

# Studio Advanced 24.03

## User Guide

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# Contents

<b>1. Introduction.....</b>	<b>5</b>
1.1. About Studio.....	5
1.1.1. An overview of editions and their modules.....	6
1.2. Copyright Notice.....	6
1.2.1. Third party license information.....	8
1.3. Licenses.....	26
<b>2. Getting Started with Studio Advanced.....</b>	<b>27</b>
2.1. Tutorial: Folding a box.....	27
2.2. Tutorial: revolve a path and add labels.....	31
2.3. Tutorial: Creating a flexible bag.....	34
2.4. Tutorial: Creating a shrink sleeve on a bottle.....	37
2.5. Tutorial: combining shapes & working with Scenes.....	40
2.5.1. Additional steps to create the complete display.....	45
2.6. eLearning.....	48
<b>3. Step 1: Getting the 3D shape.....</b>	<b>49</b>
3.1. About Structural Design files and Printable Parts.....	49
3.1.1. The Studio Toolkit Application.....	50
3.2. Create a 3D Sheet.....	71
3.3. Create a box.....	72
3.3.1. Creating a Basic Box.....	72
3.3.2. Create a box based on die lines.....	76
3.3.3. Check the die and solve inaccuracies.....	83
3.3.4. Fold ArtiosCAD file.....	88
3.3.5. Tips & Tricks: create a cutout window in a box.....	88
3.4. Create a label.....	91
3.4.1. Front, Back and Wrap Around Labels.....	92
3.4.2. Creating a Freeform Label.....	96
3.4.3. Creating a revolved shape with labels.....	99
3.4.4. Creating a label from Curves.....	113
3.5. Create a flexible bag.....	115
3.5.1. Creating a New Bag.....	115
3.5.2. Changing the appearance of the bag.....	138
3.5.3. Live Shaping.....	144
3.5.4. Tips&Tricks: fine-tuning the appearance of a bag.....	157
3.6. Working with Shrink Sleeves.....	161
3.6.1. About Shrink Sleeves and Multipacks.....	161
3.6.2. 3D workflow for Shrink Sleeve Package.....	164
3.7. Browse Shapes.....	170

<b>4. Step 2: Applying and adjusting artwork.....</b>	<b>172</b>
4.1. The Studio Window.....	172
4.1.1. Refreshing.....	173
4.1.2. Designer, Visualizer and Ray Tracing quality.....	174
4.1.3. Changing the Document Orientation.....	174
4.1.4. Changing the view in the 3D preview.....	175
4.1.5. Full Screen Mode.....	175
4.1.6. The Studio Window options panel.....	176
4.2. Working with Parts and Panels.....	182
4.2.1. Selecting Parts and Panels.....	182
4.2.2. About Hidden Panels.....	184
4.2.3. Zooming in on Panels in the document window.....	184
4.2.4. Turn Box.....	185
4.2.5. Bring Panel Forward and Send Panel Backward.....	186
4.2.6. Creating Copies with the Distribute command.....	186
4.3. 3D Guides.....	200
4.3.1. Creating and Editing 3D Guides.....	201
4.3.2. Numeric Positioning of 3D Guides.....	202
4.4. Conical Warp.....	203
4.4.1. To apply conical warping.....	203
4.4.2. To reverse the conical warping.....	204
4.5. Artwork Predistortion for Shrink Sleeves.....	204
4.5.1. Predistort.....	204
4.5.2. Working with predistorted art.....	210
<b>5. Step 3: Presenting.....</b>	<b>211</b>
5.1. Visualizer Quality.....	211
5.1.1. Refreshing.....	212
5.1.2. Inks ignored in the 3D view.....	212
5.2. Ray Tracing Quality.....	213
5.3. Scene Settings.....	216
5.3.1. Environment.....	216
5.3.2. Floor Effects.....	217
5.3.3. View.....	217
5.3.4. Scene Presets.....	218
5.4. Scenes and Multiple Documents.....	219
5.4.1. Alternative scenes.....	219
5.4.2. Back side and Double-sided Artwork.....	220
5.4.3. Collada files or ACD files with Multiple Printable Parts.....	222
5.4.4. Multi-part structures from ArtiosCAD: ACD or Collada files.....	224
5.4.5. Navigating between the different Illustrator documents.....	226
5.4.6. Different graphics on shapes of the same size.....	227
5.5. Finishing Operations.....	228
5.5.1. Finishing Operations and swatches.....	229

5.5.2. The Finishing Operations palette.....	229
5.5.3. Set the Substrate Material.....	231
5.5.4. Add a new Finishing Operation.....	232
5.5.5. Finishing Profiles.....	238
5.6. Tips&Tricks: Using a Diecut operation.....	240
5.7. Tips & Tricks: Clear substrates and White Underprint.....	240
<b>6. Step 4: Share.....</b>	<b>242</b>
6.1. Export Image.....	242
6.1.1. Export Ray Tracing Quality Image.....	244
6.2. Export Image Sequence.....	245
6.2.1. Integrate an Image Sequence in an HTML5 web page.....	246
6.3. Export Collada File.....	248
6.4. Export KeyShot.....	249
6.5. Export a 3D PDF or U3D File.....	250
6.6. Export a Binary glTF.....	252
6.7. Studio Viewers.....	255
6.7.1. Studio Viewer for Mac OS and Windows.....	255
6.7.2. Studio Viewer for Mobile Devices.....	255
<b>7. FAQ.....</b>	<b>258</b>
7.1. Using Studio and WebCenter Connector.....	258
7.2. Using Studio and Esko Cloud Connector.....	258
7.2.1. Render Packshots on Esko Cloud.....	259
7.3. I don't have Studio Advanced - where is my documentation ?.....	260
7.4. Scripting.....	261

# 1. Introduction

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## 1.1. About Studio

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Studio is a unique set of tools for 3D packaging design made specifically for packaging artwork professionals.

Working in 3D for packaging typically consists of 4 steps: first you create a shape or "structure". Next you apply artwork to that shape. Then you set up the 3D representation. And finally you share the result as an image, a dynamic 3D representation, etc.

To achieve this, Studio has different components. It takes you through different software applications, such as Adobe Illustrator and the Studio Toolkit.



### Step 1: Get the 3D shape

The first step is to prepare a 3D packaging shape, with a matching 2D key line template. See [Step 1: Getting the 3D shape](#) on page 49

- You can receive a 3D shape of a box created in **ArtiosCAD** using 3D Modeling or 3D Drafting
- In **Studio** in Adobe Illustrator
  - you can clean up die-drawings of boxes and fold them into a 3D shape.
  - you can create a basic box.
  - you can create round objects with one or more labels.
- In the **Studio Toolkit**
  - you can draw labels on existing shapes.
  - you can create 3D models of flexible packaging.\*
  - you can create a heat shrink sleeve around one or more shapes, and simulate the distortion.\*

### Step 2: Apply Artwork

The second step is to make sure the production artwork fits to the structure. See [Step 2: Applying and adjusting artwork](#) on page 172

- In Adobe Illustrator, ArtPro or PackEdge, you can use the **Studio** window to get a preview of the 3D object with its artwork, check every detail, and fix specific issues.
- Using the Studio tools in Adobe Illustrator, you can apply a **Conical Warp** for labels on a round shape.
- Using the Studio tools in Adobe Illustrator, you can apply **Predistortion** for artwork on Shrink Sleeves.\*

### Step 3: Presenting

The third step is to set up the presentation of your 3D model. See [Step 3: Presenting](#) on page 211

- In the **Studio** panel, you can combine multiple documents in multiple scenes.
- With the **Finishing operations** you can simulate print substrates and a wide range of print and finishing effects.

### Step 4: Share

The final step is to share your 3D design. See [Step 4: Share](#) on page 242

You can share your 3D design using the Studio Viewer or Webcenter, or use your 3D design in Store Visualizer.

You can export your 3D designs to share realistic virtual packaging mock-ups as static images or interactive 3D.



**Note:** Items marked with an asterisk (\*) are not available in Studio Essentials, only in Studio Advanced.

## 1.1.1. An overview of editions and their modules

**Studio** is available in two editions: **Studio Essentials** and **Studio Advanced**. However, Studio is also still offered as in earlier versions, as 6 separate modules. The table below shows the relation between the editions and the modules.

Module	Studio Essentials	Studio Advanced
Studio Designer	✓	✓
Studio Toolkit for Boxes	✓	✓
Studio Toolkit for Labels	✓	✓
Studio Toolkit for Flexibles		✓
Studio Toolkit for Shrink Sleeves		✓
Studio Visualizer for Adobe Illustrator	✓	✓

This user manual is about Studio Advanced. If you have some but not all of its modules, some of the functionality described in this manual will not be available to you. See also: [I don't have Studio Advanced - where is my documentation?](#) on page 260

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Make sure to configure the license server in Adobe Illustrator by selecting **Help > Esko > Plug-ins ....** Select the Network License Setup button at the bottom of the Esko Plug-ins dialog.

