user guide

version 2.0

ProModel®

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Welcome to 3D Animator

ProModel 3D Animator is a post-simulation add-in for ProModel products (ProModel, MedModel, and ServiceModel). Using a 3D animation script generated by your ProModel product, you may now view any simulation in a fully-configurable, 3-Dimensional layout.
Major advantages of 3D Animator over ProModel product's traditional 2D animation are:

- All objects, including the layout, are now rendered three-dimensionally, allowing the animation to closely reflect the reality that your model is simulating.
- Objects automatically orient themselves on paths and conveyors to face the direction of travel.
- Instead of being limited to only a top view, you can now view the animation from any angle.
- Animations can be choreographed to automatically pan, zoom, change animation speed, and track objects as they move during animation.
- Since 3D Animator runs post-simulation, the animation is no longer tied to the running simulation. The animation can be sent to others and viewed without requiring them to run the simulation.

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System Requirements

The following sections indicate the minimum hardware, software, and display requirements for 3D Animator.

Hardware and Software

The minimum hardware and software requirements are:

Minimum
Pentium 4 - 3.0 GHz
1 GB RAM
2 GB Available Hard Drive Space
Windows 7,Vista, XP
64 MB Video RAM
Either Nvidia GeForce 2 or better, or ATI Rage Fury or better
DirectX 9.0c

Other Requirements and Recommendations

Other requirements and recommendations include:

- Adobe Acrobat Reader, Version 5.0 or later to read the .pdf files installed with 3D Animator.
- Graphics set to 16 bits color (high color) or greater.
- Latest video card drivers. Please check with your video card manufacturer for driver updates.

Getting Started with 3D Animator

Creating and viewing 3D animations is a simple five-step process, which begins by running your simulation in your ProModel product (ProModel, MedModel, or ServiceModel) and ends when you view your configured 3D animation in 3D Animator.

The information in this chapter will give you the step-by-step information you will need to view your simulation's animation in 3D animator.

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Step 1: Build Your Model with 3D in Mind

Remember that with 3D you will be able to see and do things you were unable to do with 2D animation. Below are some tips to follow when building a model to be animated later in 3D.

Develop the model as though you are looking at a top or plan view of the layout. This will facilitate the default placement of the 3D graphics.

2D graphics get replaced by corresponding 3D graphics with the same name so you can plan in advance which 3D graphics get used by synchronizing the graphic names. Of course you can also change whichever 3D graphics get used once the 3D layout is created.

With auto-orientation of entities and resources in 3D you will not need to use GRAPHIC statements in node logic if it is only used to change graphic orientation. On the other hand, if you are depending on auto-orientation for orientating a resource, you may need to add additional path segments to get the resource facing the right direction at a location.

Don’t spend too much time adding graphic embellishments or background graphics to the model in 2D since you will have to do it over in 3D.

Don’t spend lots of time lining up variables to create a scoreboard in 2D since 3DA automatically creates a scoreboard in which all variable values are displayed.

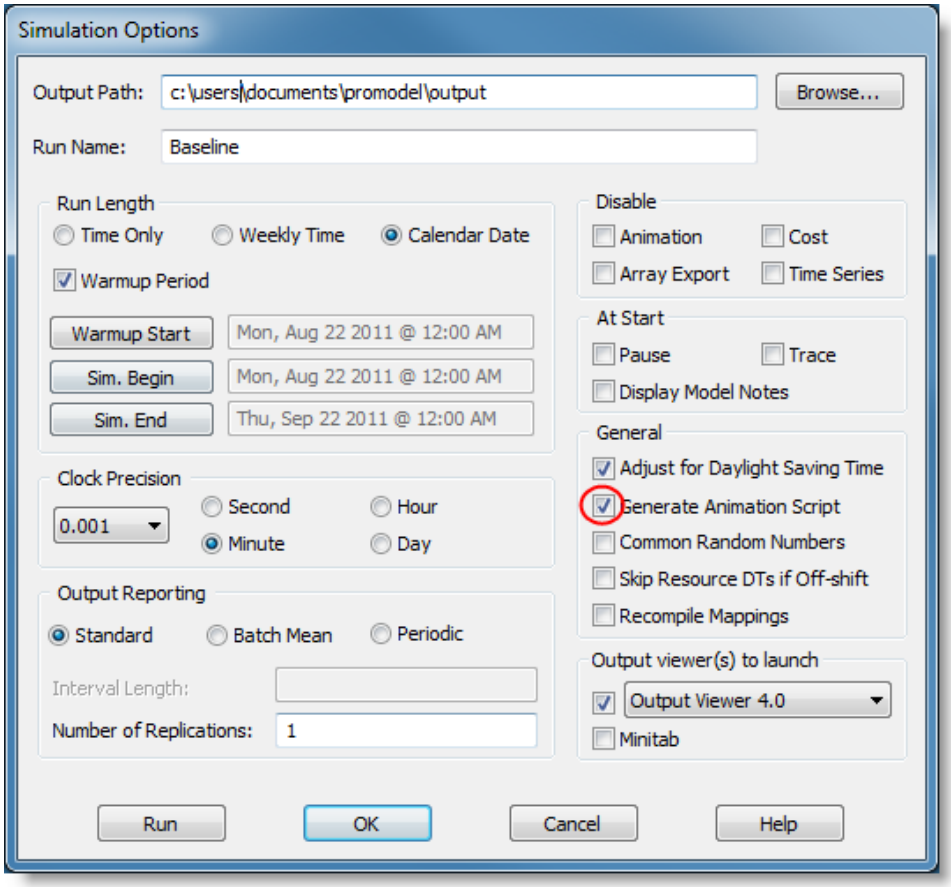
Step 2: Generate the Animation Script

3D animation scripts are created in your ProModel Product during simulation, and then viewed later in 3D Animator.

ProModel, MedModel, and ServiceModel version 6.2 and greater can generate 3D setup files and animation scripts. The setup (.sup) file defines all of the 3D graphics to use in the animation as well as their layout positions. Animation (.anim) script files contain a record of all the graphical events that occurred during the simulation.

How to Generate a 3D Script in Your ProModel Product

1. Open any model file in your ProModel product.
2. In the Simulation menu, choose the "Options" item. This will open the Simulation Options dialog.
3. Check the "Generate Animation Script" option:



4. Click Run to start the simulation. You may also click the OK button to save the change to the Simulation Options dialog, and run the simulation later.

Please Note

If the "Disable Animation" option is checked, you will not be able to select the "Generate Animation Script" option. To generate the 3D script without viewing the 2D animation during simulation, turn off the 2D animation as soon as the simulation starts.

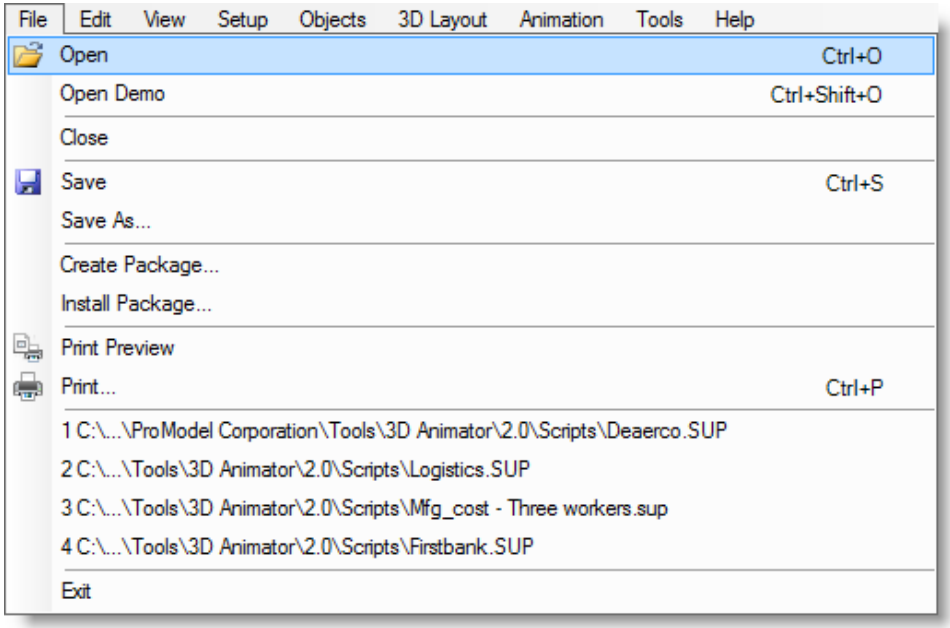
5. If you have previously run the simulation with 3D script generation enabled, you will prompted to overwrite the setup file. Choosing "Yes" will overwrite your setup file, and you will lose any custom setup information. Choosing "No" will retain your custom setup information, and synchronize the setup file with any model changes. See Synchronization on page 64 for more information.
6. As the simulation runs, a 3D setup file and an animation file are generated and saved in the same directory on your computer as the model file. These files have the same name as your model file, but with the extensions .sup and .anim.
7. When the simulation is complete, your 3D script will be completed as well. If you choose to cancel the simulation, the 3D script will be complete up to the time you canceled the simulation.
8. At this point you may move to the next step,Step 3: Opening the 3D Setup File in 3D Animator on page 7, or you may continue to work on your model. Whenever you resimulate, the 3D animation script will be updated.

Step 3: Opening the 3D Setup File in 3D Animator

Now that the 3D setup file and animation script have been created by your ProModel product, you will open the setup file in 3D Animator.

The 3D setup file must be opened in 3D Animator prior to running the animation.

1. Open 3D Animator. You may do so from the Windows Start menu, or from the toolbar shortcut in your ProModel product.
2. From the 3D Animator menu bar, choose File > Open.



3. Browse to the location of the .sup file for the model you have previously simulated. The .sup file will have the same name as your model and be in the same directory.
   There are also demonstration files available from the Scripts directory within the 3D Animator directory.

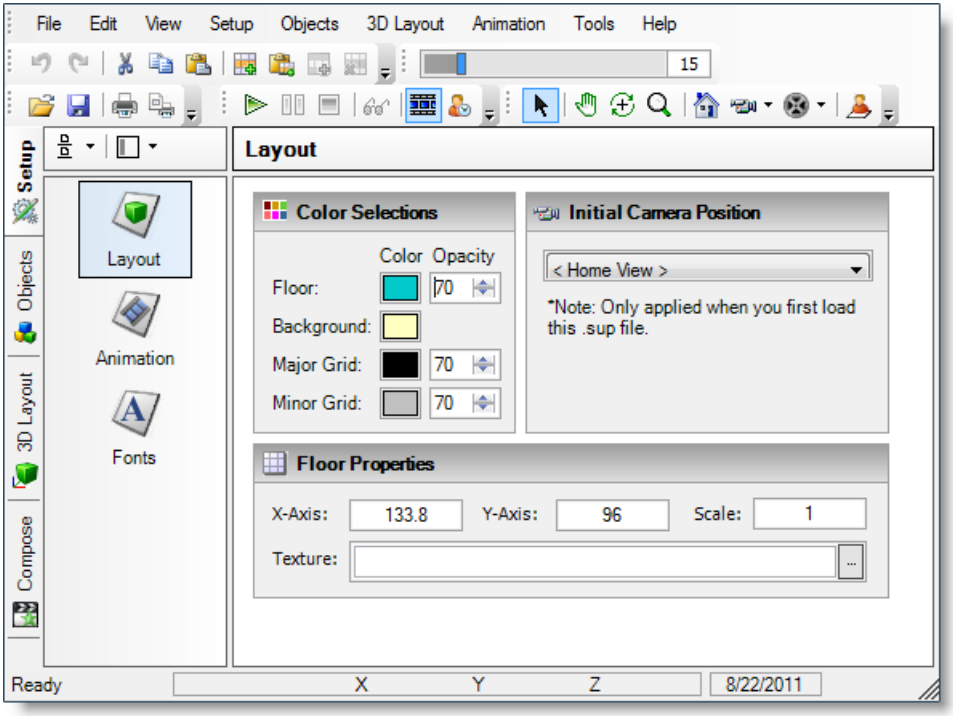
You are now ready to touch up your 3D layout in the next step.

Please Note

You do not have to open or load the .anim file. It will be automatically used by the .sup file in 3D Animator.

Step 4: Touching Up Your 3D Layout

With your setup file loaded, your 3D Animator should look similar to the following:



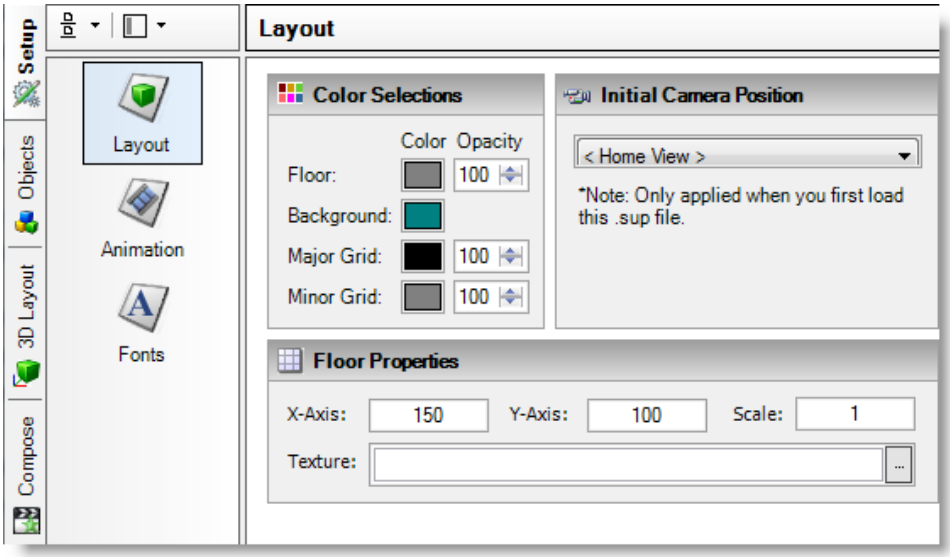
The default configuration information is generated using 3D Animator defaults and the information captured from your model. Therefore, you will not be required to make changes to your 3D layout in order to view the 3D animation.

However, entering customized configuration information can enhance your 3D animation, and is necessary if you wish to add z-axis information to the animation.

You are now ready to begin configuring the .sup file that you have loaded.

Defining Setup information

Click on the setup navigation tab, which is located along the left side of the 3D Animator window.

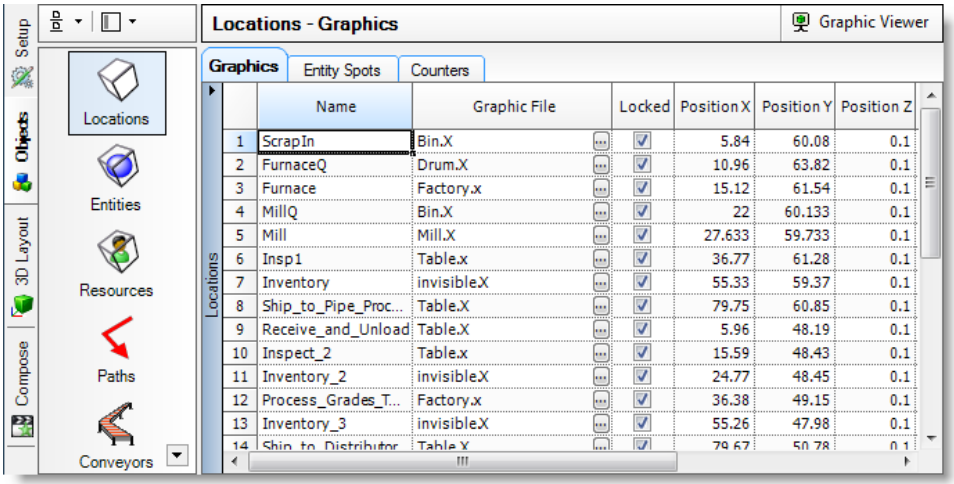


The Setup navigation tab allows access to three categories of setup information, where you define initial settings, such as layout color, floor size, animation start time, and font information.

For more information on the option available from the Setup navigation tab, see Setup Navigation Tab on page 40
Proceed to Defining Object Information

Defining Object information

Click on the Objects navigation tab.



Here you will see that all of the objects in your simulation have been imported into 3D Animator and categorized by type.

By switching to different categories, you can view the 3D information for your objects. This information includes:

- Default position settings that were captured from your ProModel product's 2D layout. Your objects will appear in the 3D layout exactly as in the ProModel product's layout. Additional 3D position settings along the z-axis must be added manually.
- Object graphic information. When your objects are captured into the .sup file during simulation, a corresponding 3D graphic file will be added to the 3D layout for the objects.
- Scale settings, which control the size of the 3D objects.
- Other object specific information, which includes conveyor width and height, label colors, counter orientation, etc.

For complete information on each column in the Object navigation tab, please see Objects Navigation Tab on page 43.

Step 5: Viewing Your 3D Animation

When you are ready to view the 3D animation, simply click the Play button on the toolbar. The layout will switch to the 3D Layout view and your animation will begin to run.

