


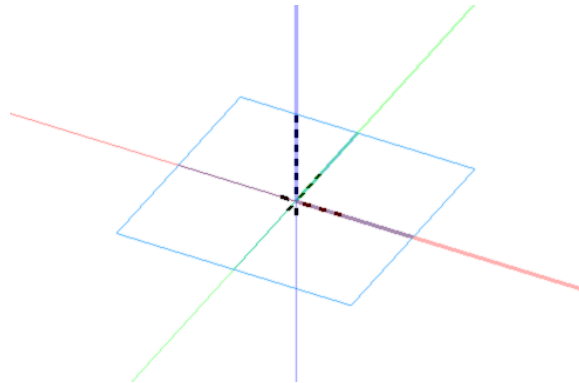
WORKING PLANES

Vectorworks Tutorial by [Andy Broomell](#) © 2020.
Green text indicates advanced or supplementary notes.

1

PLANES OVERVIEW

- Every Design Layer has a 3D plane associated with it, known as the **Active Layer Plane**, or Ground Plane. This is +0” on the Z axis.
 - If “Show Grid” is on  (not typically recommended), the ground plane is displayed as a blue frame:

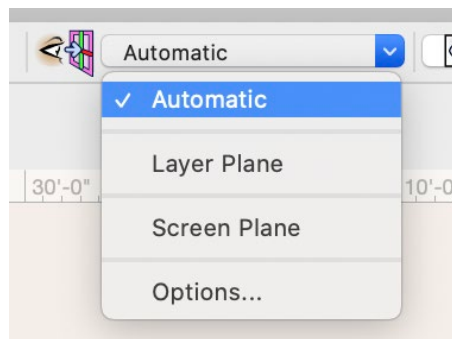


- When modeling in 3D, there is always something called a **Working Plane**, which is the current plane upon which you’re working.
- By default the Working Plane is the Active Layer Plane, but when working in 3D it’s helpful to be able to change the Working Plane to other orientations.
 - The Working Plane can be moved, aligned to different objects or surfaces, and rotated, unlike the Active Layer Plane, which remains flat and centered at the drawing origin.
- This tutorial will cover how to create, modify, and save Working Planes, allowing you to work more efficiently in 3D.

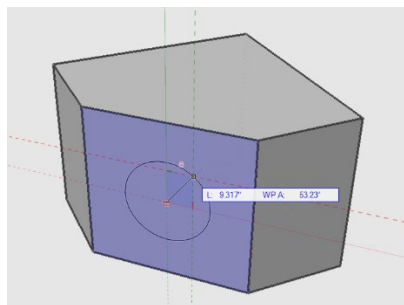
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AUTOMATIC PLANE

- As previously covered, the **Current Plane Dropdown** has options for “Screen Plane” and “Layer Plane”. Certain tools also allow the use of “**Automatic Plane**” which automatically snaps to the flat surfaces of 3D objects.
 - “Automatic Plane” only appears as an option when you’re in a tool that can use it, such as the Rectangle tool.






- When engaged, Automatic Plane allows you to hover over flat surfaces which will highlight in a purplish-blue. When you draw a shape it'll be created on the same plane as the highlighted face.

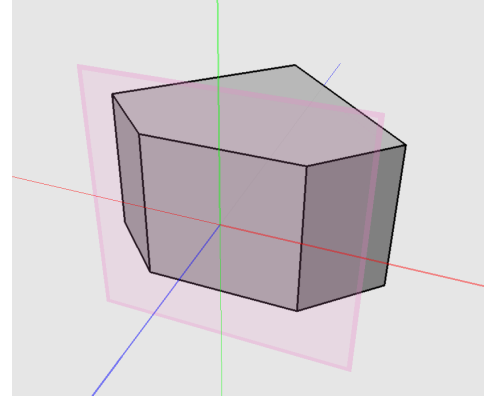


- Automatic Plane is essentially a quick and temporary working plane. Next we'll look at manually setting Working Planes for more complex work.

