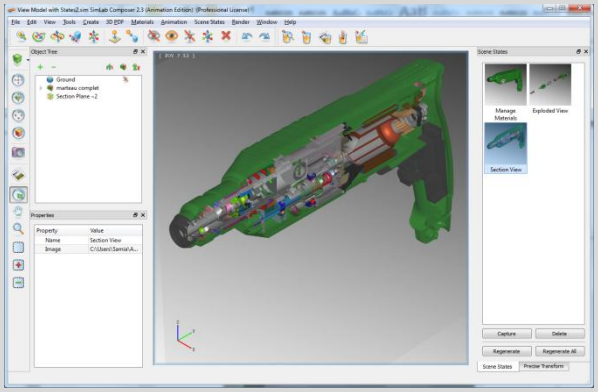
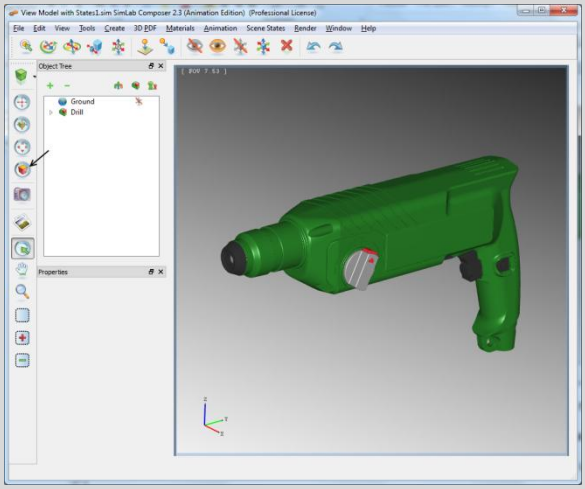
Tutorial: Visualizing a 3D Model

In this tutorial we are going to use scene states to show exploded and section views of a 3D model. Those states will be exported to a 3D PDF file, and will be used in creating multiple renders of the model.



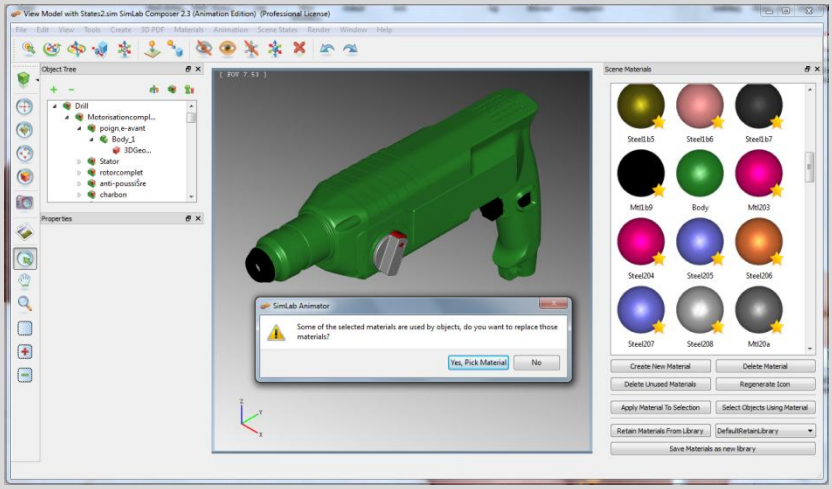
Manage Materials

1. Start by creating a new scene, with No Ground.
2. Click **File** -> **Import** or press (Ctrl + I) to import geometry. The Import **Geometry window** will open where you can browse for a 3D model file. For this tutorial it is a Drill 3D model. By default the model will be imported to the center of the scene, and you can zoom in using the mouse or by clicking **Zoom To Object** button, in the Main Toolbar.