## 2. Getting Started with Studio Advanced

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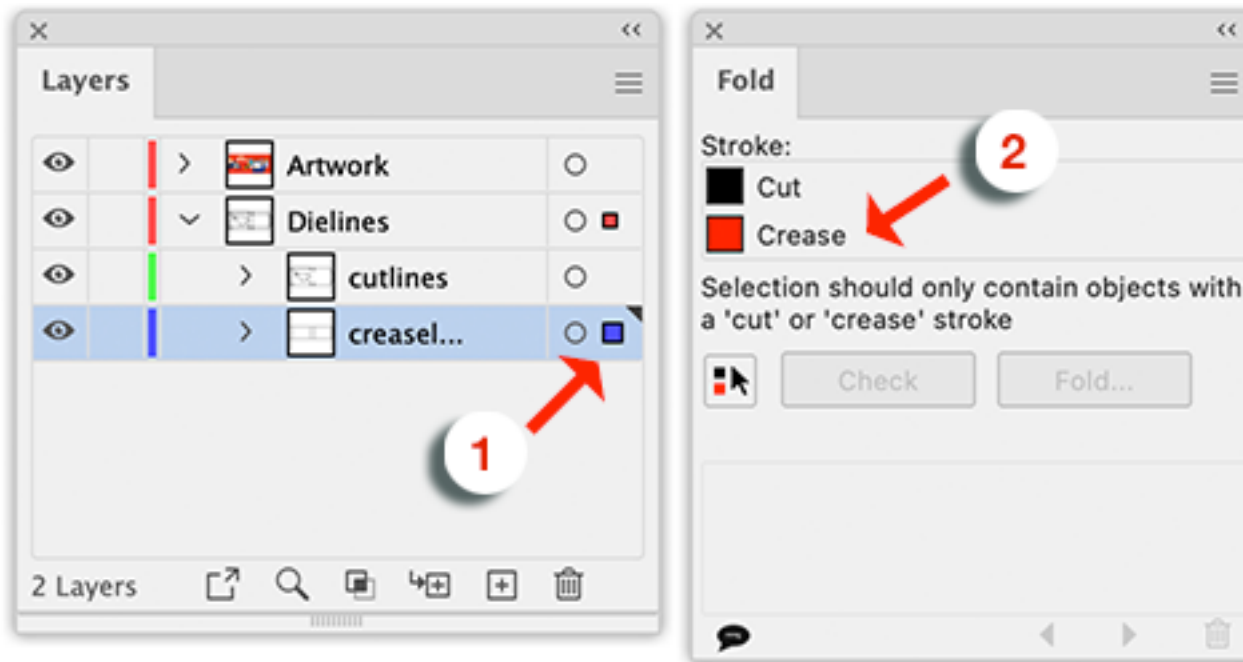
### 2.1. Tutorial: Folding a box

---

In this tutorial, we will assign cut and crease properties to die lines, fold it into a box and save it as a ARD file. We will then use this ARD file on the graphic design of the box to get a 3D Pack shot as shown below.




1. If you didn't download the sample files already, you can download a ZIP containing all files from this location: <https://docs.esko.com/docs/en-us/studioessentials/16/otherdocs/StudioTutorials.zip>.
2. From the `Expert Box` folder, open the file `EXPERT_Design.ai`  
This file contains all die lines, but at this moment not recognized as such.
3. Assign the correct Crease and Cut properties to the die lines
  - a) Open **Window > Esko Studio > Show Fold Window** or use the shortcut **Cmd+Alt+1**(Mac) or **Ctrl+Alt+1**(Windows).
  - b) In Illustrator's Layers menu, select all objects in the sublayer "creaselines" and click the **Crease** swatch in the **Fold** window.



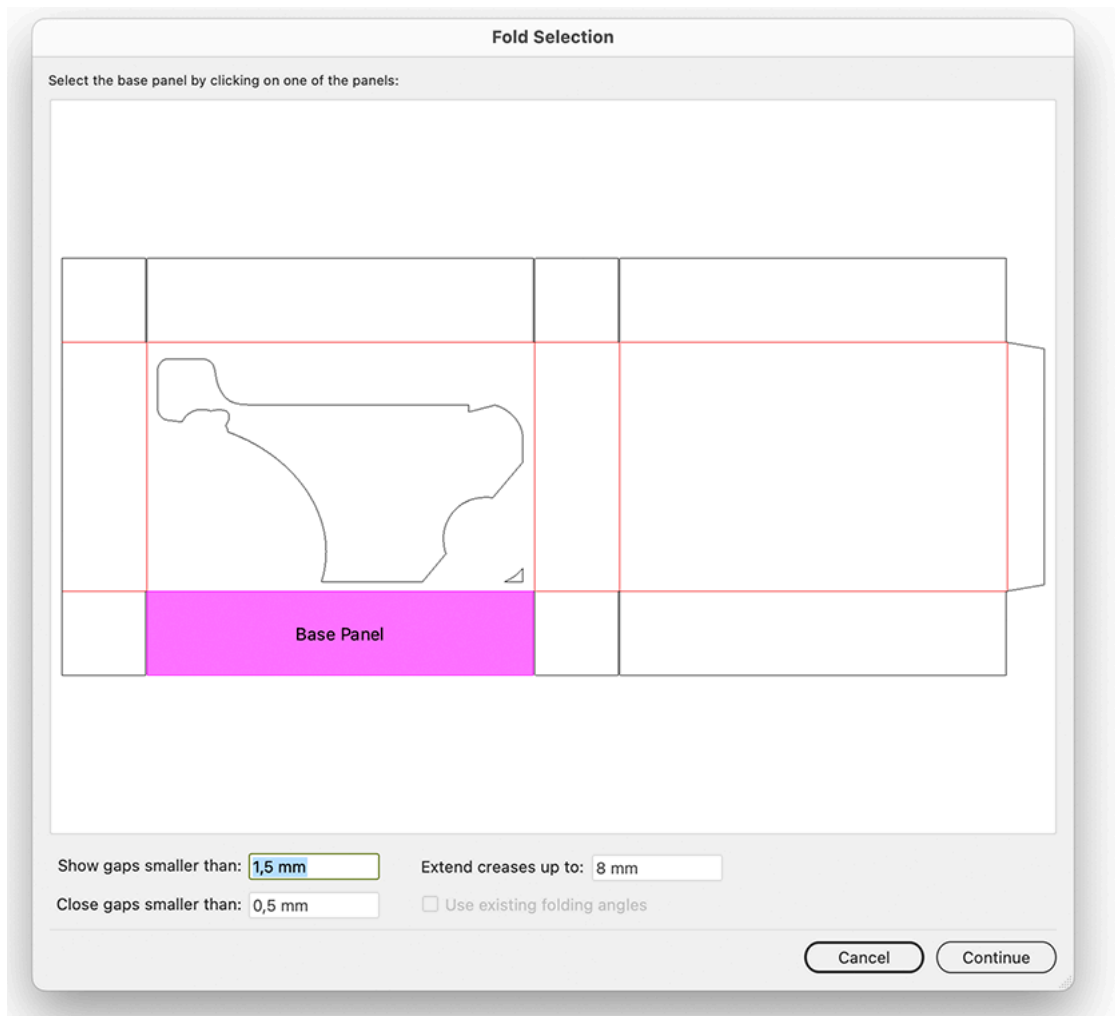
c) In Illustrator's Layers menu, select all objects in the sublayer "cutlines" and click the **Cut** swatch in the **Fold** window.

4.

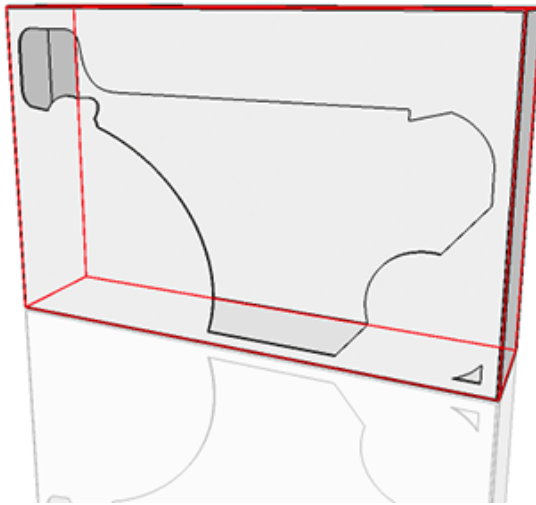
Click the **Select all Cuts and Creases** button , and click the **Check** button to check the die for inaccuracies.

You will get a warning that double lines were found. Click **Yes** to let Studio fix it automatically.

5. With all Cut and Crease lines still selected, click **Fold** to open the Fold window.




- Click in the bottom left panel (see image above) to set it as **Base Panel** and click **Continue**
- Select **E Flute** as board, and click **Continue**
- Click **Select All Fold Lines** and set the **Folding Angle** to 90 degrees. You now already get a 3D preview of the box.



- d) Click **Save As** and save your box as an ARD file.
- e) When asked if you want to place the ARD file in the current document, click **Yes**
6. Open the Studio window: choose **Window > Esko Studio > Studio Window** or use the shortcut **Cmd +Alt+4** (Mac) or **Ctrl+Alt+4** (Windows).