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SETTING A WORKING PLANE

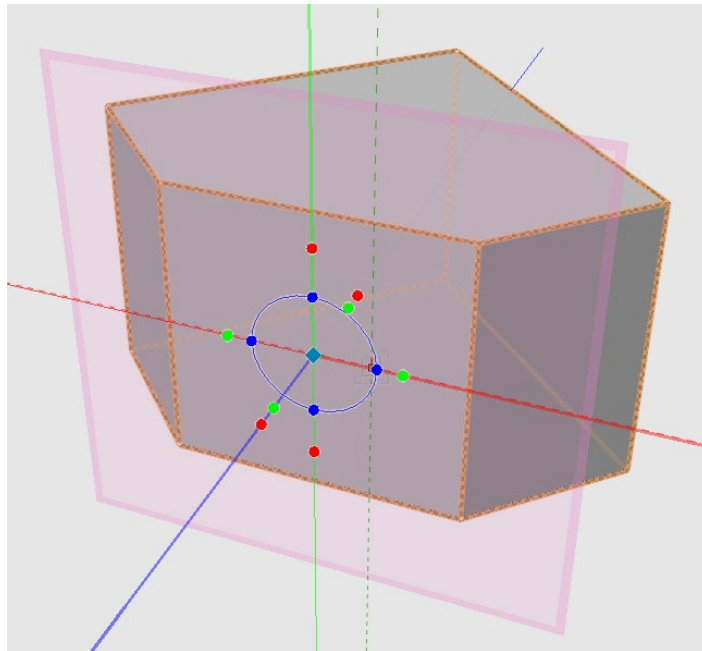
- A Working Plane can be set with the **Set Working Plane** tool , located in the 3D Modeling toolset , or keyboard shortcut **Shift+1**.
- Using the **second mode** , simply hover over the 3D face of an object until it highlights, then click.
- A **pink** frame will appear. This is the custom **Working Plane.x**
 - Notice that the Active Plane dropdown now says “Working Plane”.
 - The red, blue, and green axes indicate the coordinates of the working plane.
 - The “**top side**” of the Working Plane (positive Z) displays with a solid pink border.
 - The “**bottom side**” of the Working Plane (negative Z), displays with a white unfilled border.
- As you continue working, tools will now snap to this plane rather than the Active Layer Plane.
- This plane will continue being the Working Plane until a new one is set, or until you switch the plane in the Current Plane dropdown, or until you switch to Top/Plan (which resets the Working Plane to match the Active Layer Plane).



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MODIFYING A WORKING PLANE

- You can interactively alter the Working Plane by clicking on one of the three colored axes with the Selection Tool, causing red, blue, and green handles to appear which can be rotated to change the orientation of the Working Plane.
 - It may be helpful to hold the **tilde key** (~) to disable snapping.

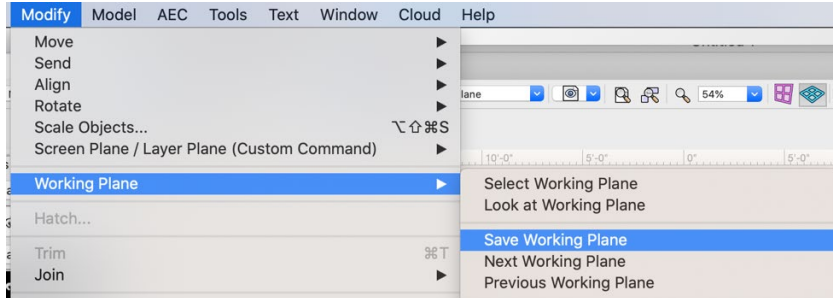


- You can move the central teal diamond to change the “origin” of the Working Plane.
- There are also numerous commands under **Modify > Working Plane** which can help you get the Working Plane where you want it to be.

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SAVING A WORKING PLANE

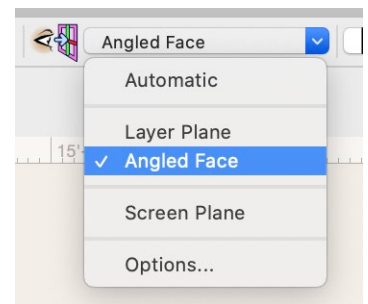
- If you're going to be working with a Working Plane more than once, it's helpful to Save it for future use.



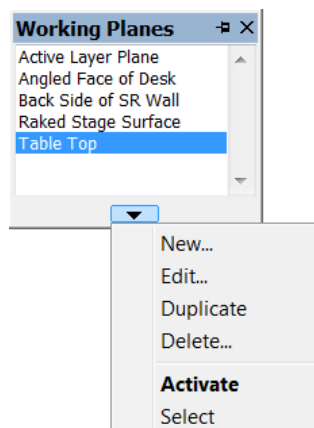
- After you've set a Working Plane, go to **Modify > Working Plane > Save Working Plane**.

- Give it an appropriate **name** and click OK.

- Now the Working Plane will appear in the **Current Plane dropdown list**, and it can be selected at any point to get back to it.







- If you're working with Working Planes a lot, it can be helpful to turn on the **Working Planes palette** by going to Window > Palettes > Working Planes. This will give you a palette with a list of all the saved Planes (double click them to activate), plus a flyout at the bottom for saving and modifying Planes.




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VIEWS IN RELATION TO WORKING PLANE

- To look straight at your Working Plane, click the “**Look at Working Plane**” button  located to left of the Current Plane dropdown.
 - Usually more handy when working in **orthogonal** projection.
 - Sometimes the resulting view will be rotated 90° from what you expect. To fix this, use the **Rotate View** tool , located in the Visualization tool palette , to rotate your view perpendicular to your computer screen.
 - Click one of the mode buttons  to rotate your view.
- Another important function that ties into Working Planes is the use of the pink and blue buttons next to the Current View dropdown list:



- By default this is set to the **blue button**, meaning that the views in the dropdown are in relation to the **Active Layer Plane**.
- Switching it to the **pink button** will cause the views in the dropdown to be **in relation to the Working Plane** instead of in relation to the Active Layer Plane.
- The pink and blue buttons are also applicable when in rotated views (for example, editing inside a rotated symbol instance, or when using the Rotate Plan function  45.00°).