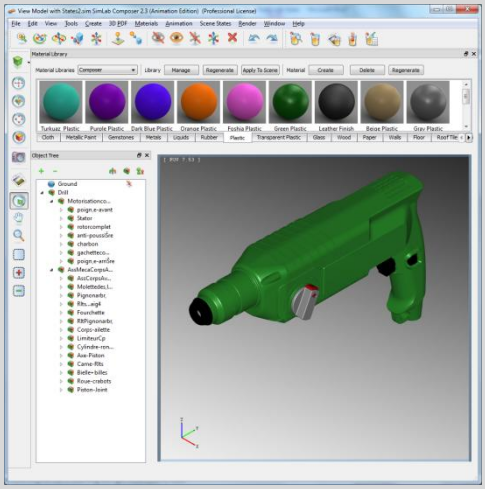


3. Select **Manage Scene Materials** (Ctrl + M) under the **Materials** menu. The **Scene Materials** window will appear on the right side of the application's window. Click **Delete Unused Materials** button, in the **Scene Materials** window, to get rid of unused materials.
4. By clicking the Drill's body, you can find that different parts of its green body use different materials in the Scene Materials window. To fix this select one of the body's green materials and change the Material **Name** property in the **Properties window** to Body. To display the Properties window right click anywhere on the toolbars area and select **Properties**, or select **Properties** under the View menu. Now select all the remaining body's materials

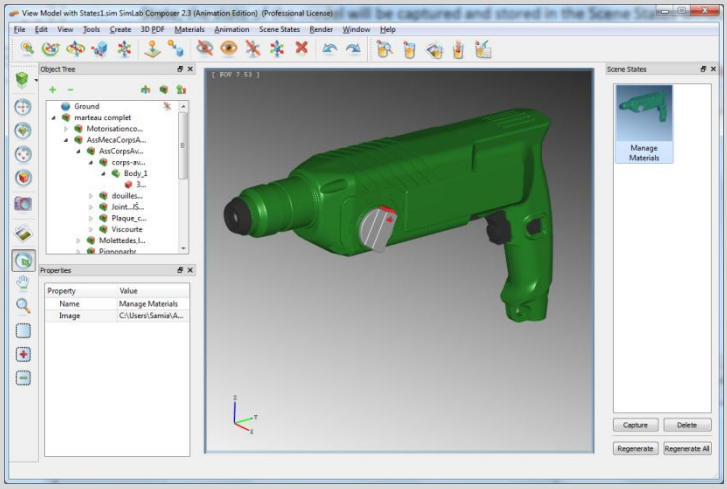
(by holding down the Ctrl key), to be able to select materials easily you can just pull the **Scene Materials** window to the left to widen it, as shown in the image below. Click **Delete Material** button, in the **Scene Materials** window, a message will appear informing that the materials you are about to delete are used by objects, and if you want to replace them. Click the **Yes, Pick Material** button, and select the material we just named Body.



5. Now to give the drill a real look, click **Show Materials Libraries** (Ctrl + B) from the **Materials** menu. Select the **Plastic** tab, and drag the Green Plastic material and drop it on the drill's body in the 3D view. Drag and drop the Gray Plastic material onto the drill's setting button. The Red Plastic onto the inside of the button, and finally the Pebble Finish material onto the trigger switch and the chuck.

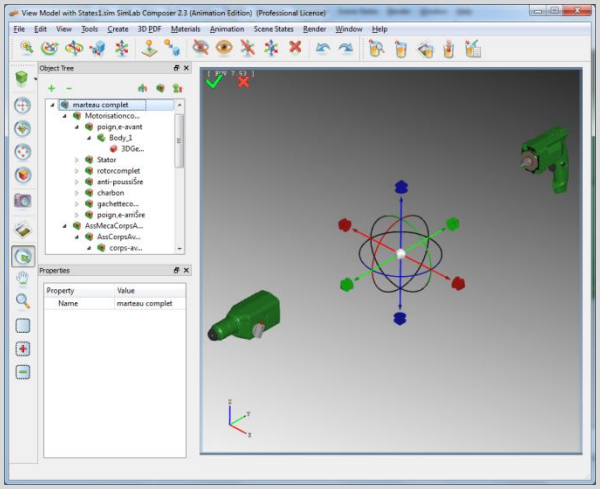


6. From the **Scene States** menu select **Manage Scene States**, where its window will open on the right of the application's window. Again from the **Scene States** menu select **Capture Scene State**, or click the **Capture** button in the Scene States window. The state of the model will be captured and stored in the Scene States window. Change the name of the state in the **Properties** window to Mange Materials.