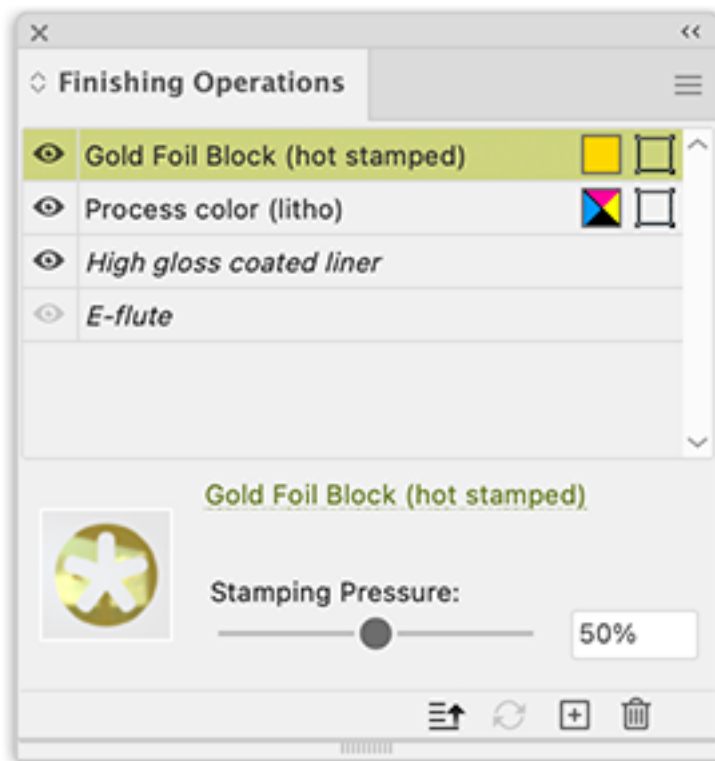
You immediately get a 3D preview of your box. Click and drag to rotate it to inspect all sides.

7. We will now add two finishing operations: a liner, and a gold foil.
  - a) Open the Finishing Operations panel by choosing **Window > Esko Studio > Finishing Operations**
  - b) Click the **Add Operation** button 
  - c) Choose **Esko Standard Library > Board Liners > High gloss coated liner** and click **OK**
  - d) Select **Apply full coverage** to apply the liner on the complete design, and click **OK**
  - e) In the **Finishing Operations** palette, double-click the yellow spot color.

This yellow spot color was used by the designer to indicate where the gold foil needs to be applied. We will convert this spot color into a finishing operation.

- f) Choose **Esko Standard Library > Foils > Gold Foil Block (hot stamped)** and click **OK** twice

The Finishing Operations palette should now look like this:



- g) In the Scene Settings in the Studio window, choose **Visualizer Office**

This will change the lighting environment and switch to **Visualizer Quality**. Once the Studio window is refreshed, you will get a realistic preview of the box, including the gold foil. Rotate the box to inspect it.

8. We will now export a TIFF packshot of the box

- Rotate (by clicking and dragging) and zoom (using the Zoom slider) to position the box the way you want it.
- In the Studio window flyout menu, choose **Export...**
- Set **Export Type** to Image, and **File Type** to TIFF, and click **Export** to save a TIFF packshot you can share with your clients.

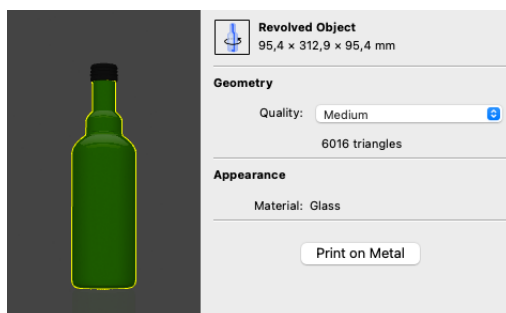
## 2.2. Tutorial: revolve a path and add labels

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In this tutorial, we will create a bottle by revolving a profile path. We will add labels to it, and apply a graphic design on these labels. We will export this as a collada file to be previewed in one of the available Viewers.



1. If you didn't download the sample files already, you can download a ZIP containing all files from this location: <https://docs.esko.com/docs/en-us/studioessentials/16/otherdocs/StudioTutorials.zip>.
2. From the `SPEED Bottle` folder, open the `Bottle_Outline.ai` file  
This file contains two paths, representing the contours of a bottle and its cap.
3. Open the Studio window: choose **Window > Esko Studio > Studio** or use the shortcut **Cmd+Alt+4** (Mac) or **Ctrl+Alt+4** (Windows).  
Since there is no Structural Design file in this document, the Studio window is empty.
4. Select both paths, and choose **Revolve Path in Toolkit** from the fly-out menu of the Studio Window.  
The **Studio Toolkit** application will open.
5. For the **Axis**, select the leftmost option and click **OK**  
The bottle has two parts: the cap and the bottle.



6. In the **Appearance** section, you can see the materials of your bottle. You can set the materials by clicking the **Apply Materials** button, selecting a part and choosing a material preset. We used a black matt plastic cap and a green glass bottle. Click **Done** to continue.
7. Add a **Front label** by selecting the bottle, clicking **Add Label** and selecting **Front Label**. Set its dimensions to 100 mm width, 115 mm height and 40 mm Base.
8. Add a **Back label** by selecting the bottle, clicking **Add Label** and selecting **Back Label**. Set its dimensions to 70 mm width, 100 mm height and 45 mm Base.



9. Save the bottle as a Collada file.
  - a) Click **Save As**
  - b) Choose a name and location for the file, and click **Save**
  - c) Close Studio Toolkit.
10. In Adobe Illustrator, open the file `SpeedRound_Front.ai` from the `SPEED Bottle` folder.
11. Click **Place a Structural Design file** in the Studio Window and select the Collada file you saved. The Collada file contains two printable parts. Choose the Front Label.
 

You immediately get a 3D preview of your bottle. Click and drag to rotate it to inspect all sides. You can see the back label is still empty.
12. Repeat the three previous steps using the `SpeedRound_Back.ai` file, but this time select the **Back Label** printable part
 

You now get a 3D preview of your bottle with both labels. Click and drag to rotate it to inspect all sides. Double-click a label to select the corresponding Illustrator document.
13. In the fly-out menu of the Studio window, choose **Scene Settings**, and select the **Visualizer Light Photo Studio** Scene Preset. Click **OK**

This will change the lighting environment and switch to **Visualizer Quality**. Once the Studio window is refreshed, you will get a realistic preview of the bottle, including the transparent glass. Rotate the bottle to inspect it.
14. We will now add a "die cut" finishing operation to apply rounded corners on the front label.
  - a) Go to the `SpeedRound_Front.ai` document.
  - b) In Illustrator's Layers palette, select the compound path in the "RoundedCorners" layer. Since this is a Compound path, you first have to release it by using the shortcut **Cmd+Alt+Shift+8** (Mac) or **Ctrl+Alt+Shift+8** (Windows). Only select the rectangle with rounded corners
  - c) In the fly-out menu of the Studio Window, select **Send Path to Toolkit**

The bottle will be opened in Studio Toolkit, and the path will be selected as Die-cut path.
  - d) In Studio Toolkit, select **File > Save**
  - e) Return to Adobe Illustrator.

You will get a message that the Structural Design file was changed. Click **Update**. You will see the label with rounded corners.



15. Save the design as a Collada file to be previewed in one of the available Viewers.
  - a) In the Studio window flyout menu, choose **Export...**
  - b) Set **Export Type** to Collada File, and click **Export...** to save the file as a collada file.



**Note:** Unlike the first collada file we saved in Studio Toolkit, which contained only the structure (bottle and labels without graphics), this second collada file is just for viewing.

16. Open the file in the **Studio Viewer** application.

The Studio Viewer is a free application that is installed automatically when installing Studio, and can also be downloaded from the Esko website <http://www.esko.com>

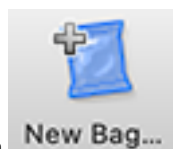
You can also use the free mobile app, available from the App store, or open the file in the WebCenter Viewer.

## 2.3. Tutorial: Creating a flexible bag

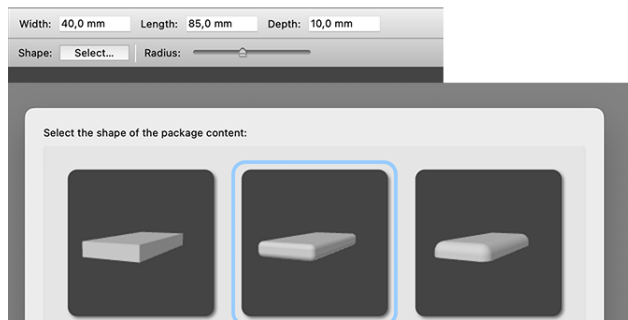
In this tutorial, we will create a flexible bag in Studio Toolkit. We will then apply a graphic design on it, and use some finishing operations to get a very realistic preview. We will export this as a collada file to be previewed in one of the available Viewers.