As the animation is running you may do the following:

- Pause/Stop/Resume the animation using the transport buttons (play, pause, stop) in the toolbar.
- Speed up or slow down the animation using the slider in the toolbar.
- Move the camera or change its view using the pan, rotate, and zoom button in the toolbar, or selecting views from the Animation menu.
- Set the camera to track objects as they move during animation by clicking on an object and pressing *Ctrl+T*.

For more information on the 3D animation, as well as composing custom camera shots during animation, see 3D Layout Navigation Tab on page 56 and Compose Navigation Tab on page 59.

3D Animator Environment

This chapter explains the environment or interface you will use while configuring and viewing 3D animations.

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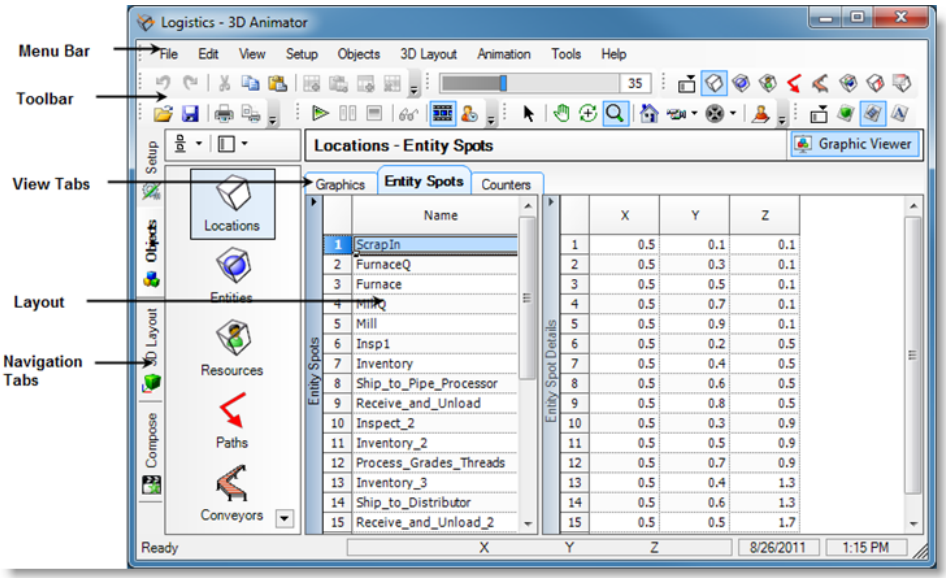
Environment Overview

The 3D Animator window is divided into the following areas:



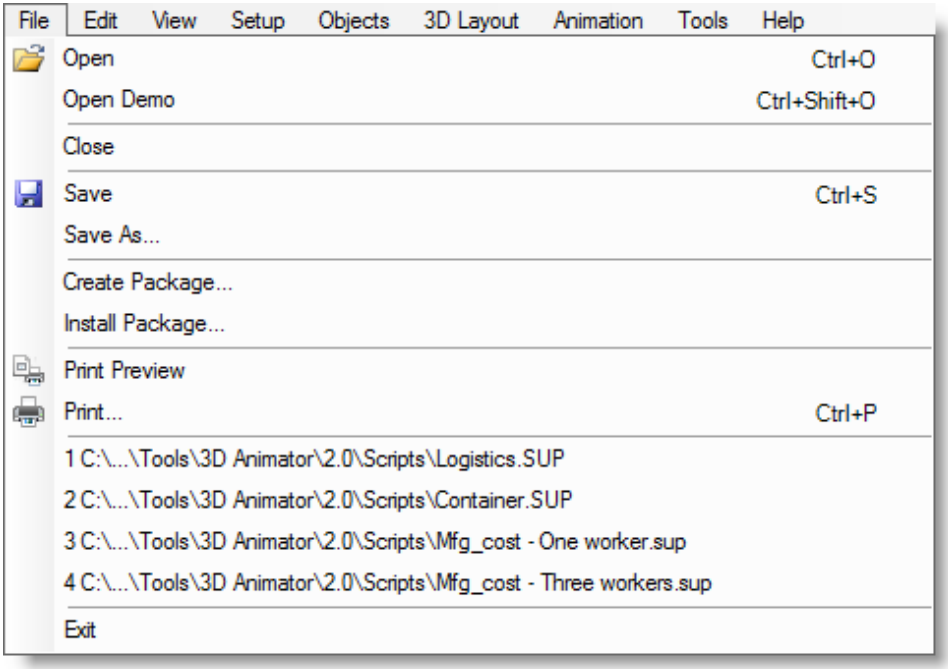
- **3D Animator Menu Bar (Menu Options on page 15):** Offers access to all the modules and options you will need to configure and view your 3D animations. Many of the menu options can also be accessed through the toolbar or with the navigation tabs.
- **3D Animator Toolbar (Toolbar Options on page 28):** Allows quick access to several of 3D Animator's most often used options.
- **Navigation Tabs (Navigation Tabs on page 29):** Opens modules in the Layout, which you use to configure and view your 3D animations. The fields accessible through the navigation tabs are also available from the menu.
- **Layout (Layout View on page 30):** The main area of the 3D Animator environment. Here you will enter the data needed to configure your 3D animations, and then view the animation.
- **View Tabs:** In the Objects navigation tab, the Locations and Resources categories have separate sub-views that are accessible using these tabs.
- **Right-Click Menus (Right-Click Menus on page 33):** Right clicking on various areas of the layout will open a right-click menu, which offers convenient access to options pertaining to that particular area.

Menu Options

The 3D Animator Menu Bar gives you complete access to all of the options and modules you will need as you configure your 3D animation.

Please make a note of the shortcut keys for the options in the individual menus. Shortcut keys can greatly accelerate the viewing and configuring of your animations.

File Menu



The File menu allows access to File Management and Print options.

- **Open/Close:** Allows you to browse for a .sup file to open, or close the current .sup file.
- **Open Demo:** Shows a list of demonstration animations installed with 3D Animator.
- **Save/Save As:** Saves the current .sup file, or saves it as a new file.
- **Create Package:** Opens the Package Creator, which allows you to bundle into one single .3dpkg package file your .sup file, .anim file, and any other files associated with your 3D animation, such as graphic files.

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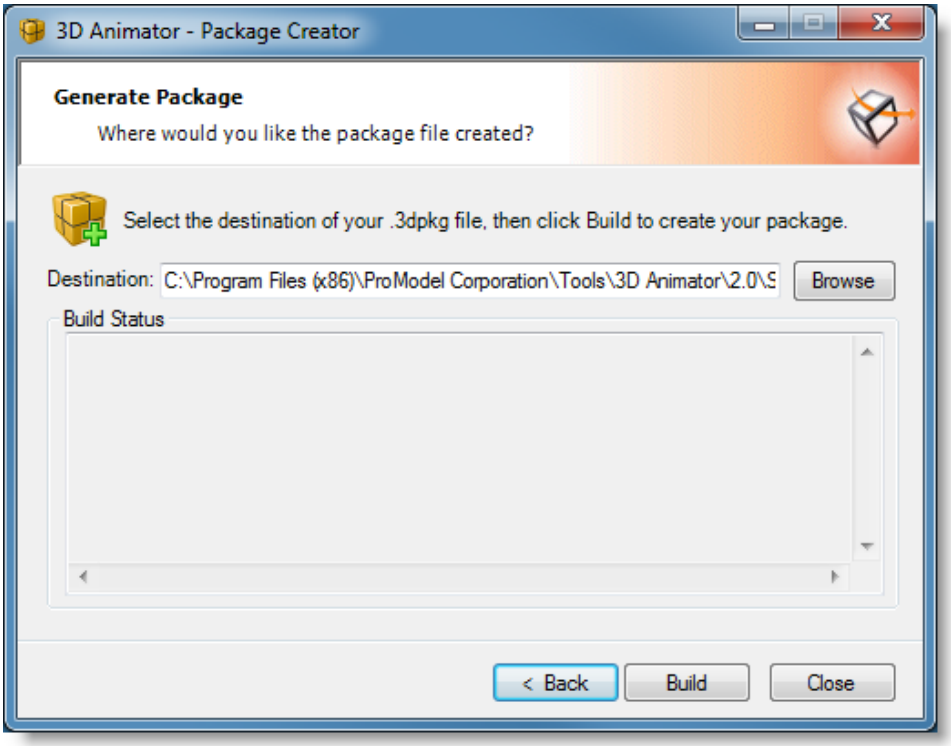
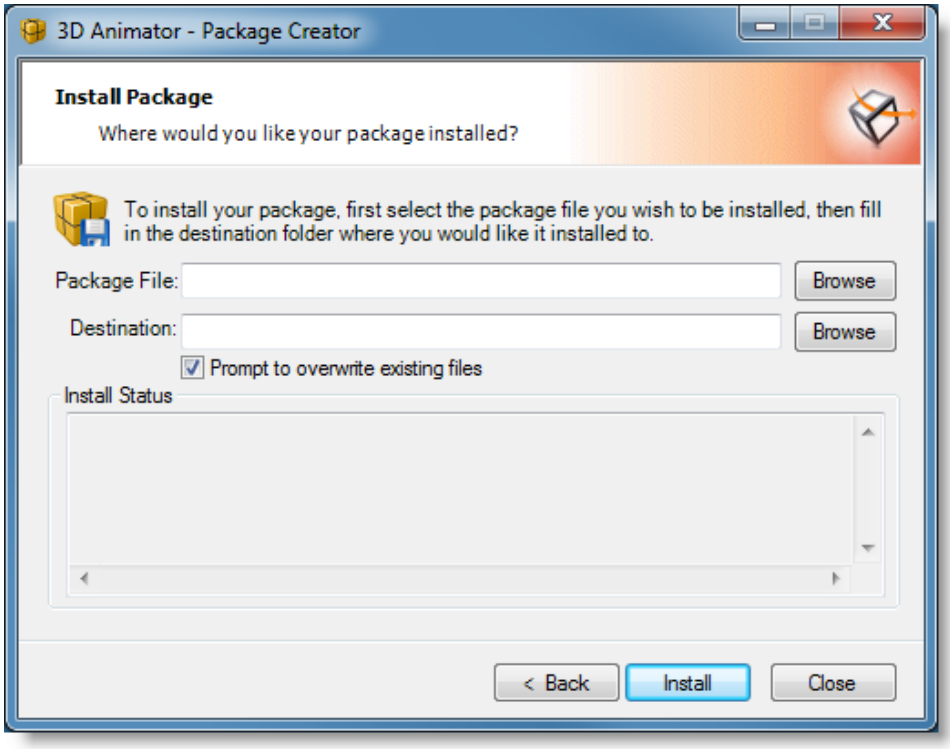


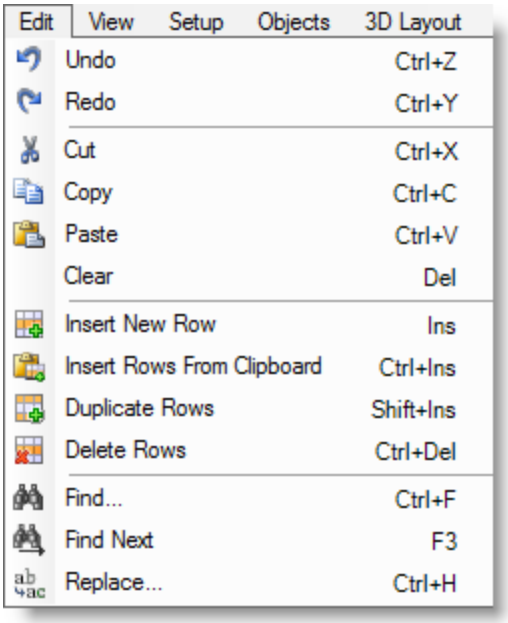
To create the package files, simply enter the location and name of the package file, and click the Build button. The .3dpkg file will be created and saved to the desired location.

- **Install Package:** Allows you to install all the components of a .3dpkg file onto your computer. Simply browse to the location of the package file, and then choose a single destination for all the files contained in the package file.



- **Print Preview/Print:** Allows you to print the contents of the data cells that are currently displayed in the main layout. If there are no data cells displayed, for instance, when you are viewing the 3D layout in the main layout, this option will not be available.
- **Recently Viewed Files:** A list of the most recently loaded .sup files is displayed above the Exit option.
- **Exit:** Select to quit 3D Animator. If there are unsaved changes to the .sup file, you will be prompted whether to save the current file.

Edit Menu

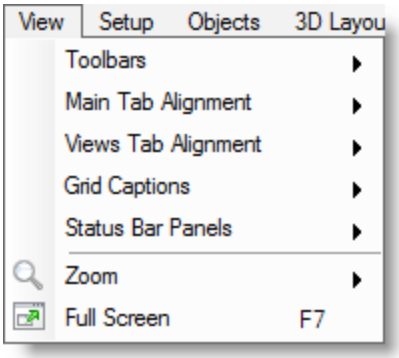


The Edit menu allows you to manipulate the data and records contained in the grids within the Layout. Using the tools in the Edit menu can greatly accelerate the populating of the grids in 3D Animator, as information that is repeated throughout the file can be copied and pasted to fill in cells in the grids.

- **Undo/Redo:** Allows you to undo a change you made in 3D Animator or restore (redo) that change if you have undone it.
  Changes that you can Undo and Redo include cell edits, row or column reordering, column resizing, or column hiding. Changes that affect entire records cannot be undone, and include record deletes, duplicates, or inserts.
- **Cut**: Copies the contents of the highlighted cell or cells to the clipboard, and then removes the contents of the cells. You will be prompted if the selected cell or cells can not be cut.
- **Copy**: Copies the contents of the highlighted cell or cells to the clipboard.
- **Paste**: Copies data on the clipboard to the selected cell or cells. If data being pasted from the clipboard contains data from multiple cells, pasting will attempt to populate the same number cells in the layout with the number on the clipboard starting at the selected cell.
- **Clear**: Removes the contents of the highlighted cell or cells. You will be prompted if the selected cell or cells can not be cleared.
- **Insert New Row:** Inserts a new record and row into the grid immediately above the currently selected record. The record will automatically be named a default name according to the area it is inserted into, and default information will populate its columns where appropriate.

- **Insert Rows From Clipboard:** Inserts a new record above the currently selected record. The new record's columns will be populated with any data on the clipboard. If there is no data on the clipboard for one or more columns in the new record, default data will populate theses column.
- **Duplicate Rows:** Makes a copy of the currently selected record row, and adds it as a new record to the bottom of the record list.
- **Delete Rows:** Deletes the selected record row from the record list. You will be prompted for confirmation when deleting a record.
- **Find/Replace:** Searches the currently selected table for the inputted text, and optionally replaces it with the specified text.

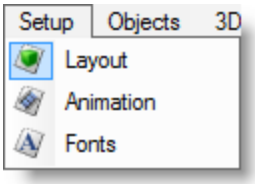
View Menu



The View menu allows you to customize many of the areas in the 3D Animator environment.

- **Toolbars:** Allows you to toggle individual toolbars on and off within the main 3D Animator toolbar. By default the File, 3D Layout, Animation, and Edit toolbars are toggled on. The other toolbars: Setup and Objects can be toggled on if desired.
- **Main Tab Alignment:** Allows you to reposition the four navigation tabs. By default the main tabs are arranged along the left side of the 3D Animator window.
- **Views Tab Alignment:** In the Objects layout for Locations and Resources, there are View tabs, which allow access to various levels of information for those areas. You may reposition all these View tabs in the layout with this option.
- **Grid Captions:** Allows you to toggle the Grid Caption text in the Objects tables on and off. To completely hide the Grid Captions, use the corresponding option in the Options dialog. See Tools Menu on page 25.
- **Status Bar Panels:** Allows you to toggle the panels in the Status bar on and off.
- **Zoom:** Changes the size of the currently selected table.
- **Full Screen:** Displays the Layout in a full-screen dialog. If you are using a grid, the highlight grid will be shown full screen. Close the dialog to return to the normal view of 3D Animator.

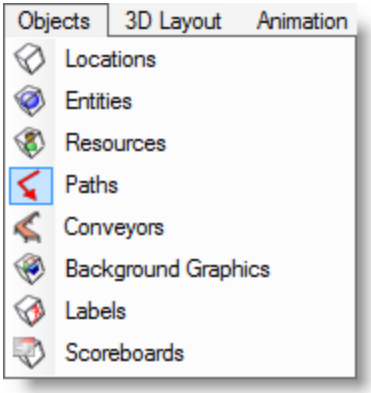
Setup Menu



The options in the Setup menu are the same as displayed when you select the Setup navigation tab.

For a description of the options available from the Setup menu, see Setup Navigation Tab on page 40.