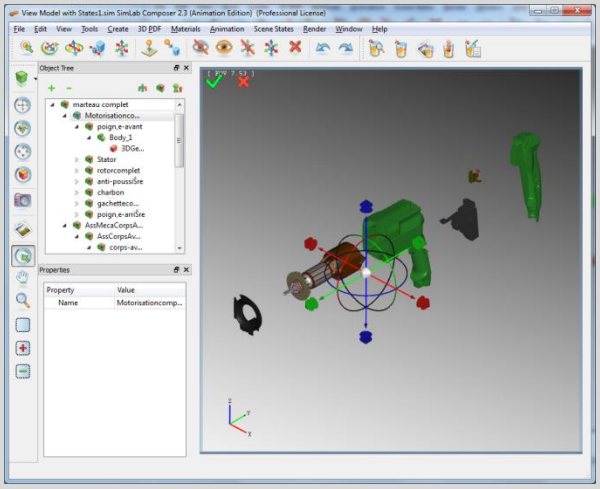


Exploded View

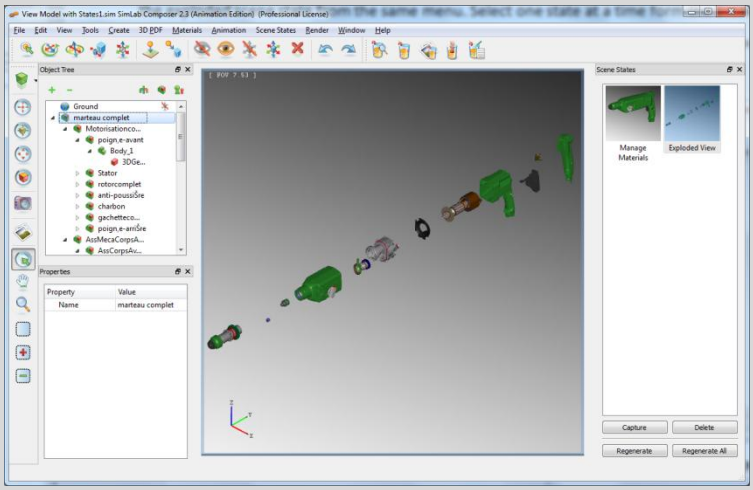
1. Select the top level of the drill's tree (or double click the model), and select **Explode Geometry** from the **Tools** menu. The explode dragger will appear with three transitional and three rotational draggers. For this model pull the green dragger. Depending on the model's assembly structure in the **Object Tree**, the model will be exploded into two sub-assemblies. To end this operation select the correct mark on the upper left corner of the application window.



2. Select one of the two subassemblies (let's start with the back part), and double click while holding down the 'Shift' key, to select the whole subassembly or you can just select it directly from the tree. Select **Explode Geometry** from the **Tools** menu, the six draggers will appear again, but this time on the back subassembly. Pull the green dragger to explode the different parts of the subassembly, and when satisfied click the correct mark to finish.



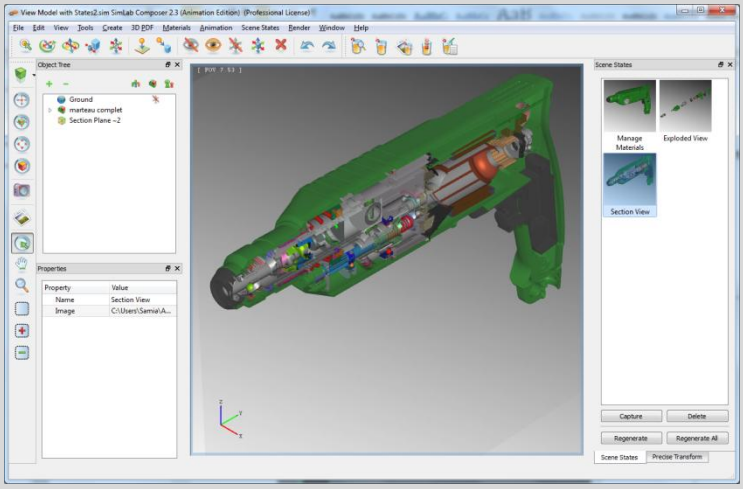
3. Repeat what we just did in the previous step, but with the front part of the drill.
4. Select **Manage Scene States** from **Scene States** menu, if not still open. Capture the exploded scene state from the same menu. Select one state at a time form the **Scene States** window, and edit its name in the properties menu to give each a meaningful name. Now if you are in any state or view of the model you can double click any state to display it.