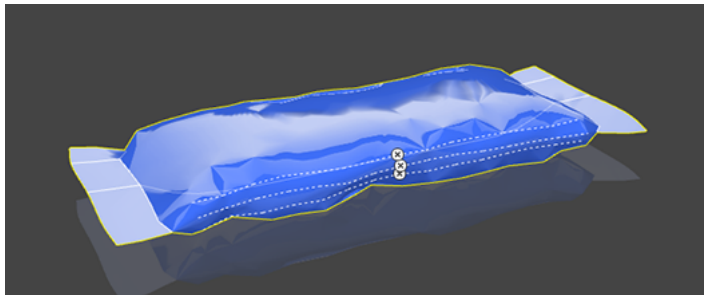
1. If you didn't download the sample files already, you can download a ZIP containing all files from this location: <https://docs.esko.com/docs/en-us/studioessentials/16/otherdocs/StudioTutorials.zip>.
2. Open **Studio Toolkit**
3. Create the flexible bag
  - a)




- Click the **New Bag** button **New Bag...**, select **Pillow Bag** and click **OK**.
- b) Set the dimensions for the bag: Width 45mm, Length 120mm, Top and Bottom Seal 10mm, Back Seal 15mm.
- c) Enable **Insert object** to add content to the bag.
- d) Set the dimensions of the object: width 40mm, length 85mm, depth 10mm.
- e) Click the **Select** button to define the **Shape**. Choose the shape with rounded corners (top row, middle column) and click **OK**. Set the **Radius** slider approximately in the middle, and click **Done**



- f) Set the Appearance settings to Glossy, 75%, with 0.30 Rounding.
4. We will now apply some basic live shaping to make the shape more realistic. This step is optional, so you could skip it.
- Click the **Live Shaping** button. Live shaping immediately starts
  - Click the **Pause** button to temporarily stop the live shaping process.
  - c) Select the **Fold Lines** tool  and drag a few parallel fold lines along the long side of the bag, to smoothen the bag.



- d) Switch back to the **Camera** tool  or hold the Space bar to rotate the bag. Repeat the previous step on the other side of the bag.
  - e) Click **Resume** to resume live shaping. You will immediately see the bag straightening on the fold lines.
  - f) Click **Done** to stop live shaping.
5. Select **File > Save** and enter a name for the Collada file.
6. In Adobe Illustrator, open the `ColorWrapper.ai` file from the `Color` folder.
7. Open the Studio window: choose **Window > Esko Studio > Studio Window** or use the shortcut **Cmd+Alt+4** (Mac) or **Ctrl+Alt+4** (Windows).

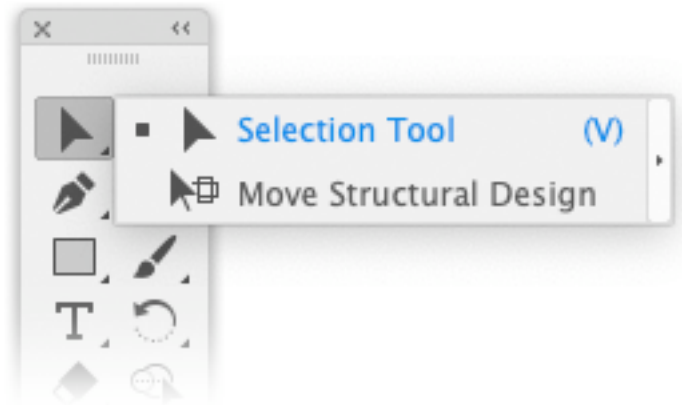
Since there is no Structural Design file in this document, the Studio window is empty.

8. Click **Place a Structural Design file** in the Studio Window and select the Collada file you saved, or take the `ColorWrapper.zae` file from the `Color > Structure` folder.



**Note:** This example collada file has been finetuned using fold lines and pullers. You can open it in Studio Toolkit and start Live Shaping mode to see all pullers and fold lines.

9. The graphic design is not aligned with the Structural Design. Use the **Move Structural Design** tool to align the structural design on the graphics.

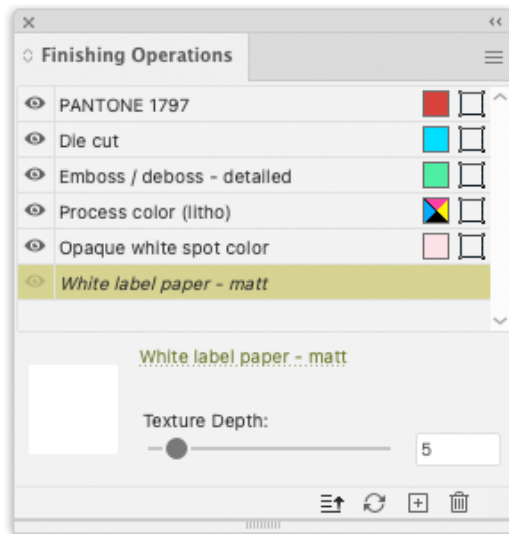


You can use the red triangle as a reference point for easy alignment.



10. We will now add a "die cut" and "emboss" finishing operation to get a more realistic 3D view
- Open the Finishing Operations panel by choosing **Window > Esko Studio > Finishing Operations**  
You notice that the white opaque spot color is automatically recognized.
  - In the flyout menu of the the Studio window, choose **Visualizer Quality**  
Once the Studio window is refreshed, you will get a realistic preview of the wrapper, including the white opaque ink. Rotate the wrapper to inspect it.
  - In the **Finishing Operations** palette, double-click the green spot color.  
We will use the green stripes for embossing, to simulate the ridges created by the sealing machine
  - Use the Search field to find the **Emboss / Deboss - detailed** operation, select it and click **OK** twice
  - In the **Finishing Operations** palette, double-click the blue spot color.  
We will use the blue triangles as a die cut, to generate the characteristic edges of the seals.
  - Use the Search field to find the **Die Cut** operation, select it and click **OK** twice

The Finishing Operations palette should now look like this:



Click the **Refresh** button in the Studio window to see the result.

11. Save the design as a Collada file to be previewed in one of the available Viewers.
  - a) In the Studio window flyout menu, choose **Export**
  - b) Set **File Type** to Collada File, and click **Save As...** to save the file as a collada file.
12. Open the file in the **Studio Viewer** application.

The Studio Viewer is a free application that is installed automatically when installing Studio, and can also be downloaded from the Esko website <http://www.esko.com>

You can also use the free mobile app, available from the App store or Google Play, or open the file in the WebCenter Viewer.

## 2.4. Tutorial: Creating a shrink sleeve on a bottle

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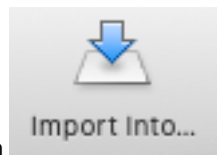
In this tutorial, we will put a shrink sleeve on the 3D shape of a bottle, put graphics on it and apply some predistortion. Next we will export a TIFF image that can be shared.



1. If you didn't download the sample files already, you can download a ZIP containing all files from this location: <https://docs.esko.com/docs/en-us/studioessentials/16/otherdocs/StudioTutorials.zip>.

2. Open **Studio Toolkit**

3.



Click the **Import Into...** button and select the **Spray bottle.dae** from the **Zero errors > Structure** folder.

The bottle shape will appear in Studio Toolkit

4.



Click the **Add Sleeve...** button and choose the vertical axis for this sleeve (the center option).

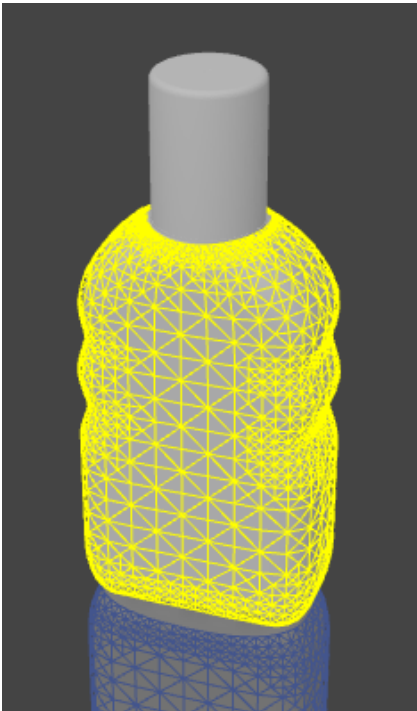
The bottle will now have a sleeve around it.

5. Adjust the measurements of the sleeve:

- Circumference: 221.3 mm
- Cut length 139mm
- Seam 5 mm
- Vertical Material Shrinkage 7%

6. Set the **Simulation** slider to "Accurate" for the best result.

7. Click the **Shrink** button to start the shrinking process. As soon as the sleeve doesn't seem to be shrinking anymore, you can click the **Done** button.



8. Select **File > Save** and enter a name for the Collada file.
9. In Adobe Illustrator, open the `ZeroErrors.ai` file from the `Zero Errors` folder.
10. Open the Studio window: choose **Window > Esko Studio > Studio Window** or use the shortcut **Cmd +Alt+4** (Mac) or **Ctrl+Alt+4** (Windows).

Since there is no Structural Design file in this document, the Studio window is empty.

11. Click **Place a Structural Design file** in the Studio Window and select the Collada file you saved. When prompted, choose the **Sleeve** printable part  
You immediately get a 3D preview of your bottle. Click and drag to rotate it to inspect all sides.
12. In the flyout menu of the the Studio window, choose **Visualizer Quality**  
Once the Studio window is refreshed, you will get a realistic preview of the bottle, including the transparent plastic sleeve and the opaque white ink. Rotate the bottle to inspect it.
13. At the front of the bottle, you can see the "Zero Errors" text is distorted by the shrinking process. You can predistort it, to compensate for the distortion of the shrink sleeve on the 3D shape
  - a) Select the artwork you want to predistort, in this case the "Zero Errors" text and underlying images.



- b) Choose **Window > Esko Studio > Predistort...**
- c) Click **OK** to predistort the selected artwork.

The text will be predistorted on the artwork. After refreshing, the Studio window shows the result of the artwork after shrinking.