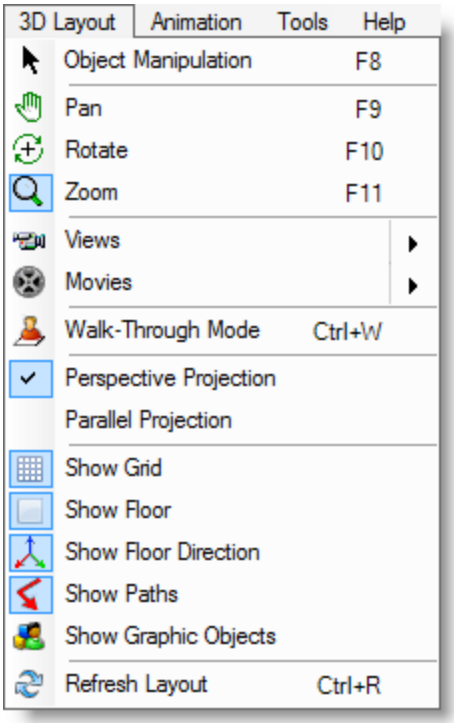
Objects Menu



The options in the Objects menu are the same as displayed when you select the Objects navigation tab.

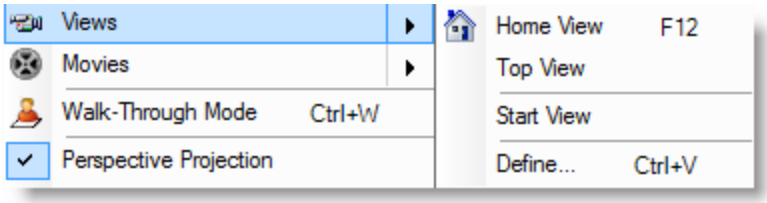
For a description of the options available from the Objects menu, see Objects Navigation Tab on page 43.

3D Layout Menu

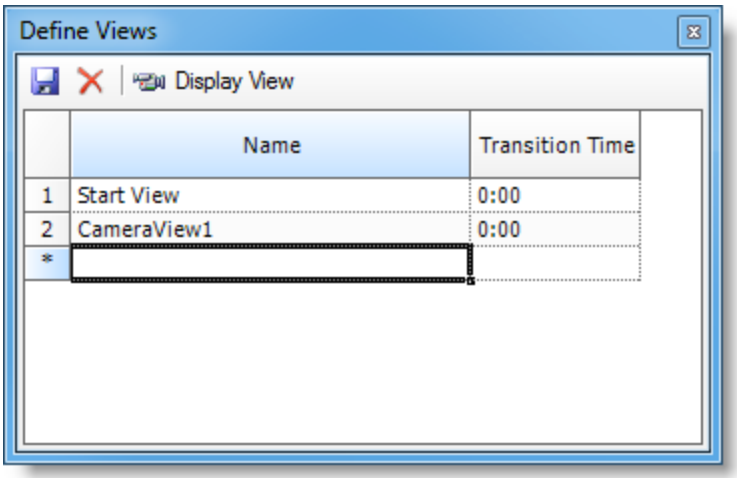


The 3D Layout menu gives you access to controls and options you use when you are in the 3D Layout navigation tab.

Object Manipulation: Allows you to select and move objects in the 3D Layout view. When no object is selected, this tool will pan the view. For more information see Manipulating Objects in the 3D Layout on page 57.
Pan: Changes your cursor to the Pan tool, which allows you to click and drag on the 3D Layout to move the camera laterally.
Rotate: Changes your cursor to the Rotate tool, which allows you to click and drag on the 3D Layout to rotate the view around the camera.
Zoom: Changes your cursor to the Zoom tool, which allows you to click and drag on the 3D Layout to move the camera closer to or further away from the point it is facing.
Views: Allows access to custom defined views, as well as the factory-set “Home” and “Top” views. Move the mouse over the arrow to see a list of available views.



- **Home View:** A factory set view that shows the layout with the floor directions in the lower-left corner.
- **Top View:** A factory set view that shows the layout from an aerial view.
- **Start View:** Incorporates the view of the layout that is set for the start of the animation.
- **Define...:** This option opens a dialog for defining and restoring custom views. To open the Define Views dialog, select Views from the 3D Layout menu, the toolbar, or the Define option from the view list.



- **Name:** Enter a name for the custom view.
- **Transition Time:** Enter a transition time, which determines how long the camera will require to move from its current position to the saved view.

  This time is based on the animation clock, and the format for this field is Hours:Minutes:Seconds, starting from the right. For example, an entry of 1:15 will require one minute and fifteen seconds to transition.
  Entering 0:00 in this field will cause the camera to move immediately to the saved view.

  How to Define a View:

1. Position the camera where you would like to save it for the view.
2. Enter a name for the view.
3. Enter a Transition Time.
4. Click the save icon in the dialog's toolbar.

How to Load a View

- Select the defined view from the 3D Layout menu - Views.
  Or, select the defined view from the Views toolbar option.
  Or, within the Define Views dialog, select the Display View option.
  Or, within the Define Views dialog, double click on the number next to the view you wish to load.

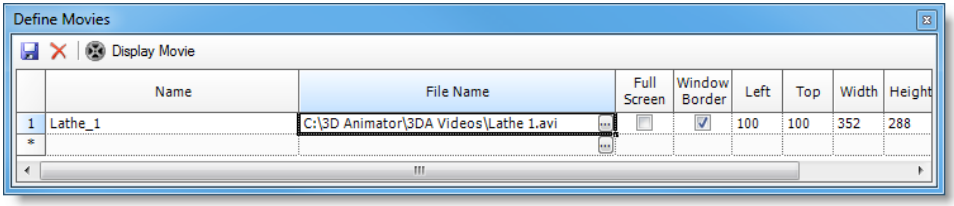
Movies: Allows access to custom defined movies that can be inserted as events into a 3D Animator presentation.

How to Load a Movie

1. Select the defined movie from the 3D Layout menu - Movies.
   Or, select the defined movie from the Movies toolbar option.
   Or, within the Define Movies dialog, select the Display View option.
   Or, within the Define Movies dialog, double click on the number next to the view you wish to load.

How to Define a Movie

1. Select **Define...** from the **3D Layout menu - Movies** to launch the Define Movies dialog.
   Or, press **Ctrl + M** to launch the Define Movies dialog.
   Or, select **Define...** from the **Movies** toolbar option to launch the Define Movies dialog .



2. Enter a name for a movie under the **Name** column in the Define Movies dialog.
3. Select a movie from a file location by clicking the browse button under the **File Name** column. You may also go back to the **Name** column and rename the movie.
4. Define how the movie will be displayed.
   - **Full Screen:** Check this box to view the movie event in full screen.
   - **Window Border:** Check this box to customize the size of the window and location based on the Left, Top, Width and Height settings defined**.**
   - **Left/Top:** When the movie event opens in the application window, it will appear in a location based on the selected amount of pixels away from the left and top window border. For example, if the value of Left is 100 and the value of Top is 100, then the movie event frame will show up 100 pixels from both the left and top border.
   - **Width/Height:** The width and the height determine the size of the window. When selecting a movie file, this information will automatically be entered based on the resolution of the movie file but can be manually changed as desired.

Please Note

Only .avi, .mpg or .mpeg files are supported by the 3D Animator movie event feature. If the movie file shows up in red text under the File Name column, then the file does not contain data that is supported in 3D Animator.

Walk-Through Mode: Places and locks the camera at head height, which gives a walk through perspective. Zooming, rotating, or changing views and perspectives will exit the Walk-Through mode.

Perspective/Parallel Projection: Choose one of these options to toggle between a perspective or parallel projection.

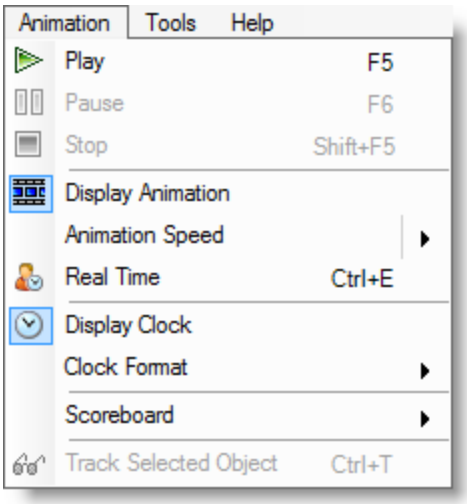
- **Perspective Projection:** This option shows the 3D perspective view in the 3D layout. In this view you may pan, rotate, and zoom the 3D layout in any direction.
- **Parallel Projection:** This option emulates a top-down 2D view of the 3D layout. When in this view, you may pan and zoom the layout, but you may not change the rotation away from the top-down perspective that emulates the 2D view in the 3D layout.
  If you would like to view a top-down 3D view, there is a factory-set "Top View" in the Views menu.

Lock Selected Object: When an object is selected in the 3D layout, this option will be available. If you choose to lock the selected object, you will not be able to move it in the layout. This is useful to avoid accidentally moving the wrong objects.
Show Grid: Toggles the grid lines on the floor of the layout on and off.
Show Floor: Toggles the layout floor on and off.
Show Floor Direction: Toggles the three colored lines on the layout, which denote the axes on the floor, on and off.
Show Paths: Toggles whether network paths are visible on the layout.
Show Graphic Objects: During animation, there may be objects that are waiting to enter the layout, for example, entities. The graphics for these objects can be shown prior to entering the layout during animation. Use this option to show or hide these graphics, which appear in the corner of the layout by the Floor Direction line.

This option can also be used to see the direction your entities and dynamic resources will face when auto-orienting. Auto-orienting means the object will change its rotation along the z-axis as it moves through the layout, for example, a dynamic resource will auto-orient as it moves along a path, so that it always appears to face forward.

The part of the object graphic that faces the negative y-axis in this view will be the part of the object that will face forward during auto-orientation. Therefore, if you wish a resource or entity to face forward while auto-orientating, be sure it is rotated to face the negative y-axis while shown in this area.
Refresh Layout: Redraws the layout.

Animation Menu



The Animation menu allows you to start and stop 3D animations, as well as choose animation-specific options.

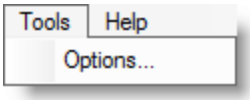
- **Play:** Starts the 3D animation. You may start the animation from anywhere in 3D Animator. You do not need to be in the 3D Layout view; however, when the animation starts the view automatically changes to 3D Layout view.

Please Note

The hot key for starting an animation is F5, pausing an animation is F6, and stopping an animation is Shift-F5. Remembering to use these hot keys can greatly speed up your use of 3D Animator.

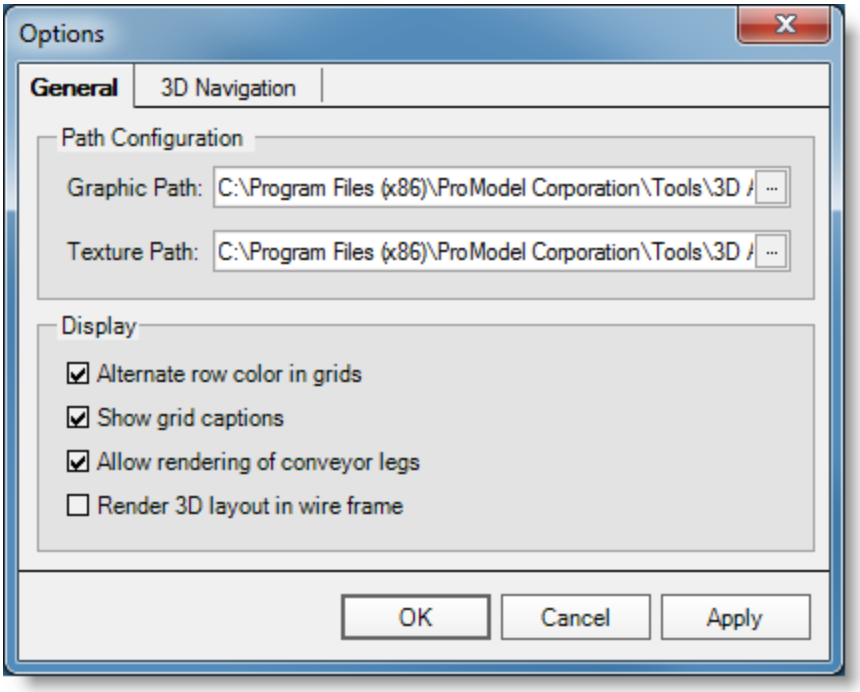
- **Pause:** Pauses the animation.
- **Stop:** Stops the animation and resets the clock and camera back to their starting positions.
- **Display Animation:** Toggles the animation on and off. This is useful for turning off the animation to allow the animation clock to run as fast as possible. For example, to fast forward to a specific time in the animation, at which point you could toggle the animation back on.
- **Animation Speed:** Use this slider to speed up or slow down the rate of the animation and its clock.
- **Real Time:** Synchronizes the animation speed to the computer's real-time clock.
- **Display Clock:** Toggles the animation clock, which is located in the upper-right corner of the layout, on and off.
- **Clock Format:** Choose seconds, minutes, or hours for the animation clock.
- **Scoreboard:** Allows you to choose which scoreboards you would like displayed in the layout during animation. For information on defining scoreboards, see Scoreboards on page 53.
- **Track Selected Object:** During animation you may click on an object in the layout and choose this option. The camera will then follow that object throughout the layout.
  The hot key for this option, *Ctrl+T*, is useful for quickly tracking an object after you have clicked on it. You may use the mouse wheel to zoom in and out while tracking the object.
  To stop tracking an object you may do the following:
  - Press the **ESC** key.
  - Track a different object.
  - Switch to any defined view.

Tools Menu



Options

The Options selection in the Tools menu opens the Options dialog:

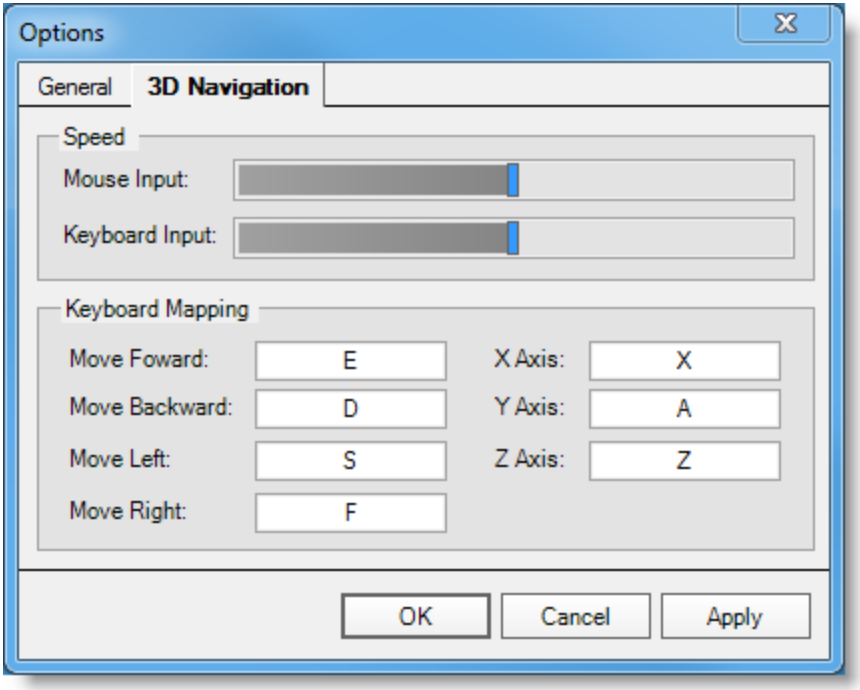


The Options dialog allows you to choose path, display, and 3D navigation options. The Options dialog is divided into two tabs: General and 3D Navigation.

General Tab

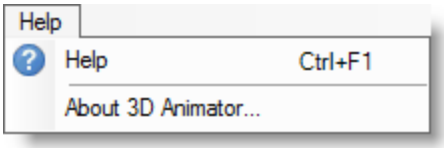
- **Path Configuration:** Allows you specify default locations for your 3D graphic and texture files. If you do not specify complete location paths in the Object navigation tab for your objects graphics, 3D Animator will check both the path entered here and the same directory as your .sup file for assigned graphic files.
- **Alternate row color in grids:** By default, the color of rows in grids alternates between clear and shaded to enhance visibility.
- **Show grid captions:** Toggles grid captions on or off.
- **Allow rendering of conveyor legs:** Toggles the drawing of conveyor legs on and off. This option is useful for depicting specialized conveyors, such as raised or suspension conveyors that may not have legs.
- **Render 3D layout in wire frame:** When checked, the 3D layout will show graphics in wire frame, which can enhance performance.

3D Navigation Tab



- **Speed:** Allows you to adjust the speed at which the camera moves in the 3D layout during navigation with the keyboard and mouse. Moving the slider left decreases speed, while moving it right increases speed.
- **Keyboard Mapping:** Allows you to specify custom keys for keyboard navigation. For more information on keyboard navigation see, Navigating the 3D Layout on page 56.

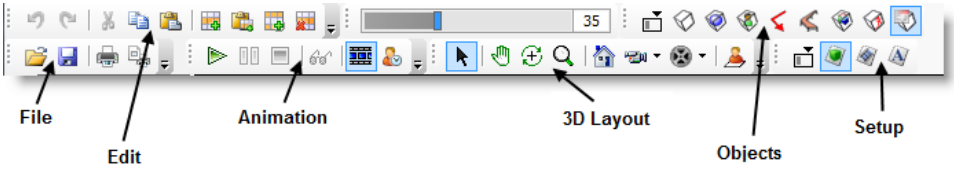
Help Menu



The Help menu allows access to the 3D Animator Help System as well as 3D Animator version and copyright information.

