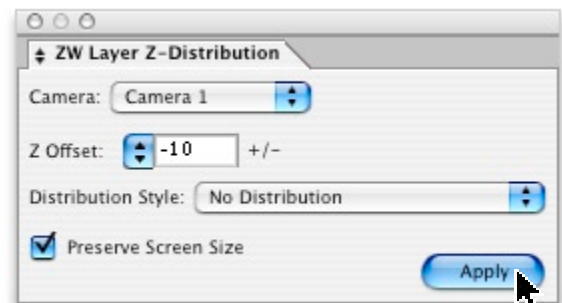
( Original position )



- Any distribution style that contains a randomization can be applied over and over to change what's being randomized. Hit Apply, Undo, Apply, Undo over and over until you see a distribution pattern you like.
- This plug-in won't set keyframes unless you turn on AE's Animation stopwatches.
- This plug-in doesn't make any link between the layers or create any kind of scripting on the layers. It just sets keyframes.
- This plug-in only works on the selected layers. If one or more layers don't appear to be doing what you want them to do, check to see if they are selected. This includes using the Reset and Restore State buttons. Only layers that are selected will be reset or restored.

### Nudging

You can use the Z-Distribution tool to nudge objects into their final positions. Once you have used a distribution to get the layers close to their final positions, select the layer you'd like to nudge, change the distribution style to No Distribution, and then set the Z-Offset to a small value like 5 or 10. Now each time you click the Apply button the layer will move a little at a time, and none of the other layers will be affected.



## Z-Distribution - Design Ideas

1- An interesting effect can be created by using a large Z offset, and then delaying the animation of the Scale values until the camera is in the correct position. This will cause overlaps and holes in the image which look odd at first but then get resolved as the scale animates to the proper size.

2- The concept is that the camera will glide through the scene and the pieces of a layer will fly to position looking odd at first but as the camera continues to move you can suddenly make sense out of the layer's pieces. The camera continues to move and the picture falls apart, so then the pieces fly to a new position ahead of the camera. This new position also doesn't make a complete picture until the camera flies by it and then the image resolves again. The camera pauses momentarily in front of each picture before continuing on its course.

# ZW Layer Fit & Face

## Fit & Face - Purpose

The four Fit & Face tools enable you to quickly make any 3D layer, or group of layers, rotate to face towards the camera, and can adjust their size to fit the comp window exactly. There are several methods of doing this, each one with distinct advantages based on the type of animation you are doing. The key word here is “exactly”. When a 3D layer is fit to the screen it will match perfectly with a 2D version of that layer so you can cut to the 2D layer without so much as a pixel’s shift.

“**Face**” lets you select any number of layers and rotates them to all face a target layer. The target layer can be any camera, light or image. This is not the same as AE’s auto-orient feature where once it’s turned on it remains on. The Face button adjusts the orientation only when you click it so you can set keyframes. It does not prevent you from doing other things to the layers.

“**Fit Layer to View by Scaling**” moves a layer only enough to center it and then scales it to exactly fit the view.

“**Fit Layer to View by Translating**” moves a layer closer/further to the camera in order to fit it exactly into the view.

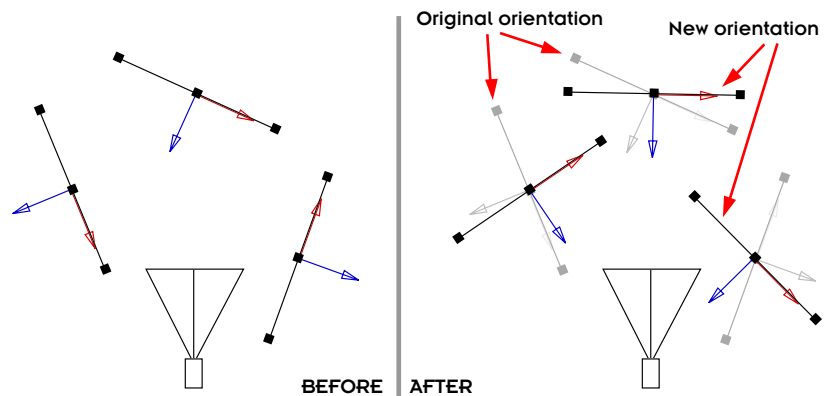
“**Fit Camera to Layer**” leaves the layer where it’s at and moves the camera closer/further to the layer until the layer fits exactly within the camera’s view.