**14.** We will now export a TIFF packshot of the bottle

- a) Rotate (by clicking and dragging) and zoom (using the Zoom slider) to position the bottle the way you want it.
- b) In the Studio window flyout menu, choose **Export**
- c) Set **File Type** to TIFF Image, and click **Save As...** to save a TIFF packshot you can share with your clients.

## 2.5. Tutorial: combining shapes & working with Scenes

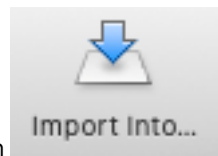
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In this tutorial we will create a composition of different shapes, each with their artwork. We will then use the same graphics in different scenes.

1. If you didn't download the sample files already, you can download a ZIP containing all files from this location: <https://docs.esko.com/docs/en-us/studioessentials/16/otherdocs/StudioTutorials.zip>.
2. Open **Studio Toolkit**

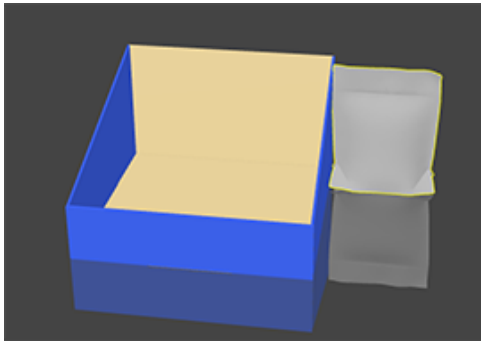


3.

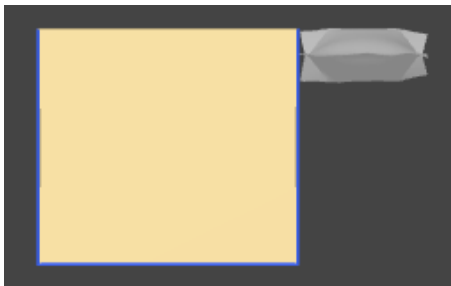


Click the **Import Into...** button and select the **Tray.ard** file from the **Color > Structure** folder. Repeat for **Pouch.zae**.

The pouch will be placed next to the tray.



4. Change the view to **Top**, so you get a top view of the two objects.

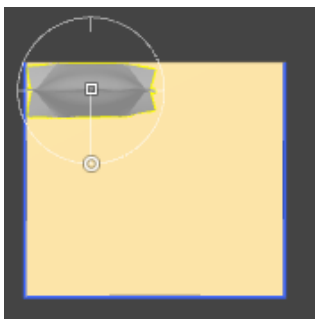


5.



Select the **Transform** tool

6. Click and drag the center point of the pouch to move it to the upper left corner of the tray.



Make sure the pouch is **NOT** touching the back side or side panel of the tray.



**Note:** You might notice the pouch snapping to the tray when you move it too close, indicated by the tray lighting up. This "snap" function, based on the bounding box of the objects, can be very useful when aligning objects next to each other, but since we are positioning inside an object, this is not what we want. In this case, it can be easier to disable snapping, by deselecting the check box in the menu bar.

7. Switch back to **Perspective** view.
8. Select **Edit > Lift Up**. You will notice the **Distance from Floor** value changing to 1.5 mm, which is the thickness of the cartboard of the tray.

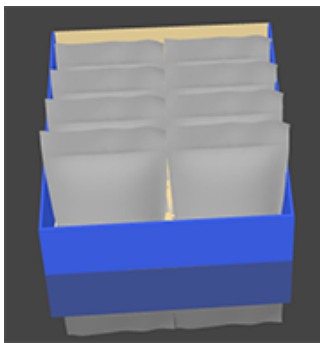
If your pouch jumps on top of the back panel of the tray, your pouch was touching the back panel. Undo the **Lift Up** using **cmd - Z** (Mac) or **Ctrl - Z** (Windows) and adjust the position of your pouch.

9.



Click the **Repeat** button and apply a repeat of 2 times along the X axis, 4 times along the Z axis.

You now have a tray with 8 pouches in it. Drag to change the camera viewpoint to inspect the tray.



10. Select **File > Save** and enter a name for the Collada file.



**Note:** In one of the next steps, we will also use the Collada file of a more complex composition based on this tray. You can create this composition yourself by following the additional steps described in [Additional steps to create the complete display](#) on page 45

11. In Adobe Illustrator, open the `Pouch.ai` file from the `Color` folder.
12. Open the Studio window: choose **Window > Esko Studio > Studio Window** or use the shortcut **Cmd + Alt + 4** (Mac) or **Ctrl + Alt + 4** (Windows).

Since there is no Structural Design file in this document, the Studio window is empty.

13. Click **Place a Structural Design file** in the Studio Window and select the `Pouch.zae`.

You immediately get a 3D preview of your pouch. Click and drag to rotate it to inspect all sides.

14. Repeat the three previous steps using the `Tray.ai` file, but this time use the `Tray.ard` file

15. In the **Scene** dropdown in the **Studio** palette, select **Load Scene**, and select the file containing the tray and pouches you created earlier.

You now get a 3D preview of your tray and pouches. Click and drag to rotate it to inspect all sides.



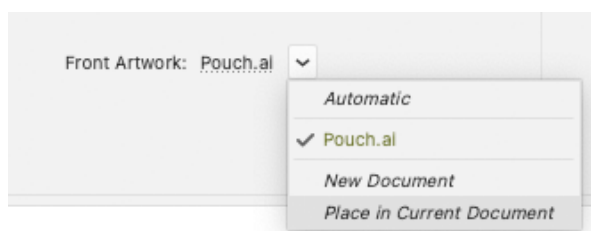
16. You can now use the Studio window to navigate through the Adobe Illustrator documents used in the design.
- Double-click one of the parts of a pouch to select the corresponding Illustrator document, and zoom in on that specific part.
  - Double-click one of the panels of the tray to select the corresponding Illustrator document, and zoom in on that specific panel.
  - Hold the **Cmd** (Mac) or **Ctrl** (Windows) key and drag on an area you want to inspect. The corresponding Illustrator document will be selected, zooming in on the corresponding area in the file.
17. In the **Scene** dropdown in the **Studio** palette, select **Load Scene**, and select the `Display_Composition.zae` file from the `Color > Structure` folder. If you did the extra steps described in [Additional steps to create the complete display](#) on page 45, you can load the file you saved there instead.

You now will get a preview of the same tray and pouches in a larger, more complicated display.



You can navigate through it the same way as described above. You can add graphics to the other parts of the display, either by opening the graphics and applying the Structural Design file to it, or by double-clicking an empty part, and choose **New** to start from scratch.

18. Unlike the tray and pouches we saved earlier, this complex composition actually contains two different pouches. This will allow us to apply a different design to them.
  - a) In Adobe Illustrator, open the `Pouch_alternative.ai` file from the `Color` folder.
  - b) In the **Scene** dropdown of the Studio Window (which is now empty, since no Structural Design is used in the newly opened file), reselect the `Display_Composition.zae` scene
  - c) Select one of the pouches on the left side.
  - d) In the **Front Artwork** dropdown, select **Place in Current Document**



All pouches on the left hand side will now show the design of the alternative version.

You might notice the alternative pouch has a diecut operation set. Switch the **Scene Settings** to "Visualizer Office" to get a realistic preview, including the cutouts in the pouch.

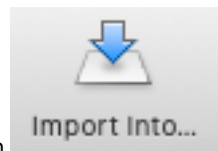


### 2.5.1. Additional steps to create the complete display

After creating the tray with pouches described in [Tutorial: combining shapes & working with Scenes](#) on page 40, you can use these steps to continue and create the full display yourself.

1. If you don't have it open anymore, open the file you created earlier, containing the tray and the 8 pouches, in Studio Toolkit.

2.



Click the **Import Into...** button and select the **Display\_Divider.ard** file from the Color > Structure folder.

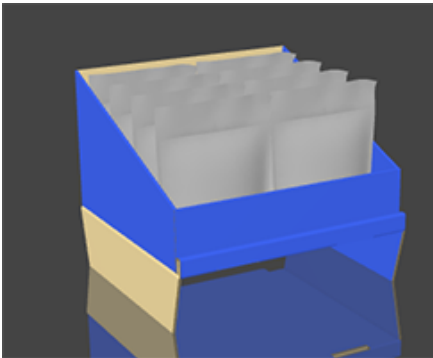
3. With the Divider still selected, choose **Edit > Inverse Selection** to deselect the divider, and select the tray and all pouches.

4.



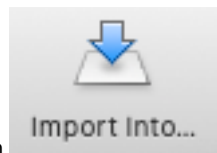
Select the **Transform** tool

5. Change the **Distance from Floor** value to 100 mm, which is the height of the divider
6. Click and drag the center point of the selection to position it on the divider.



**Note:** It can be easier to align the objects by switching temporarily to Top View.

7.



Click the **Import Into...** button and select the **Display\_Base.ard** file from the Color > Structure folder.

8. With the Base still selected, choose **Edit > Inverse Selection** to deselect the Base, and select the divider, tray and all pouches.

9.