Toolbar Options

The 3D Animator toolbar offers convenient access to many of the options available from the Menu bar.



All available toolbars are displayed in the image above:

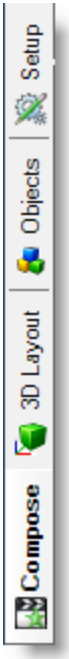
- File
- 3D Layout
- Animation
- Edit
- Setup
- Objects

By default, the Setup and Objects toolbars are not visible. Using the View menu you may show or hide toolbars.

For information on using the icons in the toolbar, please see the descriptions of their corresponding options in the Menu bar, starting with Menu Options on page 15.

Navigation Tabs

There are four navigation tabs, which are by default arranged along the left side of the 3D Animator window.



These tabs allow access to the modules you use to configure and view your animation.

Detailed descriptions of all the options available from each navigation tab are available in Chapter 4 of this user guide.

Layout View

The layout area of the 3D Animator window will change functionality depending on the navigation tab you select.

Grid View

In the Setup and Objects navigation tabs the layout consists of grids, which are made up of rows, columns, and cells containing the data used to configure your animation.

Below is an image of a typical layout grid.

Labels Graphic Viewer

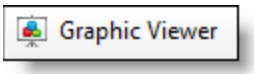
Labels

	Name	Orientation	Locked	Position X	Position Y	Position Z	Height	Label Color	Label Opacity	Text Color	Text Opacity	Font
1	Receive	Facing Up		43.51	31.4	0.2	4		0		100	Font1
2	NC Lathe 1	Facing Up		82.25	62.79	0.2	4		0		100	Font1
3	NC Lathe 2	Facing Up		104.56	48.01	0.2	4		0		100	Font1
4	Degrease	Facing Up		129.33	20.9	0.2	4		0		100	Font1
5	Inspect	Facing Up		49.16	19.37	0.2	4		0		100	Font1
6	Bearing Que	Facing Up		49.04	63.82	0.2	4		0		100	Font1
7	Gary's Gears	Facing F...		28.17	96	21	15		0		100	Font2
*												

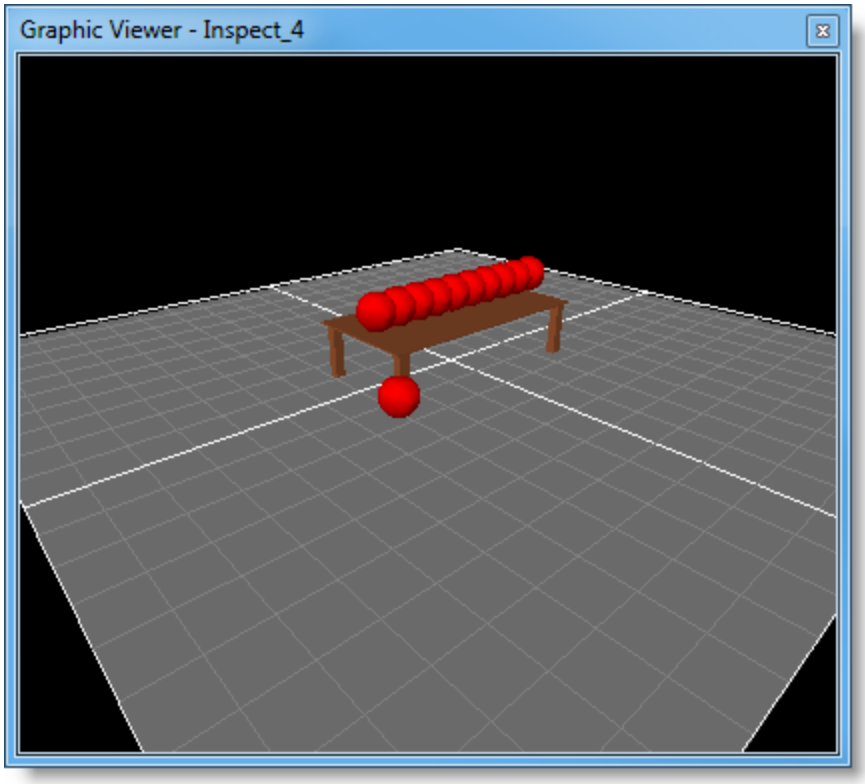
Each row represents a record entry for that particular grid. Rows and grids can be resized and reordered to display your data as desired.

Additionally, columns can be frozen or hidden through the right-click menu. See Right-Click Menu for Columns on page 33.

Graphic Viewer

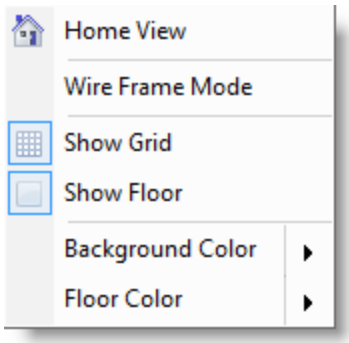


The Graphic Viewer button allows you to preview the 3D graphic for the selected record row. It is also useful for seeing and manipulating entity spot positions on locations and dynamic resources, as well as pin positions for entities and dynamic resources.



The image above shows a table location graphic with several entity spots, which appear in red. Pins for entities and dynamic resources appear in blue. Entity spots and pins can be moved in the graphic viewer using the object manipulation commands. See Manipulating Objects in the 3D Layout on page 57 for more information.

Right clicking in the graphic viewer shows a right-click menu, which allows you to modify the layout settings of the viewer.



The layout in the graphic viewer can be panned, zoomed, and rotated using the same commands as the 3D layout. See Navigating the 3D Layout on page 56 for more information.

Resizing Columns

Columns are resized by clicking and dragging on the dividers between the column titles.

This is helpful for expanding columns to view all the data contained in the cells of that column.

Reordering Rows and Columns

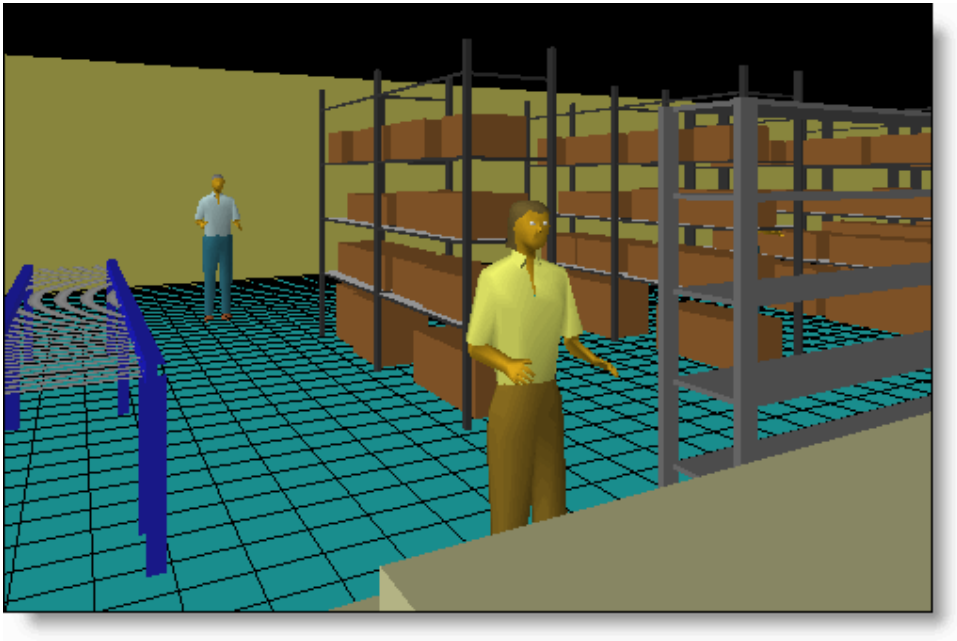
Columns are arranged in a default order, and record rows are typically added in numerical order.

It may be necessary, as you enter data, to change row or column order.

1. Highlight the entire row or column by clicking on the column title, or the row number.
2. Click again on the title or number, and drag the entry to the desired location in the rows or columns.

3D Layout View

When you are in the 3D Layout and Compose tabs, the 3D perspective is displayed in the layout.



The layout is seen through a “Camera,” which can rotate, zoom, or pan through the layout.

For information on navigating the 3D Layout see Navigating the 3D Layout on page 56.

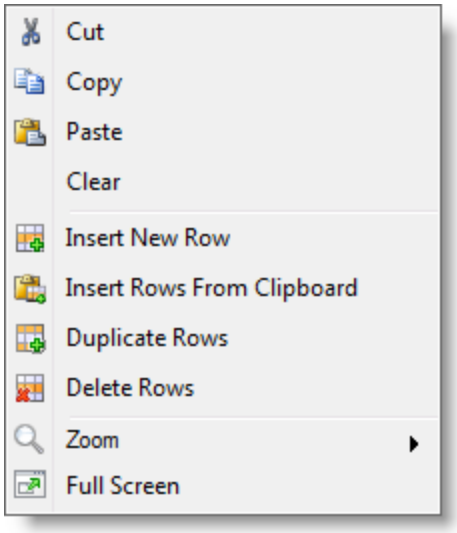
Right-Click Menus

3D Animator uses right-click menus to offer quick access to some of its most commonly used features.

When you right click on areas of the layout, various right-click menus will be available depending on the area clicked on or options available for the table.

Right-Click Menu for Cells

When you right click on a cell or row number in the layout, the following right-click menu will appear:



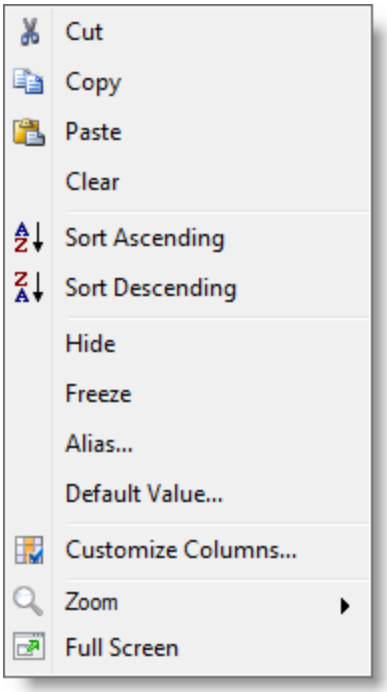
This menu offers quick access to the same options available from the Edit menu. See Edit Menu on page 18.

Please Note

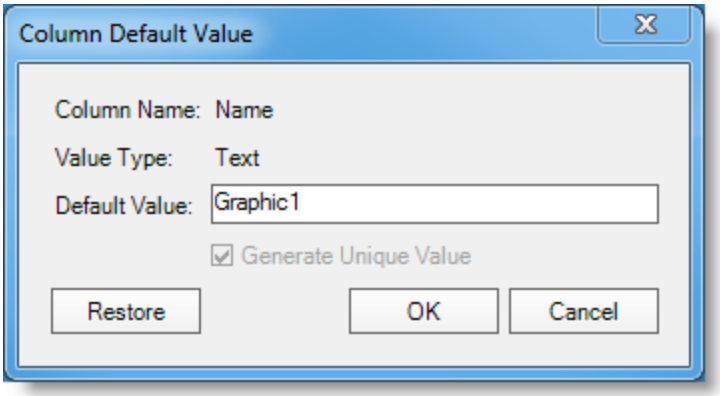
All of the options shown in the graphic above will not necessarily be available. Only the options that apply to the cell you right click on will be displayed.

Right-Click Menu for Columns

Right clicking on the title of a column will display the following menu:



- **Cut/Copy/Paste/Clear:** You may delete or copy the contents of one column into another using these options.
- **Sort Ascending/Descending:** You may sort the rows in the column by either ascending or descending order.
- **Hide:** Hides the entire column from the layout. This is helpful for shortening the list of visible columns, when the information contained in the column is not necessary at the time. To restore hidden columns, choose the Customize Columns option.
- **Freeze/Unfreeze:** When a column is “Frozen” it will not leave the layout when you scroll to the right or left.
- **Alias:** Allows you to rename the column with an alias.
- **Default Value:** Opens a dialog for setting default values for that column when you create new records.

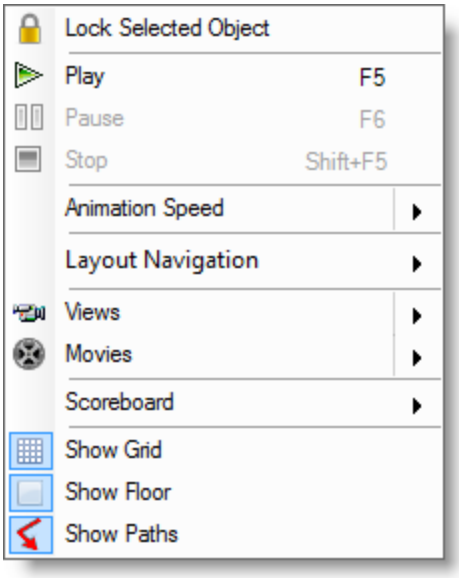


- **Column Name:** Name of the selected column.
- **Value Type:** The type (text, number, etc.) that is valid in that column's cells.
- **Default Value:** The value entered by default for that column when a new record is created.
- **Generate Unique Value:** When selected, unique values will be generated as rows are added by appending a sequential number to the value.
- **Restore:** Resets the Default Value to the factory set value.

- **Customize Columns:** Opens a dialog to edit the columns in the table. You may hide, define default values, freeze, and modify the widths of the columns.
- **Docking:** Only an option when more than one table is present on the layout. Determines where the table is located in the layout in relation to other visible tables.
- **Zoom:** Controls magnification of the table.
- **Full Screen:** Shows the table in full screen mode.

Right-Click Menu for the 3D Layout

Right clicking on the 3D Layout will display the following menu:



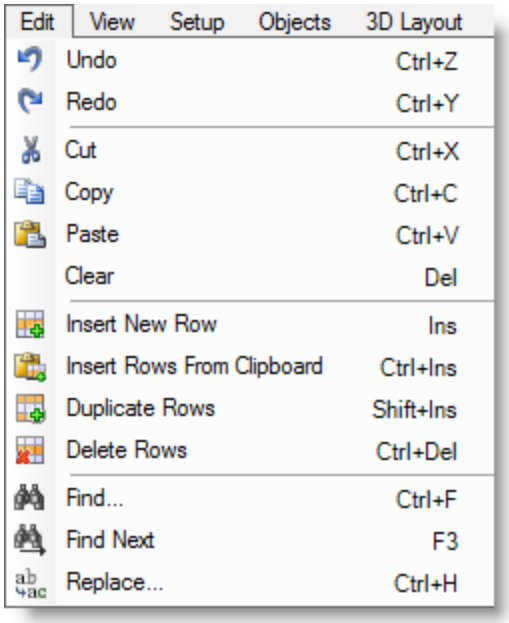
The options in this menu offer a shortcut to the same options in the Menu bar. For more information, please refer to these options' descriptions starting in the section Menu Options on page 15.

Hotkeys and Shortcuts

Hotkeys offer quick access to the most commonly used features of 3D Animator. There are two sets of hotkeys: global and 3D layout.

Global Hotkeys

Global hotkeys are typically used as a shortcut to access menu options. For example, each option in the Edit menu has a corresponding hotkey:



Please refer to each menu to view the available global hotkeys.

The only global hotkey not shown in a menu is F4, which will toggle the view between the Objects view and the 3D Layout view.

3D Layout Hotkeys

There are several hotkeys that can be used in the 3D Layout view to control animation speed and camera position.

- **+ or -:** Increase or Decrease animation speed.
- **RIGHT MOUSE:** Holding the right mouse button while moving the mouse will change the direction of the camera.
- **E:** Moves the camera forward.
- **D:** Moves the camera backward.
- **S:** Pans the camera left.
- **F:** Pans the camera right.

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- **SHIFT + LEFT MOUSE:** Holding the shift key while holding the left mouse button and moving the mouse will pan the camera.
- **CTRL + LEFT MOUSE:** Holding the control key while holding the left mouse button and moving the mouse will zoom the camera.
- **CTRL + SHIFT + LEFT MOUSE:** Holding the control key and the shift key while holding the left mouse button and moving the mouse will rotate the camera.
- **MOUSE WHEEL:** Using the mouse wheel will zoom the camera.
- **X:** Holding X will lock the X-Axis when moving the camera.
- **Y or A:** Holding Y or A will lock the Y-Axis when moving the camera.
- **Z:** Holding Z will lock the Z-Axis when moving the camera.
- **CTRL + LEFT MOUSE + OBJECT MANIPULATION:** Holding the Ctrl key while holding the left mouse button and moving the mouse while the Object Manipulation tool is selected will size the selected object. If you also hold the Z, X, or Y(A) key, you may size the object along the desired axis. See Manipulating Objects in the 3D Layout on page 57.
- **CTRL + SHIFT + LEFT MOUSE + OBJECT MANIPULATION:** Holding the shift and ctrl key while holding the left mouse button and moving the mouse while the Object Manipulation tool is selected will rotate the selected object around the Z-Axis. See Manipulating Objects in the 3D Layout on page 57.
- **Z or X or A + LEFT MOUSE + OBJECT MANIPULATION:** Holding the Z or X or A (for Y axis) key while holding the left mouse button and moving the mouse while the Object Manipulation tool is selected will move the selected object along the respective axis. See Manipulating Objects in the 3D Layout on page 57.