## Fit & Face - Feature Highlights

### Face

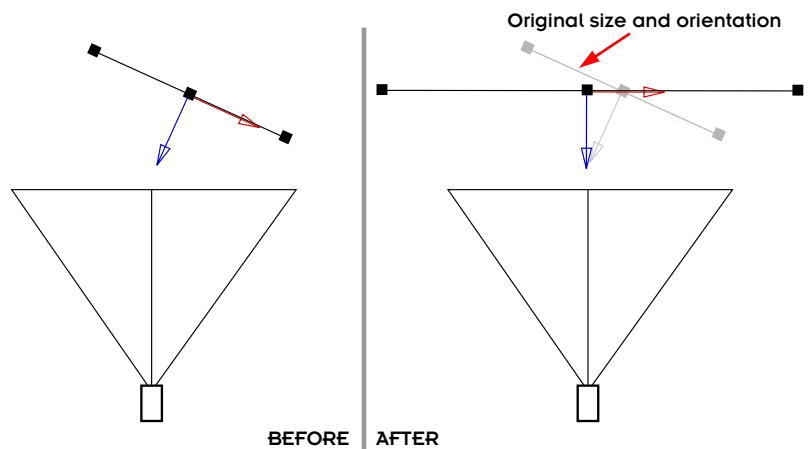
Face only does rotations. Using this tool with only one 3D layer selected will rotate that layer to face the camera or the center of any layer selected in the pop up menu. The position of the layer doesn’t change, only the rotation values. If multiple 3D layers are selected this tool will rotate all selected layers in one step. Each 3D layer is rotated around its own anchor point.



Notice how only the rotations have changed.

### Fit Layer to View by Scaling

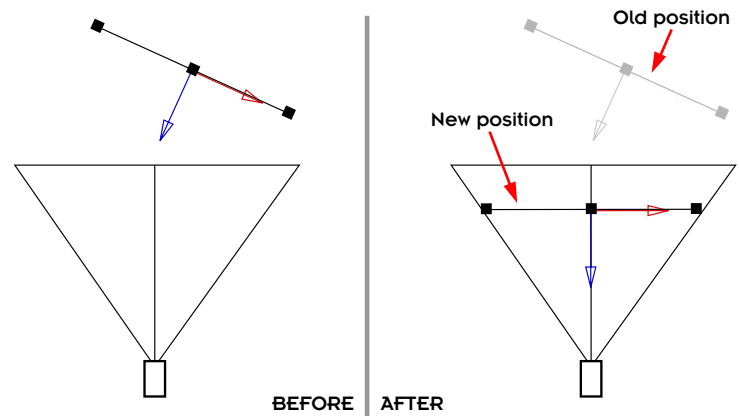
Fit by Scaling does both rotation and scaling. It rotates each selected 3D layer to face the camera, and then scales it to exactly fit in the current view. If the layer isn’t exactly in the center of the view it will also be moved but it stays the same distance away from the camera.



Notice how the layer has been made larger to fill the camera's view.

## Fit Layer to View by Translating

Fit to View by Translating makes the 3D layer fit the camera view but does it by moving the layer, not by scaling it. This means the layer may be moved out of its current position to make it closer to the camera so it will fill up the comp window.

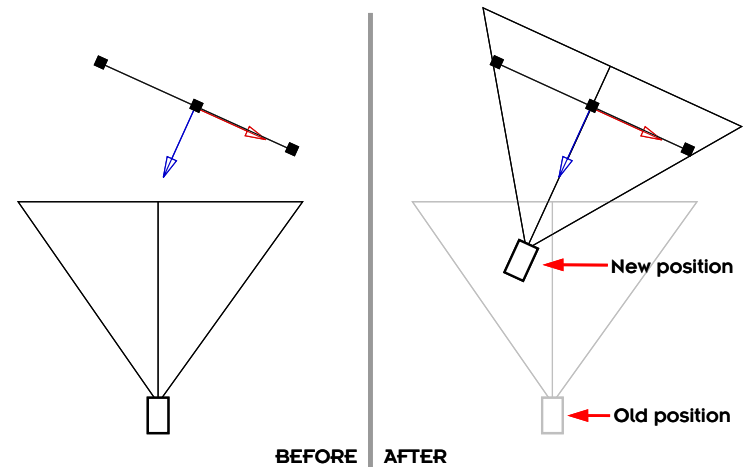


Notice how the layer's size is kept the same, only its position is changed to make it fill the camera's view.

## Fit Camera to Layer

Fitting the camera to a layer is a reverse type of fitting. Rather than moving and scaling the layer, the 3D layer is left in position and the camera is first rotated so it's looking directly at the layer and then moved closer until the layer exactly fits the comp window.