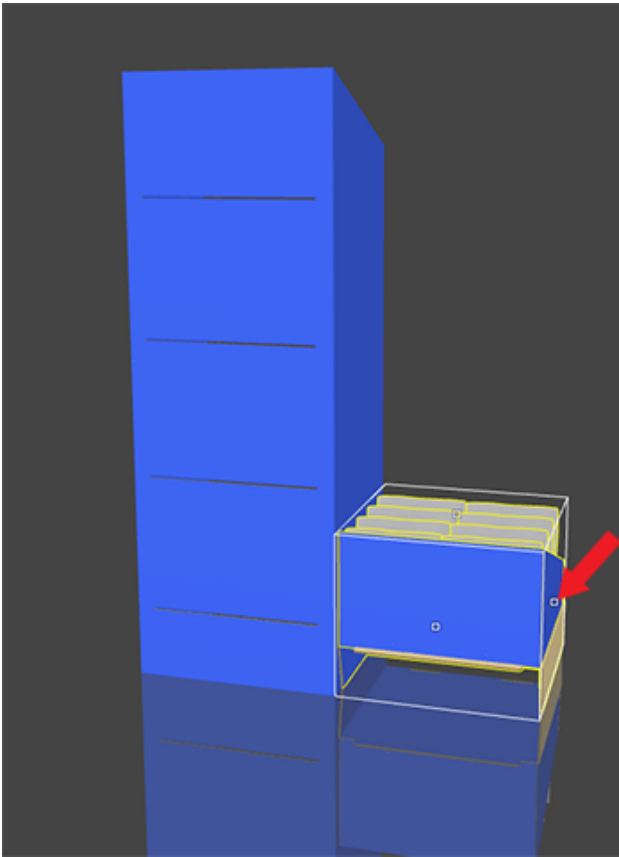


Select the **Transform** tool and select **Move** or use its shortcut **M**

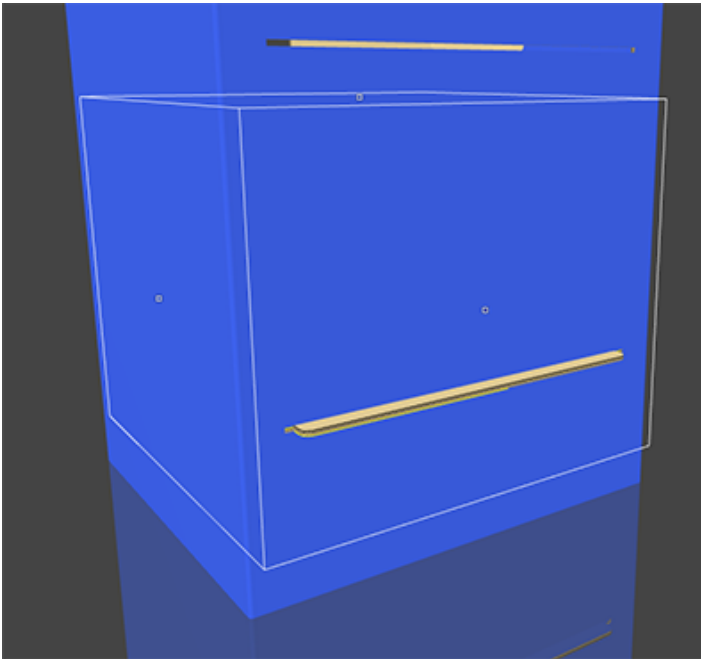


This will allow moving and aligning the selection over one axis at a time.

10. First, click and drag outside of the selection to change the camera viewpoint, so you see the back side of the design.



11. Click and drag the handle on the right side (indicated in the image above by the red arrow) and move the divider, tray and pouches centered in the base.
12. Click and drag the handle at the front of the selection to move the selection forward a bit, and use the handle at the top to move it upwards. The result should be that the cardboard extension on the divider fits neatly in the slot in the back of the base.



13.



Click the **Repeat** button and apply a repeat of 4 times along the Y axis.

You now have 4 sets of divider, tray and pouches on top of each other. You can however see the distance between the different sets is too big.

14. Change the **Gap** value until the dividers line up with the slots in the back of the base. The value you need is -57mm. Click **Done**

15. Choose **File > Save As** to save the complete display as a collada file.

## 2.6. eLearning

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Next to the Tutorials and the information in this documentation, Esko also provides **eLearning** content.

To access the eLearning content, go to <https://www.esko.com/en/support/blendedlearning>

To access these courses you need to log in with your Esko ID.



## 3. Step 1: Getting the 3D shape

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### 3.1. About Structural Design files and Printable Parts

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The base of the 3D preview in Studio is the 3D model, saved in a **Structural Design** file. A Structural Design file should contain 2D information and 3D information.

#### Structural Design Files and Printable parts

A Structural Design file describes a 3D scene, of which at least one part can be printed: the **Printable Part**. Different types of Structural Design files can be used:

- A **3D Sheet** is a 3D representation of a simple sheet, that can be used e.g. to visualize finishing operations in Visualizer quality. See [Create a 3D Sheet](#) on page 71
- an **ARD** Structural Design file, created in ArtiosCAD or Studio Toolkit for Boxes, mainly used for boxes. For an ARD file, the entire box is one single printable part.
- **Collada** files, containing one or more 3D shapes with at least one printable part (.dae or .zae files). For Collada files, a printable part is an Esko extension. A collada file can contain one or more printable parts, such as a flexible bag, one or more labels on a bottle, a shrink sleeve, .... A Collada file can also contain non-printable parts, such as the glass bottle itself. Collada files with one or more printable parts can be created in ArtiosCAD or Studio Toolkit.



**Note:** More technical information on Printable Parts in Collada files can be found in the white paper you can find in the Studio documentation: <https://www.esko.com/en/support/product?id=Studio>

- an **ACD** Canvas file, created in ArtiosCAD, also contains one or more 3D Shapes with one or more printable parts.

#### Esko Data Exchange

To bring the Structural Design and the graphic design together, a Structural Design file can be placed or opened. You can place Structural Design files in Illustrator with the **Esko Data Exchange** plug-in, which can be downloaded for free from the Esko website and which is also installed when installing Studio Advanced. With the Esko Data Exchange plug-in the 2D lines (such as cut and crease lines) can be aligned with the graphics. You can find the Esko Data Exchange documentation at <https://www.esko.com/en/Support/Product?id=Esko%20Data%20Exchange%20for%20Adobe%20Illustrator> or open it from within Illustrator, by choosing **Help > Esko > User Guides > Esko Data Exchange**.



#### Note:

You can also load a Structural Design file as an extra scene in the Studio window. Each part of the scene can get its graphics from another illustrator document. See [Scenes and Multiple Documents](#) on page 219

#### ARD Structural Design files

ARD files are the native files of ArtiosCAD, which is a professional tool to design board-based structures. An ARD file contain all the cut and crease lines, and sometimes also the folding angles that

describe how the package is folded into its final shape. The Structural Design file does not contain the graphics, only the structural lines.

You can get an ARD file:

- from **ArtiosCAD**
- by creating a box in Adobe Illustrator. See [Create a box](#) on page 72

### Collada files

Collada is an open and public file format to describe 3D shapes. In case a Collada file is placed, a check is performed to see if the Collada file has a **Printable Part** defined. A printable part is an Esko extension to the Collada format.

You can get a Collada file:

- from an external 3D modelling application. You might need to add a printable part, e.g. by adding a label in Studio Toolkit. See [Obtain a 3D shape to import in Studio Toolkit](#) on page 52 and [Add a label to an existing shape](#)
- from ArtiosCAD
- by revolving a shape in Adobe Illustrator or Studio Toolkit. See [Creating a revolved shape with labels](#) on page 99
- by creating a shape in Studio Toolkit. See [The Studio Toolkit Application](#) on page 50