Configuring and Animating

This chapters details the specific fields in each of the navigation tabs you may use as you configure and view your 3D animation.

It is recommended that you read Chapter 2: Getting Started with 3D Animator on page 3 to learn how to use 3D Animator. You should then refer to this chapter when you require specific information regarding any fields or options encountered as you follow the steps in Chapter 2.

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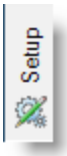
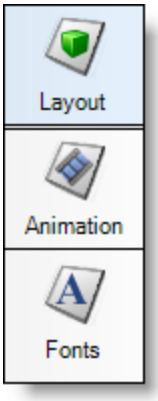
Setup Navigation Tab



Clicking of the Setup navigation tab displays three categories of options:



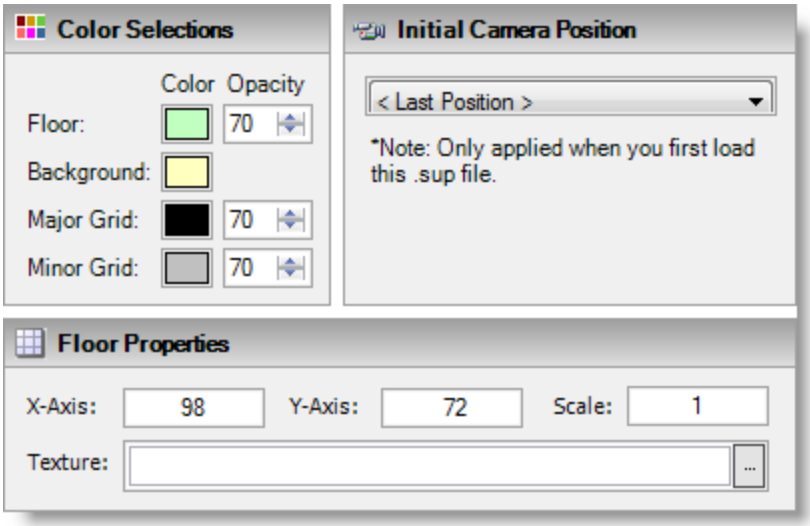
Layout Category on page 40

Animation Category on page 41

Fonts Category on page 42

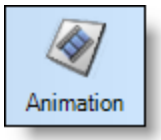
Layout Category

Selecting the Layout category will display options in the layout for setting 3D Layout properties.

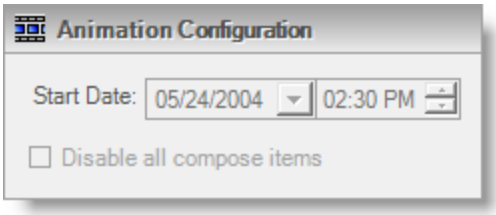


- **Color Selections:** Allows you to assign custom colors to various layout items. To choose a custom color, click on a color box to open the color palette.
- **Specify Initial Camera Position:** The camera will reset to the selected initial position at the end of every animation.
- **Floor Properties:** You may change the default size of the layout floor. Please note that changing this size will not affect the scale of the floor's grid in proportion to the objects in the layout.
    - **Scale:** Sets the number of floor grids per layout unit. For example, when the scale is set to 1, each floor grid equals one layout unit. Therefore, if you reposition an object by 10 in its properties grid, the object will move 10 floor grids in the layout. Were the scale set to 2 in the example, the object would shift 5 floor grids in the layout.
    - **Texture:** You may select a texture file that you would like applied to the floor of the layout. This texture will be stretched to fit the floor, not tiled.

Animation Category

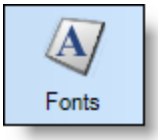


The Animation category allows you to set start dates and object options.

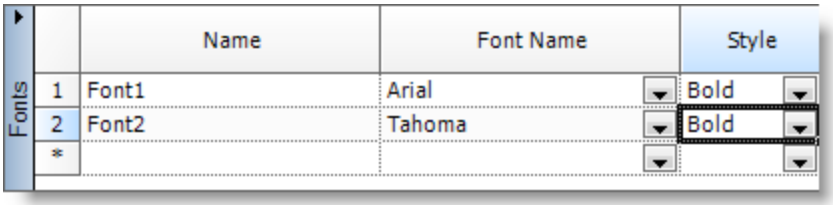


- **Start Date:** Specify the start date and time for animation to begin. This option is disabled if the original simulation was run in Time Only, and not Weekly Time or Calendar Date. Selecting this option does not automatically begin an animation.
- **Disable all compose items:** Checking this box will disable any custom compose options you have specified in the Compose tab (see Compose Navigation Tab on page 59.)

Fonts Category



Font styles can be defined in these fields and applied to labels and counters.



- **Name:** Name used in the font lists for labels and counters.
- **Font Name:** Choose a font from your computer's font store.
- **Style:** Assign a style for this font.

Objects Navigation Tab

The Objects navigation tab contains categories of your animation's objects. These objects are automatically imported from your ProModel product's model or in the case of background graphics, labels, and scoreboards either imported or entered manually in the respective category fields.

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Labels on page 52

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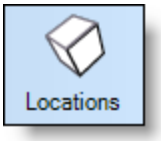
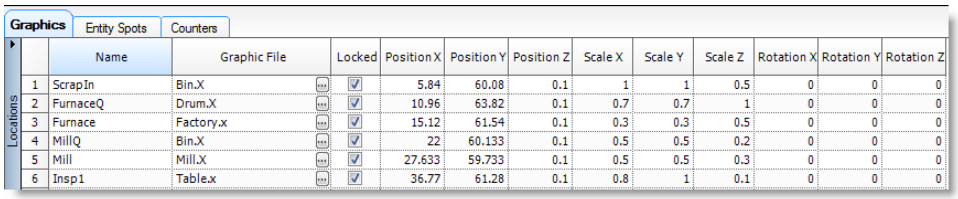
Locations



The Locations category gives you access to all of the location objects in the animation, and is divided into three view tabs, which are aligned along the top of the layout.

Graphics View Tab

The Graphics view contains a list of the locations that were in the model during simulation, and shows their associated graphics.



	Name	Graphic File	Locked	Position X	Position Y	Position Z	Scale X	Scale Y	Scale Z	Rotation X	Rotation Y	Rotation Z
1	ScrapIn	Bin.X	☑	5.84	60.08	0.1	1	1	0.5	0	0	0
2	FurnaceQ	Drum.X	☑	10.96	63.82	0.1	0.7	0.7	1	0	0	0
3	Furnace	Factory.x	☑	15.12	61.54	0.1	0.3	0.3	0.5	0	0	0
4	MillQ	Bin.X	☑	22	60.133	0.1	0.5	0.5	0.2	0	0	0
5	Mill	Mill.X	☑	27.633	59.733	0.1	0.5	0.5	0.3	0	0	0
6	Insp1	Table.x	☑	36.77	61.28	0.1	0.8	1	0.1	0	0	0

- **Name:** The name of the graphic of the location. By default, this will be the name of the location in the model, but it may be changed.
- **Graphic File:** The name and/or location of the graphic file for the graphic. This may simply be the name of the graphic file of the type .x, or it may contain a fully qualified path to the location on your computer of the graphic file. If left as simply a name, 3D Animator will look for the graphic file in your default graphic directory, as specified in the Options dialog, or in the same directory as the .sup file.

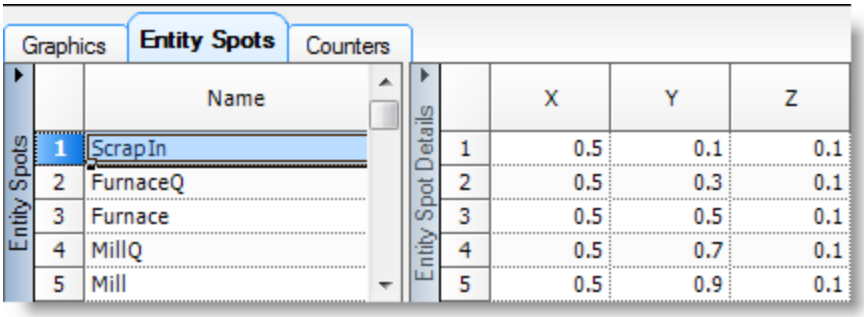
Please Note

Graphics in your ProModel product model may have a name in the Graphic Editor. When your .sup is created, if an .x file by the same name is found, it will automatically be entered into the Graphic File column.

- **Locked:** When checked, locks the graphic in the 3D Layout so that it may not be accidentally moved.
- **Position X/Y/Z:** Sets the graphic's location on the 3D layout measured in layout units. For a description of layout units and their relation to the floor grid, see Layout Category on page 40.
- **Scale X/Y/Z:** Changes the size of the location graphic as a fraction of the default size. For example, .5 in this field will shrink the graphic by 50%, and 2 will double the graphic's size.
  By changing just one or two of the axes, the graphic will stretch. Changing all three axes will uniformly shrink or grow the graphic.
- **Rotation X/Y/Z:** Rotates the graphic's orientation along the desired axis. Leaving this field blank will not change the graphic's orientation, which means the graphic will face the direction it was created in.

Entity Spots View Tab

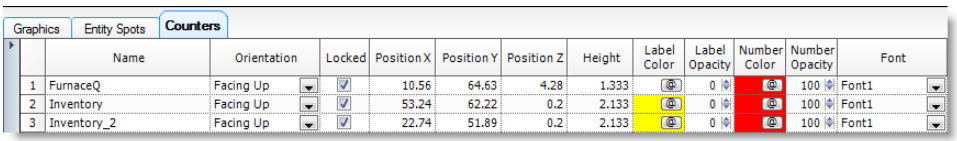
This table lists locations that have an entity spot in the simulation model. Entity spots show where entity graphics will appear while they are at the location.



- **Name:** The name of the graphic, which contains entity spot information. Clicking on a name will display entity spot records on the right side of the Entity Spot table.
- **X/Y/Z:** The position of optional entity spot(s) on the location graphic. This will determine where entity graphics appear when they are at the location.
  The value entered is a fractional value corresponding to the locations origin. Therefore, if X/Y/Z values are .5, the entity spot will be located in the center of the location graphic.
  Use the Graphic Viewer to see where entity spots are positioned in relation to your object. See Graphic Viewer on page 30 for more information.

Counters View Tab

This view shows a list of the counters in your animation. These counters will display the same information as was shown during the simulation.

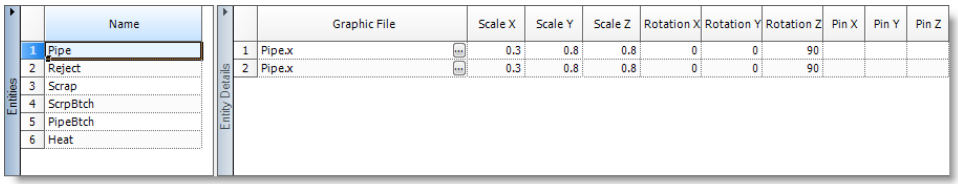


- **Name:** The name of the counter.
- **Orientation:** You may choose the direction you would like the counter to face.
- **Locked:** When checked, locks the counter in the 3D Layout so that it may not be accidentally moved.
- **Position X/Y/Z:** The counters's location on the 3D layout measured in layout units. For a description of layout units and their relation to the floor grid, see Layout Category on page 40.
- **Height:** Enter a value for the height of the counter. This value will control the overall size of the counter, as its width will automatically scale to match the value entered for the height and the length of its contents.
- **Label Color:** The color of the counter's background.
- **Label Opacity:** Controls the counter's level of transparency.
- **Number Color:** The color of the counter's numbers.
- **Number Opacity:** Controls the level of transparency for the counter's number.

- **Font:** Choose the counter's font from the list of pre-defined font styles. For more information on defining a font style, see Fonts Category on page 42.

Entities

The entities category lists all of the animation's entities in the left pane. Clicking on a name in the left pane will show specific information about that entity's graphic or graphics.



- **Name:** A list of names for each entity in the animation. Click on a name to view graphic information for that entity in the right pane.
- **Graphic File:** The graphic file for the entity. If there were multiple icons for the entity in the model, each one will appear in this list, so that you may assign and customize individual graphics.
- **Scale X/Y/Z:** Changes the size of the entity graphic as a fraction of the default size. For example, .5 in this field will shrink the graphic by 50%, and 2 will double the graphic's size.
- By changing just one or two of the axes, the graphic will stretch. Changing all three axes will uniformly shrink or grow the graphic.
- **Rotation X/Y/Z:** Rotates the entity graphic's orientation along the desired axis. Leaving this field blank will not change the graphic's orientation, which means the graphic will face the direction it was created in.
  While the entity is auto-orienting, meaning it will automatically rotate to face forward as it moves through the layout, this rotation value will determine what is "forward facing."
  To see if the entity is facing forward, view its graphic before starting the animation. The graphic will be outside the floor, near the floor direction indicators, and the "Show Graphic Objects" option must be enabled.
  The part of the entity graphic facing the negative y-axis will be the "front", and face forward during auto-orientation.
- **Pin X/Y/Z:** Sets the position where the entity graphic is pinned to paths or location and resource entity spots. Use the Graphic Viewer to see where pins are positioned in relation to your object. See Graphic Viewer on page 30 for more information.

Resources

The Resources category gives you access to static and dynamic resource objects in the animation, and is divided into two view tabs, which are aligned along the top of the layout.

Static Resources Tab

The Static Resource view shows a list of the static resource graphics in the animation.

Static | Dynamic

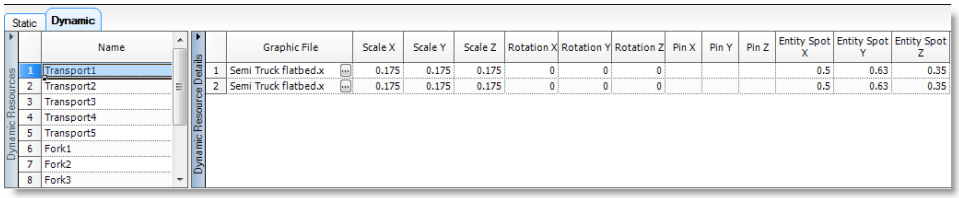
Static Resources

	Name	Graphic File	Locked	Position X	Position Y	Position Z	Scale X	Scale Y	Scale Z	Rotation X	Rotation Y	Rotation Z
1	Machinist	male.x	☐	4.75	14.8	0						
2	Machinist2	male.x	☐	45.25	14.8	0						
3	Robot1	female.x	☐	20.05	13.6	0						
4	Robot2	female.x	☐	30.05	14.1	0						

- **Name:** The name of the resource.
- **Graphic File:** The name and/or location of the resource graphic file for the graphic. This may simply be the name of the graphic file of the type .x, or it may contain a fully qualified path to the location on your computer of the graphic file.
  If left as simply a name, 3D Animator will look for the graphic file in your default graphic directory, as specified in the Options dialog, or in the same directory as the .sup file.
- **Locked:** When checked, locks the graphic in the 3D Layout so that it may not be accidentally moved.
- **Position X/Y/Z:** Sets the resource graphic's location on the 3D layout measured in layout units. For a description of layout units and their relation to the floor grid, see Layout Category on page 40.
- **Scale X/Y/Z:** Changes the size of the resource graphic as a fraction of the default size. For example, .5 in this field will shrink the graphic by 50%, and 2 will double the graphic's size.
  By changing just one or two of the axes, the graphic will stretch. Changing all three axes will uniformly shrink or grow the graphic.
- **Rotation X/Y/Z:** Rotates the resource graphic's orientation along the desired axis. Leaving this field blank will not change the graphic's orientation, which means the graphic will face the direction it was created in.

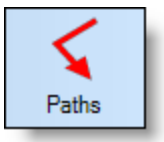
Dynamic Resources Tab

The Dynamic Resource view shows a list of the animation's dynamic resource graphics in the left pane. Clicking on a resource name in the left pane will display detailed graphic information about that resource in the right pane.