5. The exploded view was done in three steps, so to unexplode the model select **UnExplode Geometry** from the **Tools** menu three times. Or just double click the Manage Materials state to go to the unexploded state of the model.

Section View

1. From the **Create** menu select **Section Plane**, and a section plane will appear along with six draggers. You can use the draggers to position the section plane, or you can use the **Precise Transformation** function in the **Tools** menu. Once you select this function the **Precise Transform** window will appear on the right hand side of the application window. While the section plane still selected enter -90 degrees in the Z rotation box. The plane will rotate accordingly.
2. Position the plane using the draggers, and rotate to view the other side of the model. Again **Zoom To** Object, capture the state, and change its name in the properties window.

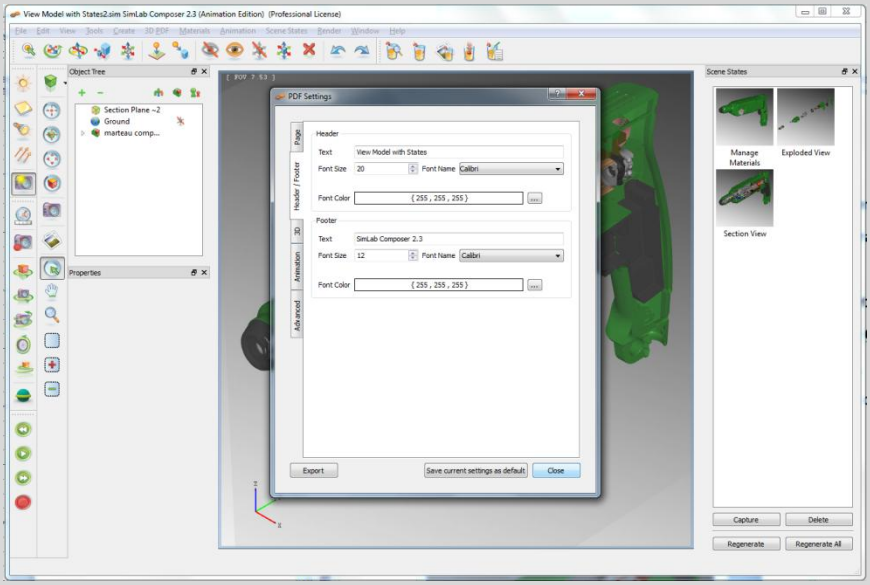


Double clicking any of the states created, the view in the 3D area will change to show that state.

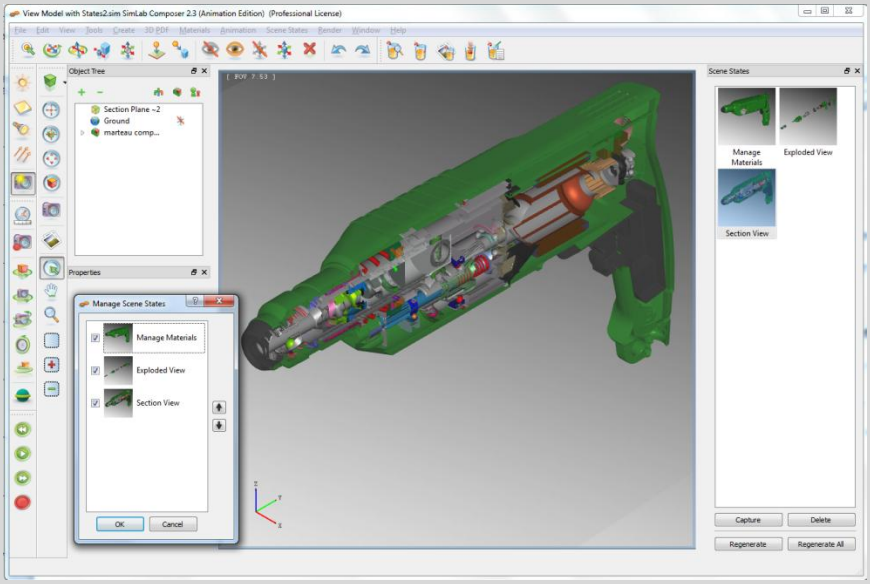
After creating these three descriptive states of the product, you are ready to export the 3D PDF file.