### ACD Structural Design files

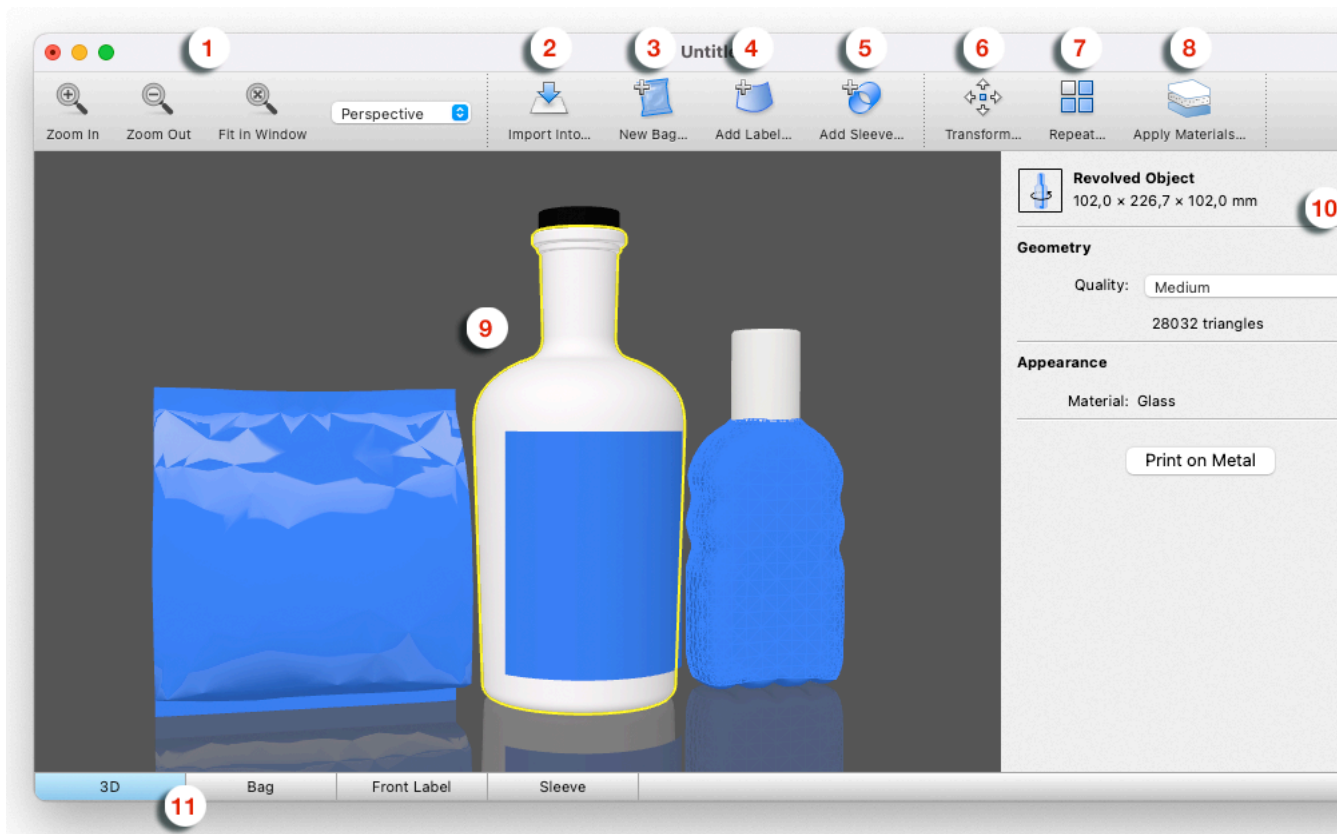
ACD files - ArtiosCad Canvas Design Document - is a native ArtiosCAD file. A Canvas is a design workspace made of multiple separate pieces called **parts**. These parts can be ARD files that represent e.g. a display, but can also be layouts or non-production data such as a picture of the final package. In Studio, the **production** parts of an ACD file can be placed in the Illustrator document, and used as **Printable Part**. The ACD file itself can also be loaded as a scene.



**Note:** Copies of the 3D Shape in ArtiosCAD will share the same printable part. In order to apply different graphics on multiple shapes coming from the same ARD file, you should import this ARD file multiple times into the canvas file. That way, each shape will have its own printable part.

## 3.1.1. The Studio Toolkit Application

The **Studio Toolkit** application is a standalone application allowing to import, edit and create 3D objects, and save the object(s) as Collada file.



1. The **Zoom** buttons, allowing to change the zoom factor of the preview window. You can also change the camera view point: see [Changing the View](#) on page 57
2. **Import Into** allows to import 3D or image files. See [Importing Shapes, Images or Paths](#) on page 52
3. The **New Bag** tool. See [Create a flexible bag](#) on page 115
4. The **Add Sleeve** tool. See [3D workflow for Shrink Sleeve Package](#) on page 164
5. The **Add Label** tool. See [Add a label to an existing shape](#)
6. The **Transform** tool. See [Transform the selected 3D shape\(s\)](#) on page 59
7. The **Repeat** button. See [Repeat](#) on page 65
8. The **Apply Materials** button. See [Apply Materials](#) on page 70
9. The **Settings** panel, allowing to change or view the parameters on the selected object
10. the **Preview** panel
11. The different **Tabs**. See [Tabs](#) on page 67
12. When performing some specific functions (such as Transform, ...), a settings bar is added underneath the Toolbar.

## Saving and opening Collada files

When saving a file from **Studio Toolkit**, the file is saved as a Collada file, containing the shape and all printable parts.

This means the file can be opened by any application that is capable of handling Collada files, such as Studio Essentials in Adobe Illustrator.

However, the Collada files saved by Studio Toolkit also contains native Studio Toolkit information, allowing to reopen the file in Studio Toolkit, maintaining its editability, the active tab, zoom and view factor, etc.



**Note:** When dropping a Collada file onto the Studio Toolkit application, Studio Toolkit will determine if it is a Collada file saved in Studio Toolkit or not. A native Studio Toolkit Collada file will be opened, a regular Collada file will be imported.

## Importing Shapes, Images or Paths



Using the **Import into** button you can import a 3D shape into your open scene. If you already have a 3D object in your scene, the newly imported 3D shape will be placed next to it.

For more info on how to obtain a 3D file, see [Obtain a 3D shape to import in Studio Toolkit](#) on page 52

When importing a Collada file or an ArtiosCAD ARD file, any printable parts from this file will be preserved when saving to a Collada file. You can't import ArtiosCAD ACD files.



**Note:** Collada files saved by Studio Toolkit can also be opened instead of imported. In that case, the file will be reopened as it was saved, with the same active tab, zoom and view, and maintaining full editability. See [Saving and opening Collada files](#) on page 51

You can also use the **Import into** button to import an image (JPG or PNG) in a 2D tab (e.g. the "Sleeve" tab), to get a preview of this image on the corresponding 3D object. See [Using graphic files](#) on page 53

You can also import **Paths** to use as a Die Cut Path on a Front, Back or Wrap Around label, or you can use a path to create a revolved shape. See [Using a Path as a Die Cut](#) on page 94 and [Revolve a profile and Add Labels in Studio Toolkit](#) on page 110

## Obtain a 3D shape to import in Studio Toolkit

There are several ways to obtain a 3D file :

- You can get a shape on Esko's online Shapes store
- You could hire a 3D artist to make the shape with a 3D modeling tool, such as Cinema 4D, 3DS Max, Maya or Strata. If you are experienced with these tools, you could do it yourself.
- Contact the mold-designer and ask him for a digital file of the 3D shape. Studio Toolkit supports Collada, OBJ, STL, 3DS, OFF, DXF and FBX files. BLEND files lower than 2.80 are also supported.
- If you have a physical sample of the object, you can use a tabletop 3D laser scanner. See [www.nextengine.com](http://www.nextengine.com) for an example of such a scanner. This device can output .obj files.
- If the object is a Path shape, you can revolve a profile to create it yourself. See [Creating a revolved shape with labels](#) on page 99
- You can import an ArtiosCAD ARD file into Studio Toolkit. ArtiosCAD ACD files are not supported.

The format needs to be Collada (.zae or .dae), ARD, OBJ, STL, 3DS, BLEND lower than 2.80, OFF, DXF or FBX.

Collada stands for COLLABorative Design Activity for establishing an interchange file format for interactive 3D applications)

These 3D files might not have a printable part at this stage, you can add that yourself in the Studio Toolkit application.



**Note:** Currently textures are discarded when importing a 3D shape.

### Using graphic files

In Studio Toolkit you can import graphic files to get a preview of the result, and to assist in positioning e.g. the overlap. You can also use it to place a technical drawing on the sleeve.



Using the **Import Into** button you can import an RGB JPEG or PNG file.

- If a 2D tab is selected, the image will be imported in that tab
- If an object is selected in the 3D tab, the image will be imported in the corresponding 2D tab, and this 2D tab will become active



**Note:** You can also use **Preview Artwork in Toolkit** to apply a preview of the artwork from within Adobe Illustrator onto your 3D shape in Studio Toolkit. This artwork will also appear as "Imported Graphic" in Studio Toolkit. See [Preview Artwork in Toolkit](#) on page 54

By default, the image will be aligned with the bottom left corner of the image on the bottom left corner of the printable part. You can move the graphic by clicking and dragging the border. The border (left, right, top or bottom) or corner you clicked, will become magnetic, and snap to the borders and folding lines of the 2D shape, allowing easy alignment.

This magnetism is shown using a thick blue line.

The 3D tab will show a 3D representation of the file with the corresponding graphics on it.