- **Name:** A list of names for each dynamic resource in the animation. Click on a name to view graphic information for that resource in the right pane.
- **Graphic File:** The graphic file for the resource. If there were multiple icons for the resource in the model, each one will appear in this list, so that you may assign individual graphics.
- **Scale X/Y/Z:** Changes the size of the resource graphic as a fraction of the default size. For example, .5 in this field will shrink the graphic by 50%, and 2 will double the graphic's size.
  By changing just one or two of the axes, the graphic will stretch. Changing all three axes will uniformly shrink or grow the graphic.
- **Rotation X/Y/Z:** Rotates the resource graphic's orientation along the desired axis. Leaving this field blank will not change the graphic's orientation, which means the graphic will face the direction it was created in.
  While the resource is auto-orienting, meaning it will automatically rotate to face forward as it moves through the layout, this rotation value will determine what is "forward facing."
  To see if the resource is facing forward, view its graphic before starting the animation. The graphic will be outside the floor, near the floor direction indicators, and the "Show Graphic Objects" option must be enabled.
  The part of the resource graphic facing the negative y-axis will be the "front", and face forward during auto-orientation.
- **Pin X/Y/Z:** Sets the position where the resource graphic is pinned to the path.
  Use the Graphic Viewer to see where pins are positioned in relation to your object. See Graphic Viewer on page 30 for more information.
- **Entity Spot X/Y/Z:** The position of the entity spot on the resource graphic. This will determine where entity graphics appear when they have captured a resource.
  Use the Graphic Viewer to see where entity spots are positioned in relation to your object. See Graphic Viewer on page 30 for more information.

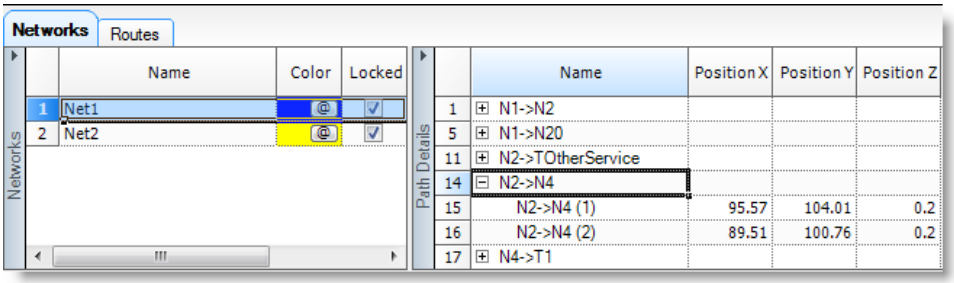
Paths



The Paths category displays a list of all the networks and routes in the animation, along with coordinates that define the starting and ending points of the path, as well as joints.

Networks Tab

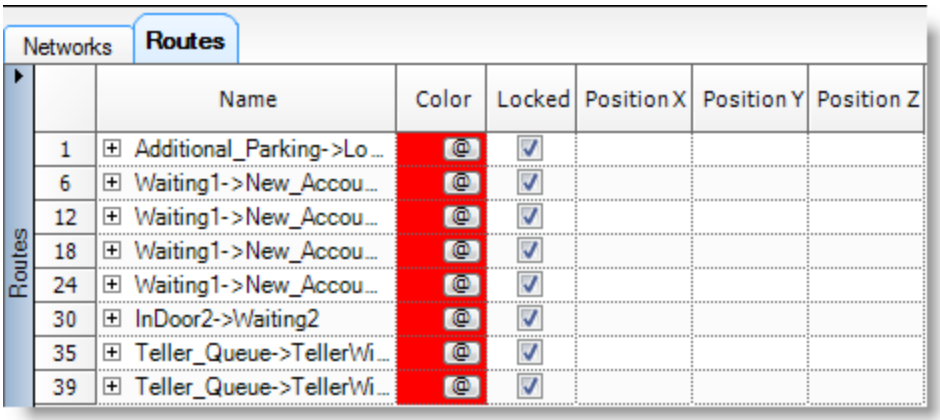
The Networks tab shows the path networks in the animation, as well as each network's path details.



- **Name:** A list of names for each path network in the animation. Click on a name to view path information for that network in the right pane.
- **Color:** Each network may have its own color. This is useful for visually identifying separate networks in the 3D layout.
- **Locked:** When checked, locks the network in the 3D Layout so that it may not be accidentally moved.
- **Name (Path Details):** Shows a list of the paths in the selected network. The names can be expanded to show each path segment's points and their positions.
- **Position X/Y/Z:** Sets the location, in layout units, for each joint on the path. For a description of layout units and their relation to the floor grid, see Layout Category on page 40.

Routes Tab

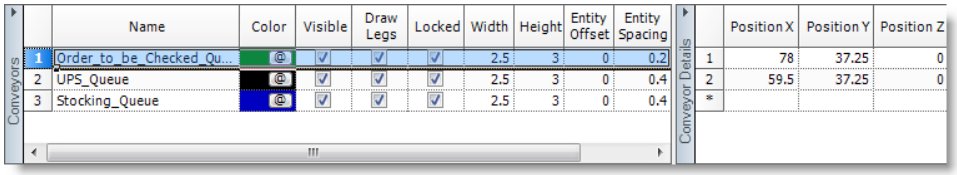
The Routes tab shows a list of the animation's routes and positioning information.



- **Name:** Shows a list of the Routes. The names can be expanded to show each route segment along with positional information.
- **Color:** Each Route may have its own color. This is useful for visually identifying separate routes in the 3D layout.
- **Locked:** When checked, locks the route in the 3D Layout so that it may not be accidentally moved.
- **Position X/Y/Z:** Sets the location, in layout units, for each joint on the route. For a description of layout units and their relation to the floor grid, see Layout Category on page 40.

Conveyors

The Conveyors category shows a list of the animation's conveyor graphics in the left pane. Clicking on a conveyor name in the left pane will display graphic position information about that conveyor in the right pane.



Conveyors

	Name	Color	Visible	Draw Legs	Locked	Width	Height	Entity Offset	Entity Spacing
1	Order_to_be_Checked_Qu...		✓	✓	✓	2.5	3	0	0.2
2	UPS_Queue		✓	✓	✓	2.5	3	0	0.4
3	Stocking_Queue		✓	✓	✓	2.5	3	0	0.4

Conveyor Details

	Position X	Position Y	Position Z
1	78	37.25	0
2	59.5	37.25	0
*			

- **Name:** A list of names for each conveyor in the animation. Click on a name to view graphic position information for that conveyor in the right pane.
- **Color:** Each conveyor may have its own color. This is useful for visually identifying separate conveyors in the 3D layout.
- **Visible:** Toggles whether the conveyor is visible in the 3D layout.
- **Draw Legs:** Toggles the legs of the conveyor on and off. This is useful for portraying suspension conveyors and other conveyors that may not have legs.
- **Locked:** When checked, locks the conveyor in the 3D Layout so that it may not be accidentally moved.
- **Width:** Specifies the width of the conveyor graphic.
- **Height:** Specifies the height of the conveyor graphic.
- **Entity Offset:** Specifies the Z-Axis offset of entity graphics on the conveyor. This value may be a positive or negative value, and is particularly useful for modeling hanging conveyor systems.
- **Entity Spacing:** Specifies the spacing between the entity graphics as they travel along the conveyor.
- **Position X/Y/Z:** Sets the location, in layout units, for each joint on the conveyor. For a description of layout units and their relation to the floor grid, see Layout Category on page 40.

Background Graphics

The Background Graphics category shows a list of the optional background graphics in the animation. Unlike the first five category options, you may add or delete background graphic records in the list.
Double click on the name cell of the asterisk row to add a new background graphic

Background Graphics

	Name	Graphic File	Locked	Position X	Position Y	Position Z	Scale X	Scale Y	Scale Z	Rotation X	Rotation Y	Rotation Z
1	LeftWall	Wall.X		0	49.89	0	6.75	5	3	0	0	270
2	RightWall	Wall (wWindows).X		150	49.89	0	6.75	5	3	0	0	270
3	RearWall	Wall.X		75	100	0	10.15	5	3	0	0	0
4	Pallet1	Pallet Boxes.X		6.12	88.47	11.72	1	1	1	0	0	0
5	Pallet2	Pallet Boxes.X		6.12	82.31	11.72	1	1	1	0	0	0
6	Pallet3	Pallet Boxes.X		6.12	56.33	11.72	1	1	1	0	0	0

- **Name:** The name of the background graphic.
- **Graphic File:** The name and/or location of the graphic file for the background graphic. This may simply be the name of the graphic file of the type .x, or it may contain a fully qualified path to the location on your computer of the graphic file.
  If left as simply a name, 3D Animator will look for the graphic file in your default graphic directory, as specified in the Options dialog, or in the same directory as the .sup file.
- **Locked:** When checked, locks the graphic in the 3D Layout so that it may not be accidentally moved.
- **Position X/Y/Z:** Sets the graphic's location on the 3D layout measured in layout units. For a description of layout units and their relation to the floor grid, see Layout Category on page 40.
- **Scale X/Y/Z:** Changes the size of the graphic as a fraction of the default size. For example, .5 in this field will shrink the graphic by 50%, and 2 will double the graphic's size.
  By changing just one or two of the axes, the graphic will stretch. Changing all three axes will uniformly shrink or grow the graphic.
- **Rotation X/Y/Z:** Rotates the graphic's orientation along the desired axis. Leaving this field blank will not change the graphic's orientation, which means the graphic will face the direction it was created in.

Labels

The Labels category allows you to add or edit static labels for the 3D layout. Labels can be positioned anywhere in the layout, and used to label any object or area.

Double click on the name cell of the asterisk row to add a new label.

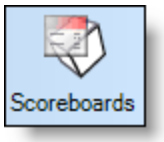
Labels

	Name	Orientation	Locked	Position X	Position Y	Position Z	Height	Label Color	Label Opacity	Text Color	Text Opacity	Font
1	Scrap	Facing Up	✓	4.17	57.7	0.2	1.7		0		100	Font1
2	Make Steel	Facing Up	✓	11.01	57.34	0.2	1.7		0		100	Font1
3	Manufacture Pipe	Facing Up	✓	21.29	57.31	0.2	1.7		0		100	Font1
4	Inspect	Facing Up	✓	34.27	57.67	0.2	1.7		0		100	Font1
5	Nondestructive Test	Facing Up	✓	40.54	58.01	0.2	1.7		0		100	Font1
6	Inventory	Facing Up	✓	52.56	64.41	0.2	1.7		0		100	Font1
7	Ship to Pipe Processor	Facing Up	✓	72.07	64.67	0.2	1.7		0		100	Font1

- **Name:** The name of the label as well as the text that will appear on the label in the 3D layout.
- **Orientation:** Choose the direction you would like the counter to face.
- **Locked:** When checked, locks the label in the 3D Layout so that it may not be accidentally moved.

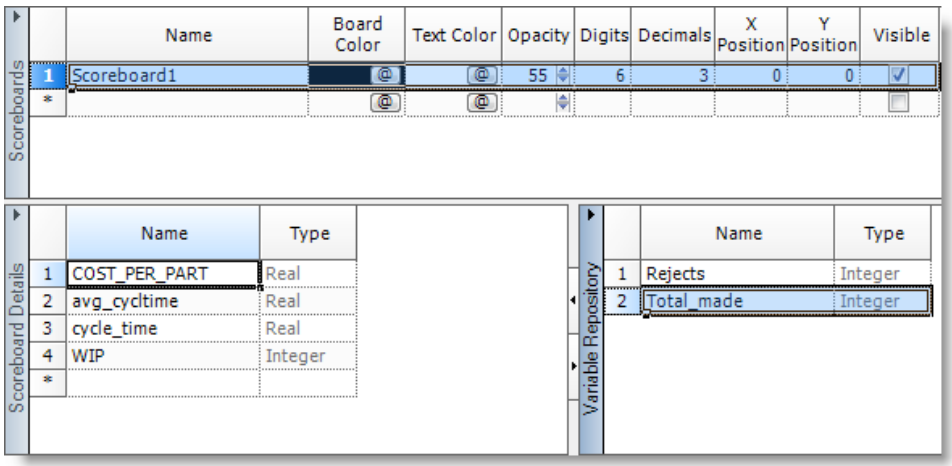
- **Position X/Y/Z:** Sets the label's location on the 3D layout measured in layout units. A label's postition is based on its lower-left corner. For a description of layout units and their relation to the floor grid, see Layout Category on page 40.
- **Height:** Enter a value for the height of the label. This value will control the overall size of the label, as its width will automatically scale to match the value entered for the height and the length of its contents.
- **Label Color:** The color of the label's background.
- **Label Opacity:** Controls the label's level of transparency.
- **Text Color:** The color of the label's text.
- **Text Opacity:** Controls the level of transparency for the label's text.
- **Font:** Choose the label's font from the list of pre-defined font styles. For more information on defining a font style, see Fonts Category on page 42.

Scoreboards



The Scoreboards category allows you to choose which global variables from your model you would like displayed in the layout.

Multiple scoreboards may be defined and then toggled on or off during animation.



The Scoreboard category area is divided into three areas:

- **Scoreboard List:** The top area of the Scoreboard category shows a list of the available scoreboards that may be displayed during animation. You may add new scoreboards to the list by double clicking on the Name cell of the asterisk row.
  Clicking on a scoreboard name will show its selected and available variables in the two areas below the

scoreboard list.

- **Scoreboard Details:** The lower-left area of the Scoreboard category shows a list of variables that will be displayed for the highlighted scoreboard in the scoreboard list.
  Each record row in this area will equal a new line in the scoreboard that is displayed during animation.
  The order of these variables can be changed by highlighting a row and then clicking and dragging it to the desired location.
  Double clicking on the Name cell of the asterisk row in this area will add a new text-type entry to the scoreboard with the text entered as the name. This text will remain static during animation, and is useful for creating headings and organizing the variables listed in the scoreboard.

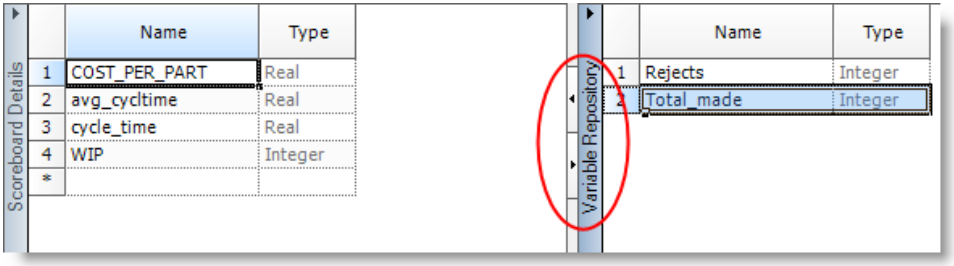
Please Note

Text-type scoreboard entries cannot be moved from the Selected Variables area to the Variable Repository area. Text-type entries belong only to the scoreboard they were created in, and are deleted if moved.

- **Variable Repository:** The lower-right area of the Scoreboard category shows a repository of the variables available for addition to a scoreboard.
  By default, this list will be empty. Since each variable can only be included in one scoreboard, the default scoreboard will contain all the variables in its selected variables list. To free variables from the default scoreboard, which will add them to the variable repository area, see “Adding/Removing Variables from Scoreboards” below.

Adding/Removing Variables from Scoreboards

To add a variable to a scoreboard from the repository, or return a variable to the repository, select a variable from one of the lists:



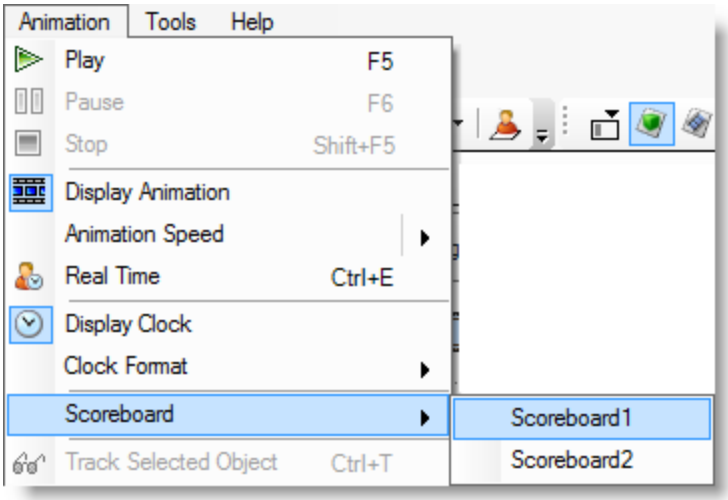
Then you may either press the **Delete** button on the keyboard, or click the arrow in the divider between the two lists, to move the variable.

The variable will then appear in the other list.

Text-type entries will be deleted if moved, since they are specific to the scoreboard they were created in.

Displaying a Scoreboard During Animation

Once your scoreboards have been defined, you may choose to display them during animation by checking the Visible box in the scoreboard table, or by selecting them from the Animation menu or the 3D layout Right-click menu.



If a scoreboard has a check mark by its name, it will be displayed during animation.

Column Definitions for the Scoreboard Table

- **Name:** The name of the scoreboard. Selecting a name in this list will display that scoreboard's list of variables in the area below.
  The scoreboard names will appear in the available scoreboard list for the Animation menu and the 3D layout right-click menu.
- **Board Color:** The background color of the scoreboard.
- **Text Color:** The color of the scoreboard's text and numbers.
- **Opacity:** The transparency level of the scoreboard.
- **Digits:** The maximum number of digits that will appear for variable values on the left side of the decimal.
- **Decimals:** The maximum number of digits that will appear for variable values on the right side of the decimal.
- **X/Y Position:** Sets the position for the scoreboard on top of the 3D layout. Since scoreboards are not objects in the 3D layout, but instead are an overlay, this X/Y position is not relational to the X/Y axes of the 3D layout, and is instead measured from the top-left of the layout window.
  Additionally, scoreboards will not move when the camera moves.
- **Visible:** Toggles the scoreboard on and off in the 3D layout.