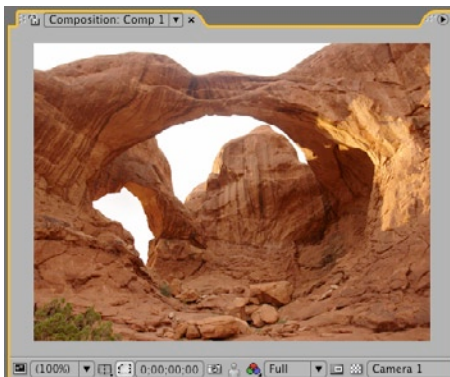
This method is useful when you have artfully arranged the layers in 3D space and then need to animate the camera to fly from spot to spot.



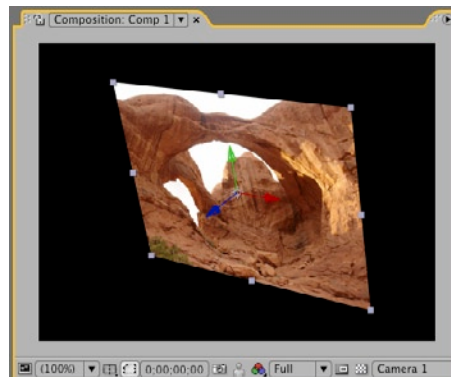
Notice how the layer stays in the same position. This time it's the camera that moves to make the layer fill the view.

## Fit & Face - Design Ideas

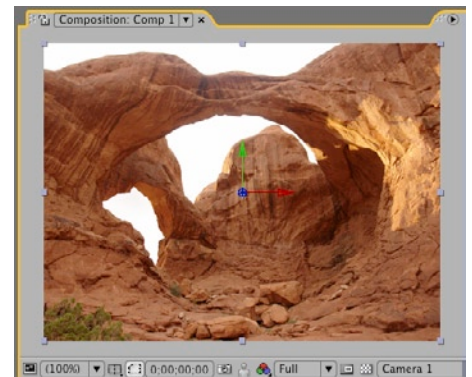
- 1- The Fit and Face tools are very useful for creating transitions between video clips. In order to cut to the video, the AE layer needs to register exactly with the video source. It is very difficult to make a 3D layer hit exactly the right location but these tools make it one-click simple.
- 2- The Fit and Face tools also work well with the Layer Manipulator. For instance once you use Layer Manipulator to get the layers almost exactly right, you can use the Fit tools to do the last little bit of adjustment to align the layers perfectly to the camera.



This is the 2D image before it becomes 3D.



Now the image is 3D and moved out into space.

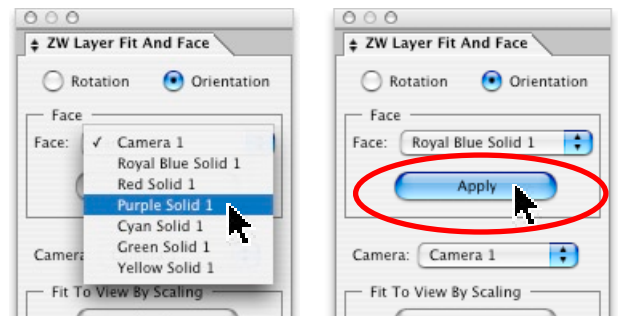


With one click Fit & Face moves the 3D image so it perfectly matches the original 2D version.

## Fit & Face - Example Workflow

### Making A Layer Face A Camera

- 1 - In the AE Timeline, select the 3D layers you want to face toward a camera or another layer.
- 2 - In the Face section of the Fit & Face panel, select the camera or layer you want the selected layers to face.
- 3 - Click the Apply button in the Face section.  
This will rotate the selected layer(s) so it faces the target layer.



Choose the camera or other layer that you want the selected layers to face...

...then click the Apply button.

## Fit & Face - Example Workflow

### Making A Layer Fill A Camera's View

- 1 - In the AE Timeline, select the 3D layer you want to completely fill the camera's view.
- 2 - In the bottom part of the Fit & Face panel, select the camera you want the layer to be fit to.
- 3 - Click the Apply button next to either Fit By Scaling or Fit By Translating.

This will move and scale the layer so the layer fills the camera's view.



Select the camera that the selected layer will be fit to...

...then click the Apply button.

## Fit & Face - Example Workflow

### Fitting A Layer By Moving The Camera

- 1 - In the AE Timeline, select the 3D layer you want to completely fill the camera's view.
- 2 - In the bottom part of the Fit & Face panel, select the camera you want the layer to be fit to.
- 3 - Click the Apply button next to the Fit Camera To Layer button.

This will move the camera so the layer fills its view.



Select which Camera will be moved...

...then click the Apply button to fit the camera to the selected layer.