Exporting to 3D PDF

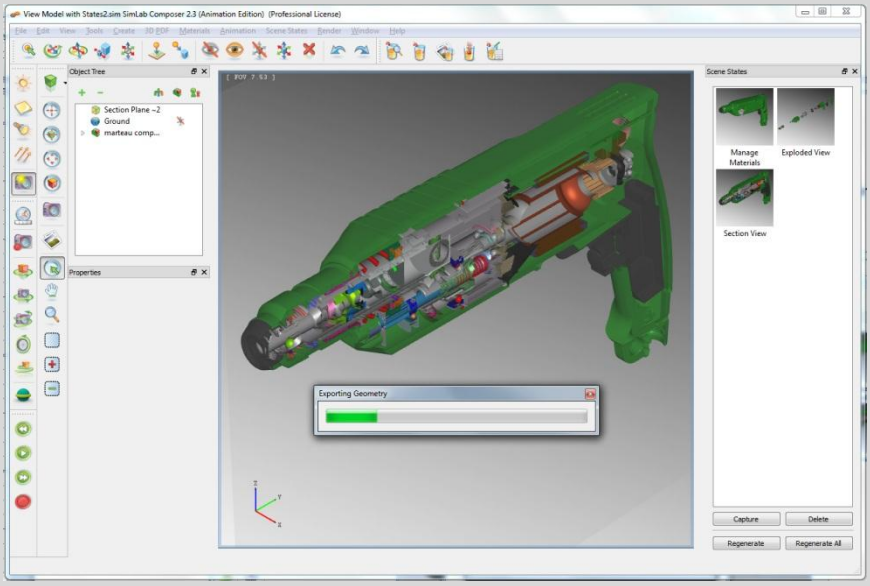
1. Before exporting to 3D PDF we need to set the format of the file. Go to 3D PDF menu -> **Settings**, the window will open. In the **Page** tab change the Background to Single Color gray. In the **Header / Footer** tab enter the text you want to appear in the file.



2. To export to 3D PDF format you can just click **Export** from the, already open, **PDF Settings** window. Another way is to click the **Save current settings as default** button, then click the **Close** button, and go to **File** -> **Export** , and select PDF from the Save as type. Either way, after choosing the output file name, the **Manage Scene States** window will appear to select the order of the states before exporting them to the PDF file.



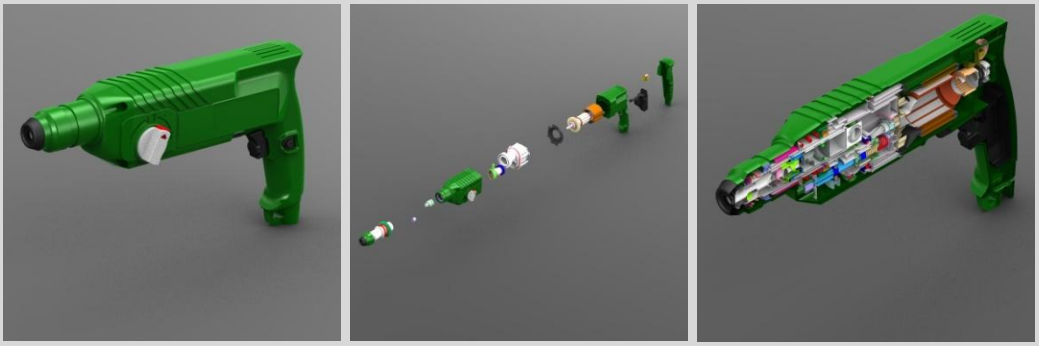
3. Click Ok, and the **Exporting Geometry** progress bar will appear indicating that the file is being exported. The export time depends on the size of the file.



Rendering the States

1- If you have access to SimLab Composer Rendering or Animation editions, you can render scene states by clicking Render scene states tool button in the render toolbar or clicking the menu Render -> Render Scene States.

2- Captured scene states will be rendered automatically one by one.



Exporting to IPad

1. The model can be exported to IPad by clicking **File** -> **Export to iPad**, and the **iPad export** window will appear.

   The file extension for the iPad files is *.zim, input a name for the file, click save.
2. Exported file can be opened using SimLab CAD Viewer.