3D Layout Navigation Tab

Selecting the 3D Layout navigation tab will display the 3D view, where you can see the objects in the model before animation, and watch them interact during animation.

Whether you are using features in the 3D layout prior to animation or during animation, understanding how to navigate the 3D layout is the first step to using the 3D view.

Navigating the 3D Layout

While viewing the 3D layout, you may move the camera to navigate through the objects in the layout. There are three main ways to move the camera and view the 3D layout using the layout tools, the fly-through technique, or the walk-through mode.

Navigating Using Layout Tools

While in the 3D layout, you may select one of the layout tools (pan, rotate, zoom) to move the camera.

Select the corresponding option from the toolbar or 3D Layout menu, and click and drag on the layout to move the camera accordingly.

Please Note

To quickly switch from tool to tool use hotkeys. See *Hotkeys and Shortcuts on page 37****.***

Navigating Using the Fly-Through Technique

The fly-through technique is a simple way to move the camera as if it were free floating through the layout.

To do so click and hold the right mouse button over the layout, and use the E, S, D, and F keys on the keyboard to move the camera.

The E and D keys will move the camera forward and backward, while the S and F keys will pan the camera laterally. Moving the mouse while holding the right mouse button will rotate the camera.

This keyboard and mouse combination allows you to fly the camera through the layout.

Navigating Using the Walk-Through Mode

The walk-through mode places the camera at head-height, which emulates the perspective of walking along the floor of the layout.

To enter the walk-through mode, select the that option from the 3D Layout menu or the toolbar.

You may use the controls described in the “Fly Through Technique” to move the camera; however, the height will remain locked at head-height.

Please Note

Zooming, rotating, or changing views and perspectives will exit the walk-through mode.

Manipulating Objects in the 3D Layout

Using the Object Manipulation tool, available from the toolbar or 3D Layout menu, you may move and rotate objects in the 3D layout.

Using the Object Manipulation tool, click on an object in the layout. If it becomes selected, you may manipulate that object.

Please Note

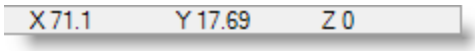
Entities and dynamics resources cannot be selected and therefore not moved or rotated with the Object Manipulation tool. Paths and conveyors cannot be rotated.

There are many ways to manipulate objects: moving them along the X- and Y-Axes simultaneously, moving them only along the X-, Y-, or Z-Axis, sizing them along the X-, Y-, or Z-Axis, and rotating them around the X-, Y-, or Z-Axis.

Moving Objects along the X- and Y-Axes Simultaneously

Using the Object Manipulation tool, click and drag on a selectable object in the 3D layout to move it simultaneously along the X- and Y-Axes.

The coordinates displayed in the Status Bar show where the object is being moved to.

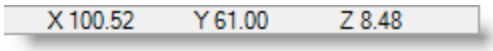


When you release the mouse button, the coordinates displayed will be copied to the object's X and Y Position grids in the object table.

Moving Objects only along the X-, Y-, or Z-Axis

Using the Object Manipulation tool, hold the X, Y(A), or Z key and click and drag on a selectable object in the 3D layout to move it along the corresponding axis.

The coordinates displayed in the Status Bar show where the object is being moved to.



When you release the mouse button, the coordinates displayed will be copied to the object's Position grid in the object table.

Rotating Objects

Certain selectable objects can be rotated using the Object Manipulation tool. These include:

- Locations graphics (not location counters).
- Static resources.
- Background graphics.

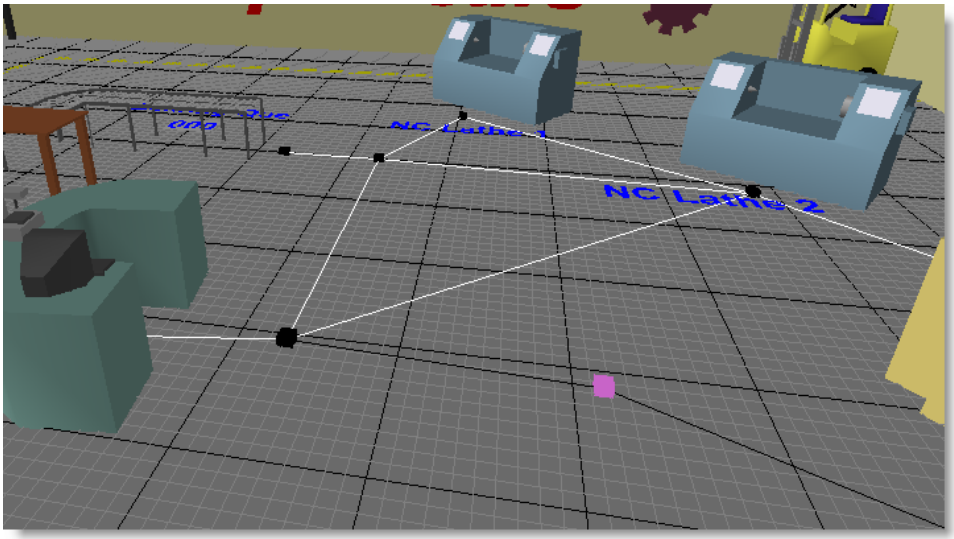
Using the Object Manipulation tool, hold the CTRL + SHIFT key and click and drag on one of the objects listed above to rotate it around the Z-Axis. You can also rotate around the X- and Y-axis by holding the X or Y(A) key in addition to Ctrl+Shift.

Manipulating Paths

Path networks and routes can be moved in the 3D Layout using the Object Manipulation tool.

You may move an entire network path or a route by clicking on the line part of the path with the Object Manipulation tool. This will select the path network or route, which can then be dragged to the desired location.

To move a joint of a path or route, click on the joint graphic in the 3D Layout to select the joint. You may then drag the joint to the desire location.



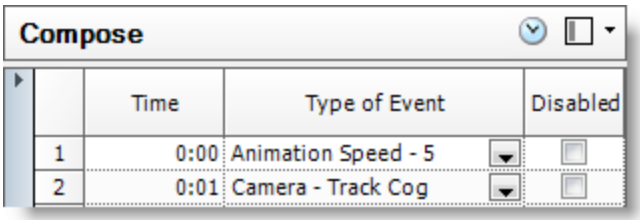
Compose Navigation Tab

The Compose area allows you to script events that control the animation or the camera position during animation. These events are useful for pausing the animation, changing views, following objects, or displaying scoreboards all at specified times during the animation.
The Compose area is divided into two panes:

- **Compose Table:** Allows you to enter the events that will happen during animation.
- **3D Layout:** Displays the same 3D view as the 3D Layout tab.

Compose Table Options

The following fields are available in the Compose table.



- **Time:** The time on the animation clock when this event will occur.
- **Type of Event:** A drop-down list of available events. See “Defining an Event” in the next heading for a description of the options available from this list.
- **Disabled:** Toggles the event off and on.
- **Set to Current Animation Time:** Selecting an event in the table and then clicking this button during animation will set the Time column value for that row to the current animation time.

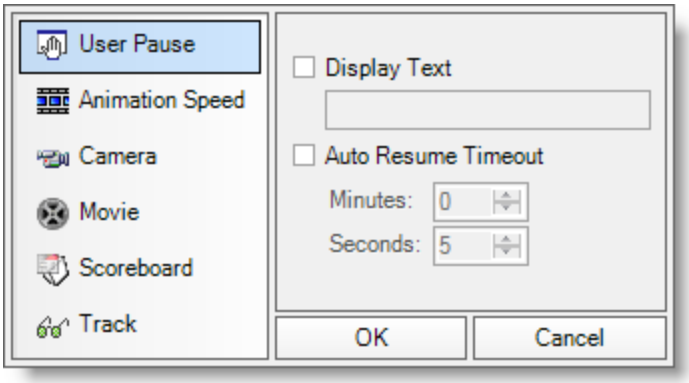
Defining an Event

Events are added to the compose table by clicking on the asterisk row’s down arrow in the Type of Event column.

Some events can be defined before or during animation, while others can only be defined during animation. A list of available events is given below:

User Pause

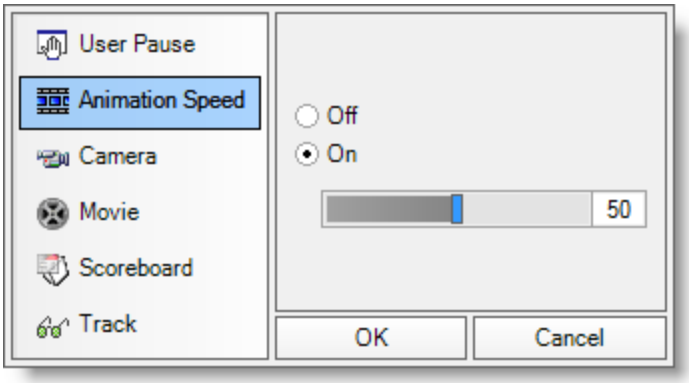
The User Pause will pause the animation at the specified time and can display text or resume the animation after a given amount of time.



- **Display Text:** Opens a dialog that displays the specified text during the pause.
- **Auto Resume Timeout:** Allows you to set a value in real time that will elapse before the animation resumes.

Animation Speed

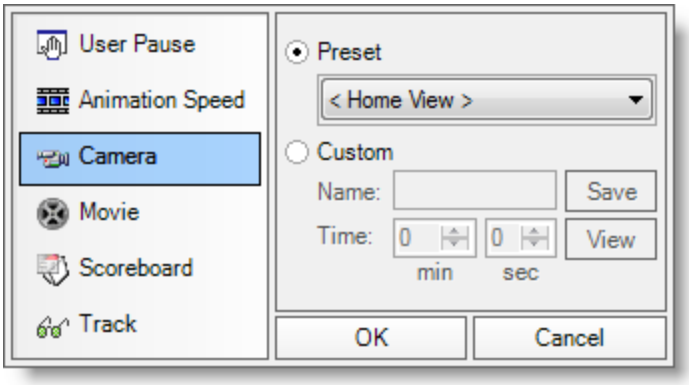
The Animation Speed option allows you to dynamically change the animation speed at the event time.



- **Off:** Selecting off will disable the animation. This is useful for quickly fast forwarding an animation, for which you would use another event to turn the animation back on at a later time.
- **On:** Use the slider to set the new animation speed. You can also directly edit the speed by entering a number in the speed text-box.

Camera

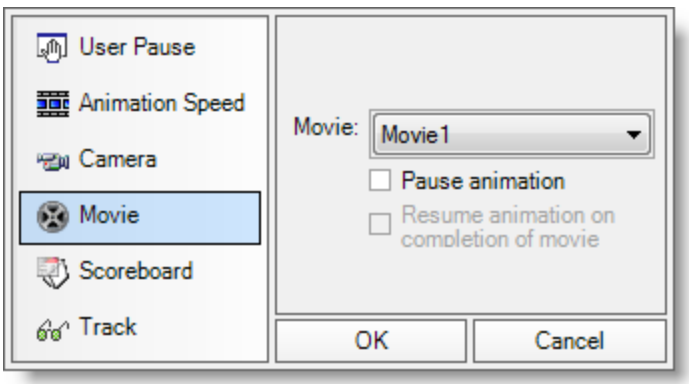
The Camera option allows you to set new camera positions, according to timed events, during animation. You will be able to choose between saved views or custom views that are defined in the following dialog.



- **Preset:** Allows you to choose one of the saved views from the drop-down list. For information on defining saved views see 3D Layout Menu on page 21. The Preset drop-down contains previously defined views, as well as the factory-set "Home" and "Top" views. Click the drop-down to see a list of available views.
- **Custom:** Allows you to custom define the view you wish to have displayed when this event occurs.
    - **Name:** Enter a name for this view. Please note that this view is not saved to your saved view list, but only saved for this event.
    - **Time:** The time the camera will take to move to the saved position. A value of 0 in this field will cause the camera to move instantaneously.
    - **Save:** After moving the camera in the layout to where you would like the view to be saved, click the Save button to set that view for this event.
    - **View:** Immediately moves the camera to the saved position. This is useful for seeing where the camera was previously saved for this event.

Movie

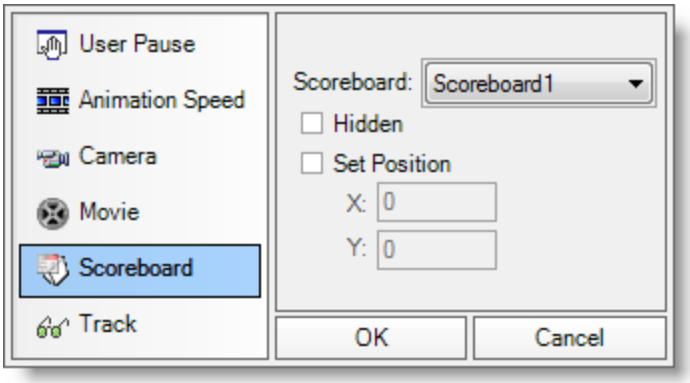
Allows you to control the behavior of your animation presentation around a movie event.



- **Movie:** Contains a list of movie files that can be added to the event list. For more information about defining a movie event, see How to Define a Movie.
- **Pause animation:** Select this checkbox if you wish to pause the animation when the movie event begins to play.
- **Resume animation on completion of movie:** This checkbox can only be selected if you first checked the **Pause animation** checkbox. Check the **Resume animation on completion of movie** if you would like the animation to unpause and continue once the movie has finished playing.

Scoreboard

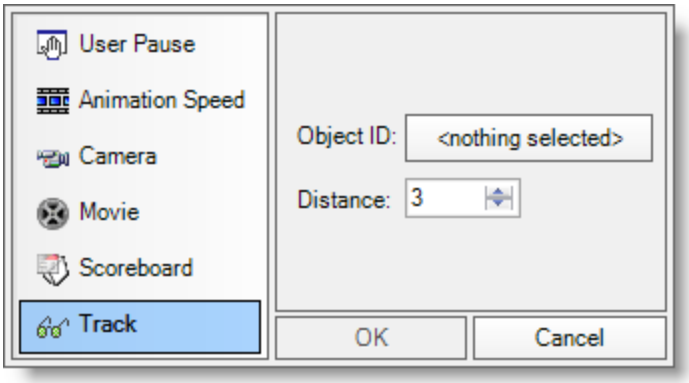
Allows you to display, hide, or move scoreboards at the specified time.



- **Scoreboard:** Choose the scoreboard you want to display/hide/move with this event from the drop-down list. For information on defining scoreboards see Scoreboards on page 53.
- **Hidden:** Leaving this box unchecked will cause the scoreboard to be displayed when the event occurs. Checking the box will hide the scoreboard when the event fires.
- **Set Position:** Checking this box will allow you to reposition the scoreboard. Leaving it unchecked will use the scoreboards default position. Since scoreboards are placed on top of the 3D layout as an overlay, all X/Y coordinates for scoreboards are measured from the top-left of the layout, and not the floor.

Track

The track option must be defined during animation. This feature allows you to set an event where the camera will follow an object until the camera is moved elsewhere.



- **Object ID:** As the animation is running, click on an object to select it to be tracked when this event occurs.
- **Distance:** The distance the camera will maintain as it tracks the object.

Synchronization

Whenever a model (.mod) file is simulated in ProModel, MedModel, or ServiceModel, and you choose to generate an animation script, you will be offered two choices of whether to overwrite the previous setup (.sup) file.

Choosing to Overwrite

Selecting “Yes” will overwrite the previous setup file. This will delete any custom setup information you have entered in 3D Animator for that animation.

Choosing to Synchronize

Selecting “No” will synchronize the setup file with the model file.

Synchronization is the process where changes to the objects in the model are reflected in the 3D animation setup file.

During synchronization, objects that have been added to the model are automatically added to the setup file, while objects no longer in the model are removed from the setup file. Synchronization detects changes to objects by their name; therefore, object name changes in the model should be repeated manually in the setup file in 3D Animator, otherwise the object will be removed from the setup file and then added again as a new object with default 3D information.

Synchronization Notes

- When labels are added or removed from the model after the setup file has been initially generated, they will not be automatically added to the setup file. They must be added manually.
- Path and conveyor joints that are added to the model are not automatically added to the setup file. They must be added manually.

Importing Google SketchUp Models into 3D Animator

Google SketchUp is a 3D modeling application that allows you to create 3D objects and download others from a free online database (called 3D Warehouse) containing thousands of 3D objects. This document will show you how to take a Google SketchUp object and import it for use in 3D Animator. To begin, you must first install Google SketchUp on your computer. Next, you will need to make sure the following plug-ins for Google SketchUp have been installed:

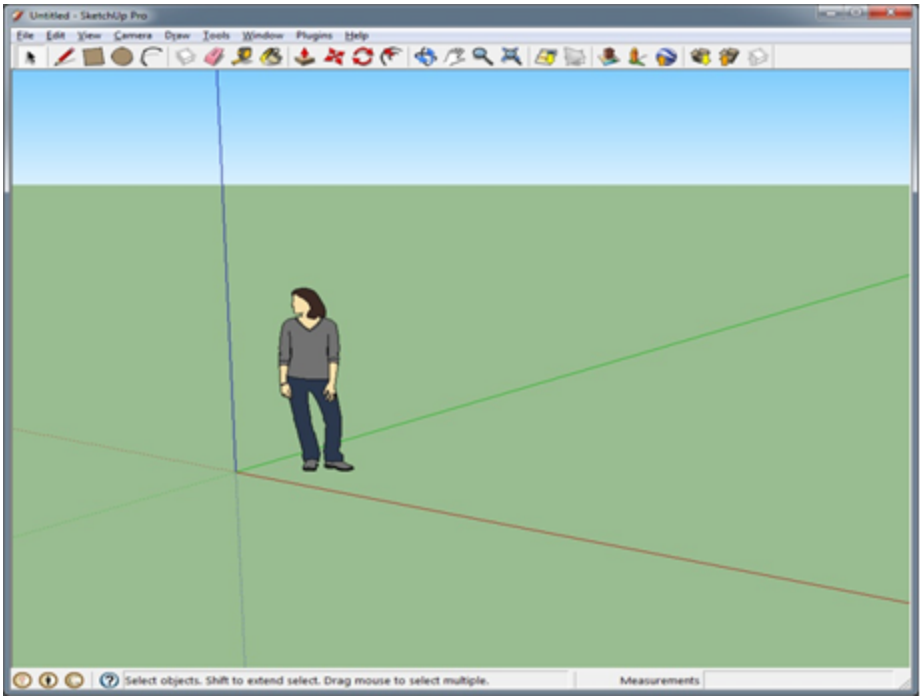
- 3D Animator Orientation
- 3D Rad DirectX Exporter

Installing 3D Animator Orientation and Rad Direct X Exporter Plug-Ins

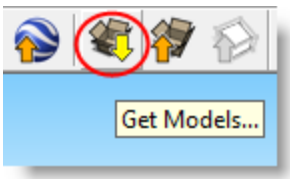
1. With Google Sketch Up open, select Window > preferences from the top toolbar. The Preferences dialog box will display.
2. Click on Extensions, and the extension panel displays.
3. Click on Install Extension button. Open dialog box displays.
4. Locate the **3DAnimatorOrientation.rbz** file, which can be found in the directory: C:\Program Files \ProModel Corporation\Tools\3D Animator\2.0\3DAnimatorOrientation.rbz.
5. Click the Open button, the Ruby plugin appears in the list of extensions.

Create or Download a SketchUp 3D Model

When you open SketchUp, you will notice the layout screen has a generic human graphic for size reference. From here, either create or download a 3D object that you would like to use in 3D Animator.

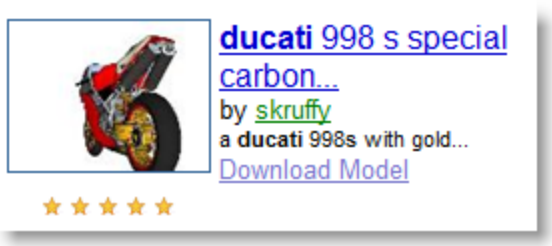


To start off simple, we suggest that you import a pre-made object from the Google 3D Warehouse by clicking on the “Get Models…” button from the SketchUp toolbar:

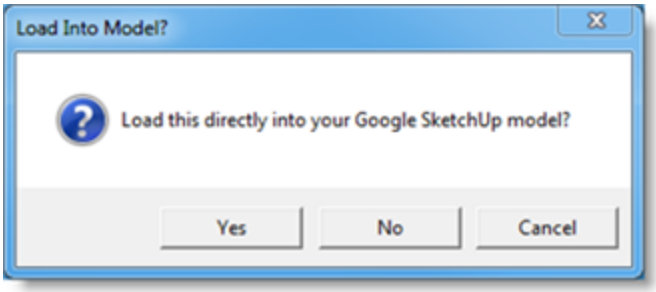


Once the Google 3D Warehouse opens up you will be presented with the following search window:

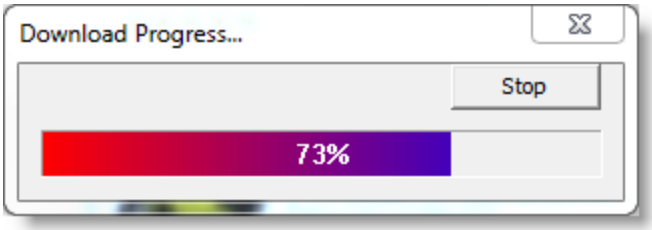
For this example, we are going to choose to download a Ducati motorcycle graphic into 3D Animator. Enter “Ducati” into the search field and select the Search button. You should be presented with several options. Locate the Ducati 998s Special…



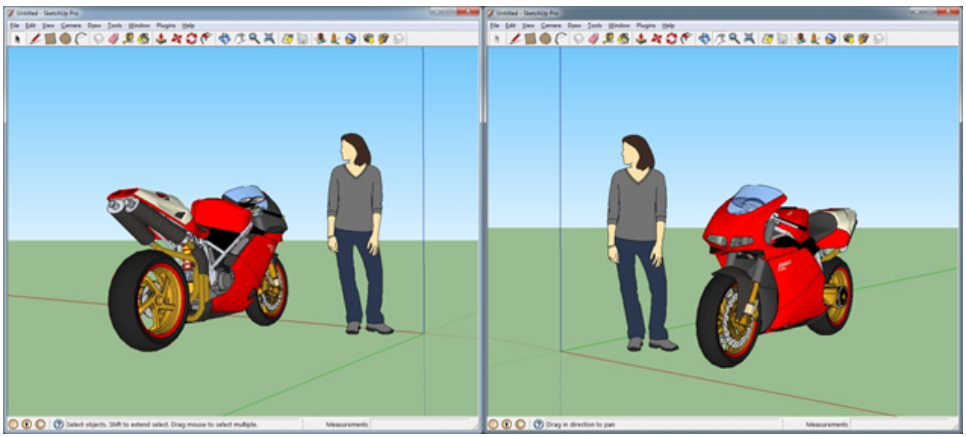
To download this 3D object, click on the “Download Model” link and you will be presented with the following message:



Choose “Yes” and the 3D object should begin to download.

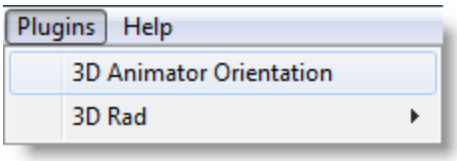


Once the download is complete, SketchUp will show your 3D object in the layout ready for you to orient, move, and align to where you need it to be like the example shown below:



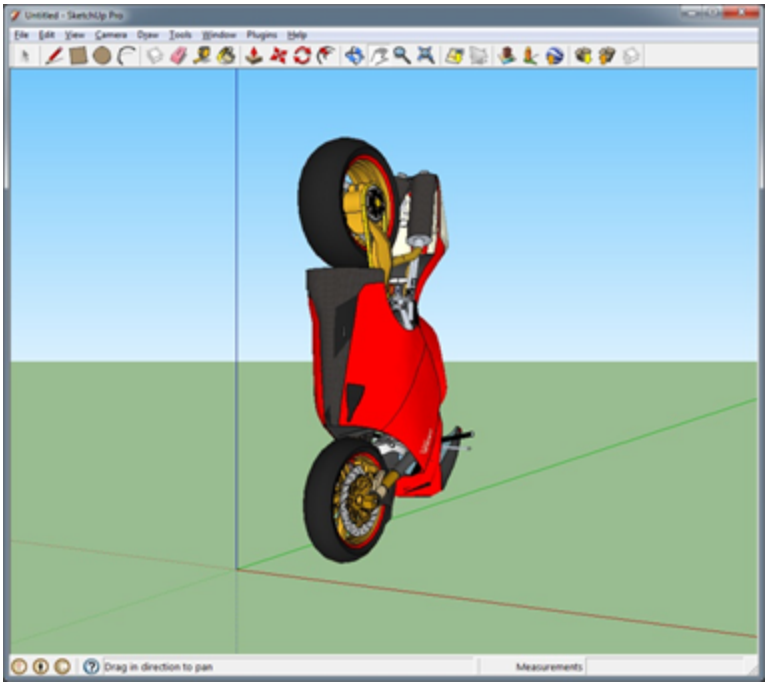
Orient a 3D Model in Preparation for Export to 3D Animator

You will orient the SketchUp object using the 3D Animator Orientation plug-in. This plug-in positions the object and prepares it for proper export to 3D Animator. To use this plug-in, first select the 3D Object with the cursor tool. Then, select **Plugins > 3D Animator Orientation**.



Please Note: unless you delete the generic human graphic, it will also be exported with the 3D object you are trying to work on.

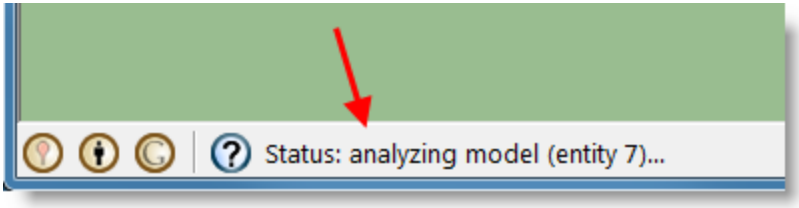
After your 3D object is oriented for 3D Animator, it should appear positioned similar to the following image:



Export a 3D Model as a DirectX File

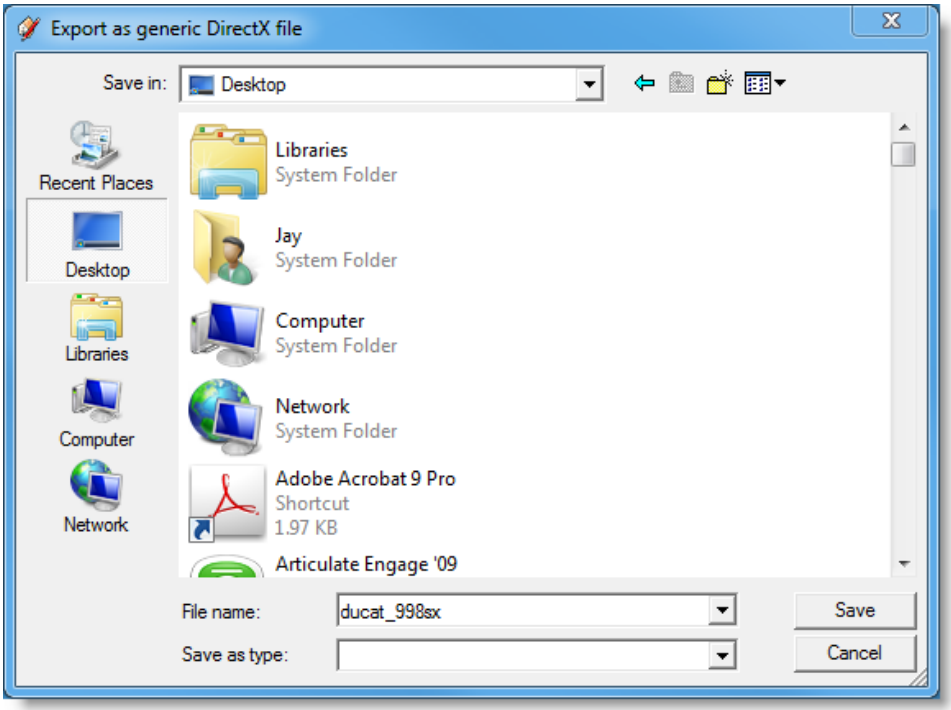
Now that your 3D object is oriented properly for 3D Animator, select to export the object to a DirectX format by selecting **Plugins > 3D Rad > Export as generic DirectX file (include backfaces).**

As soon as you select the export option, SketchUp will begin to convert the 3D object to the .X format so that it can be imported into 3D Animator.



Please Note: The conversion time will vary depending on the size and complexity of your object.

Once the object has been fully converted to .X, choose the directory where you would like it to be saved:

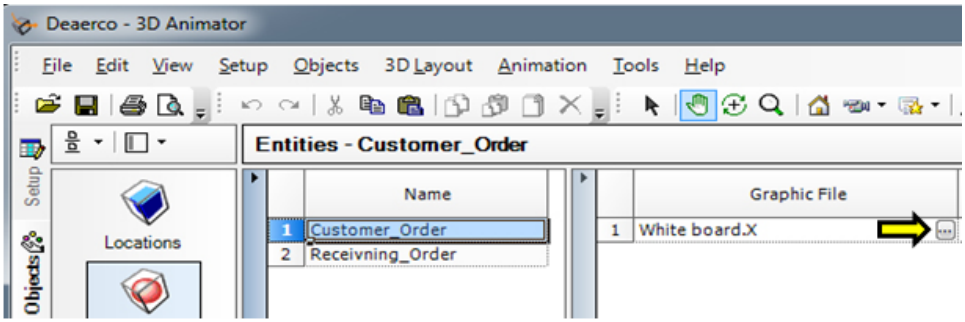


At this point you can also specify a different name for the file. Click Save and SketchUp will save the 3D object and prompt you that the file has exported successfully:

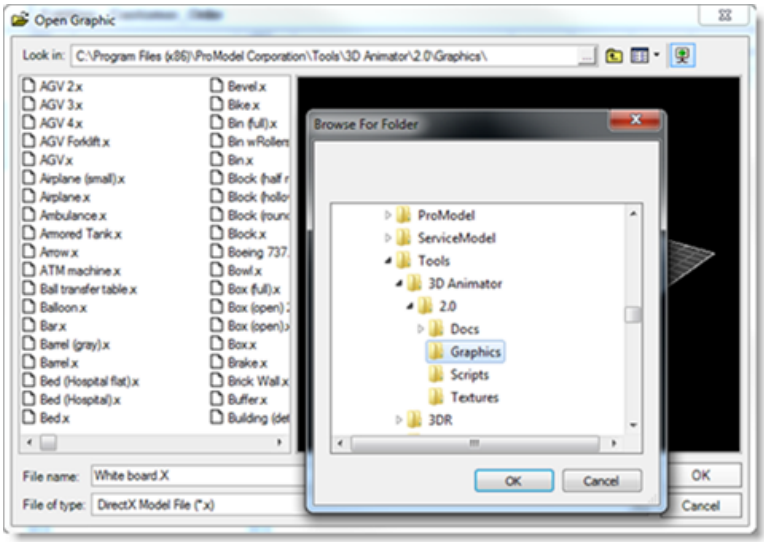
Importing a DirectX file into 3D Animator

Once the file has been exported from SketchUp as a DirectX file, you can import or load it into 3D Animator. It can be used as a Location, Entity, Resource, or Background Graphic. To do so, start 3D Animator and open up an existing setup file (.SUP). In this example we will replace an Entity graphic in the Deaerco demo model with the one exported from SketchUp.

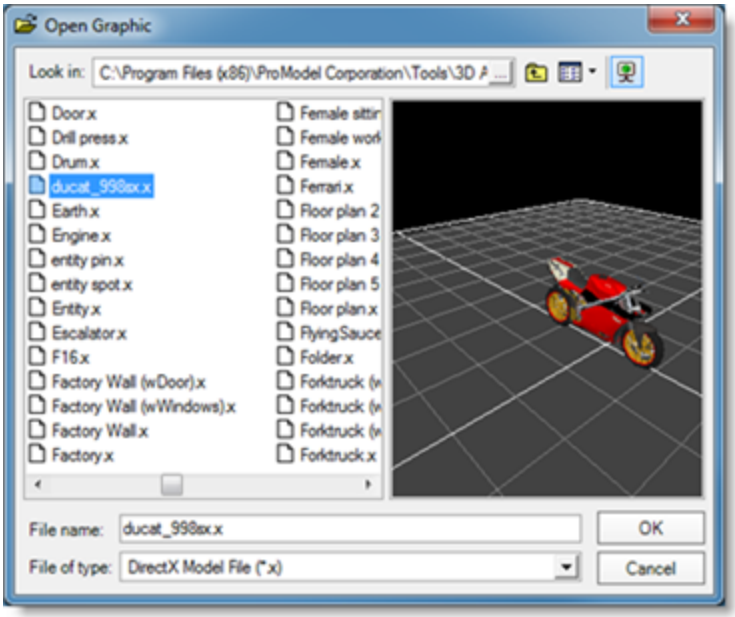
From the Objects menu select **Entities**. Click on the "Customer_Order" entity in the entities list and then select the **Browse** button next to the “White board.X” graphic file.



The **Open Graphic** window will appear. Click on the **Browse** button and locate the directory where the .X object was exported to. (In this example we saved the object to the Windows Desktop.)



Selecting the directory and clicking **OK** will then show the .X files that exist in that location. Your exported .X file should show up in the list. By selecting it you will be given a preview of the object as seen below:



Choose **OK** and the object will show up in 3D Animator (in this case, it will replace the entity graphic).

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