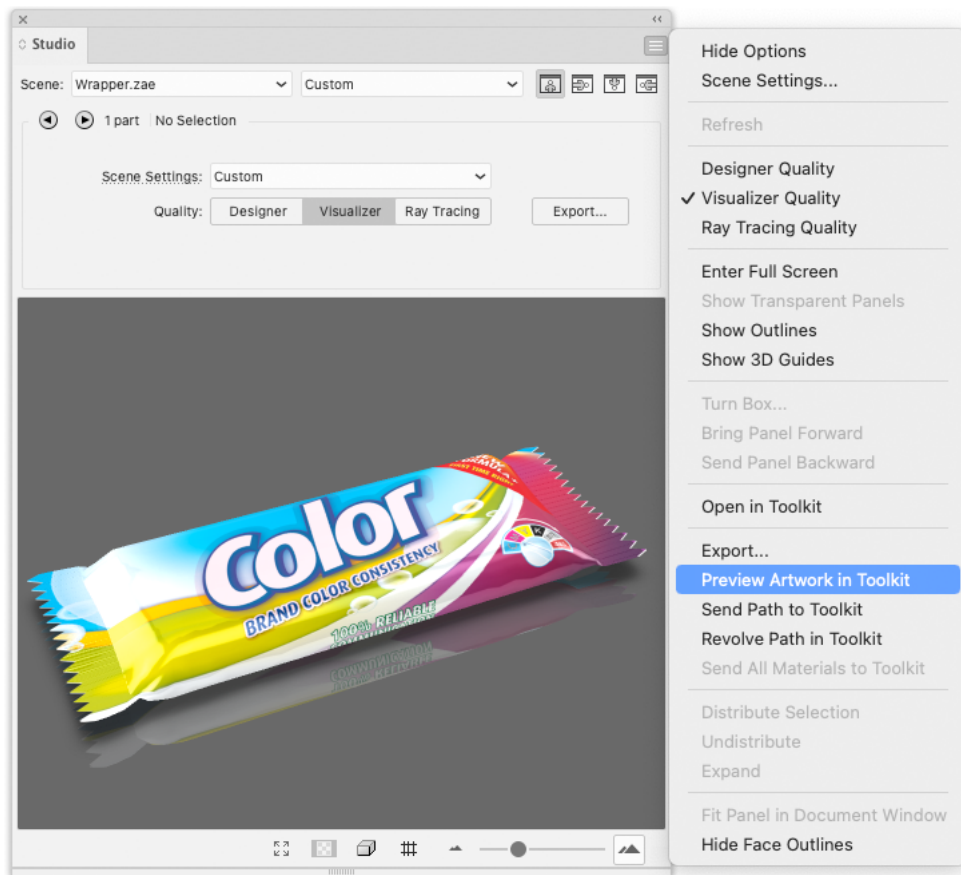
### Preview Artwork in Toolkit

In certain cases, you may want to apply artwork from within Adobe Illustrator onto your 3D shape in Studio Toolkit.

- If you want to get a preview of your artwork on a shape you use in a composition.
- If you want to place a technical drawing on your shape, e.g. in case of a flexible bag, to check the position of your seams

For this purpose, you can use **Preview Artwork in Toolkit** from the fly-out menu of the Studio window. This will send the scene's Artwork to Studio Toolkit, where it is placed on the corresponding printable part and visualized in 3D.

- **Preview Artwork in Toolkit** is only available for Designer quality.
- Artwork for printable parts inside imported shapes (e.g. a label on an imported bottle shape) is not supported.
- Backside graphics are not supported.



## Paths

You can import paths created in Adobe Illustrator directly into Studio Toolkit.

1. Select the path in Adobe Illustrator
2. To view the Studio window, choose **Window > Esko Studio > Studio Window** or use the shortcut **Cmd+Alt+4** (Mac) or **Ctrl+Alt+4** (Windows).
3. From the fly-out menu in the Studio window, select **Send Path to Toolkit**.

This will create a closed path object in the 2D tab of Studio Toolkit.

Paths can be used to define the die cut shape of a **Front Label**, **Back Label** or **Wrap Around Label**. See [Using a Path as a Die Cut](#) on page 94



**Note:** You can also send a path from Adobe Illustrator to Studio Toolkit to create a revolved shape. See [Revolve a profile and Add Labels in Studio Toolkit](#) on page 110

## Preview Color

For each imported ARD file, you can define the **Preview Color**.

Simply select the part you want, and click the **Preview Color**. You can choose one of the 8 predefined colors.



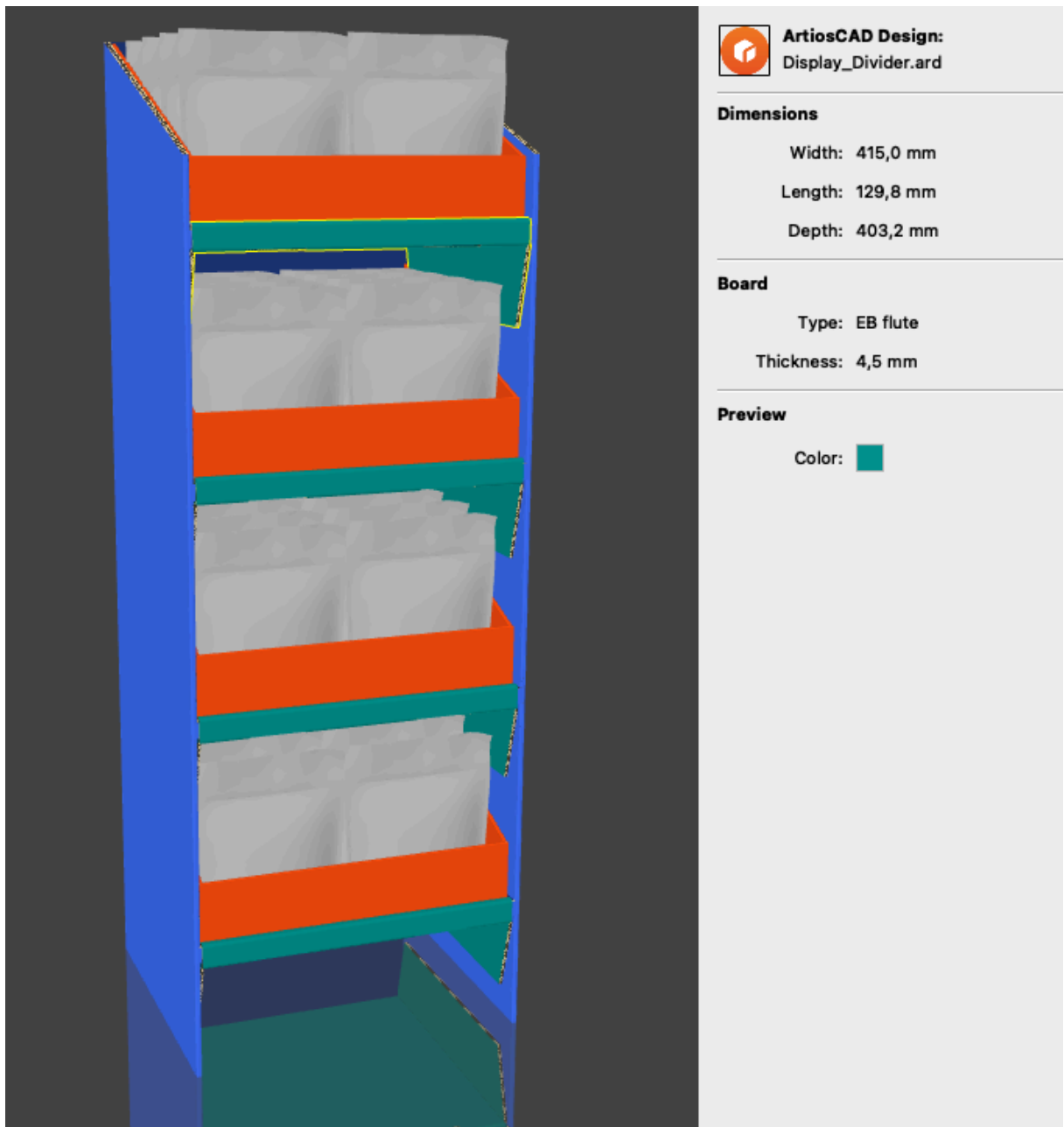
This can help to distinguish between the different parts, e.g. when building a scene. See also [Combining shapes in Studio Toolkit](#) on page 223

Multiple instances of the same part will share the same preview color.



**Note:** The **Preview Color** is purely a visual aid in Studio Toolkit, and does not become part of the 3D model. The Preview Color is only visible when reopening the Collada file in Studio Toolkit.





## Changing the View

You can change the view in different ways

1. Click the **Zoom In** button, use its shortcut **Cmd++** (Mac) or **Ctrl++** (Windows) or choose **View > Zoom In** to increase the zoom
2. Click the **Zoom Out** button, use its shortcut **Cmd-** (Mac) or **Ctrl-** (Windows) or choose **View > Zoom Out** to decrease the zoom
3. Click the **Fit in Window** button, use its shortcut **Cmd-0** (Mac) or **Ctrl-0** (Windows) or choose **View > Fit in Window** to change the zoom factor so that all objects fit in the window
4. Use the dropdown or the corresponding shortcuts to change the **View mode**

View Mode	Shortcut	Changing the camera view point & Transforming objects
Perspective	<b>1</b>	The default view mode, in which you can change the camera view point and transform objects along all 3 axis.
Front	<b>2</b>	In any of these view modes, you can only see all objects in one pane. You can also only change the camera view point or transform objects within the visible plane.  For example, it is not possible to move objects up or down when in <b>Top</b> or <b>Bottom</b> view mode
Left	<b>3</b>	
Back	<b>4</b>	
Right	<b>5</b>	
Top	<b>6</b>	
Bottom	<b>7</b>	

5. You can move and rotate the camera view point when in **Perspective** view mode
  - a) Click and drag to rotate the camera
  - b) Hold the **Shift** key and click and drag to move the camera viewpoint
  - c) If another tool is active, you can hold the **Space** key, and click and drag to rotate the camera
  - d) If another tool is active, you can hold the **Space** and **Shift** key and click and drag to move the camera viewpoint
6. You can move the camera view point when in another View mode
  - a) Click and drag to move the camera viewpoint
  - b) If another tool is active, click and drag to move the camera viewpoint
7. Select **View > Show/Hide Grid** to show or hide the Grid on the floor in **Perspective** or **Top** view.
8. Select **View > Go to 2D/3D** or use the shortcut **Cmd-G** (Mac) or **Ctrl-G** (Windows) to switch between the 3D and 2D tab. If there are multiple 2D tabs, the 2D tab of the currently selected object is used if possible. Otherwise, the last selected 2D tab is shown.

### Show/Hide Grid

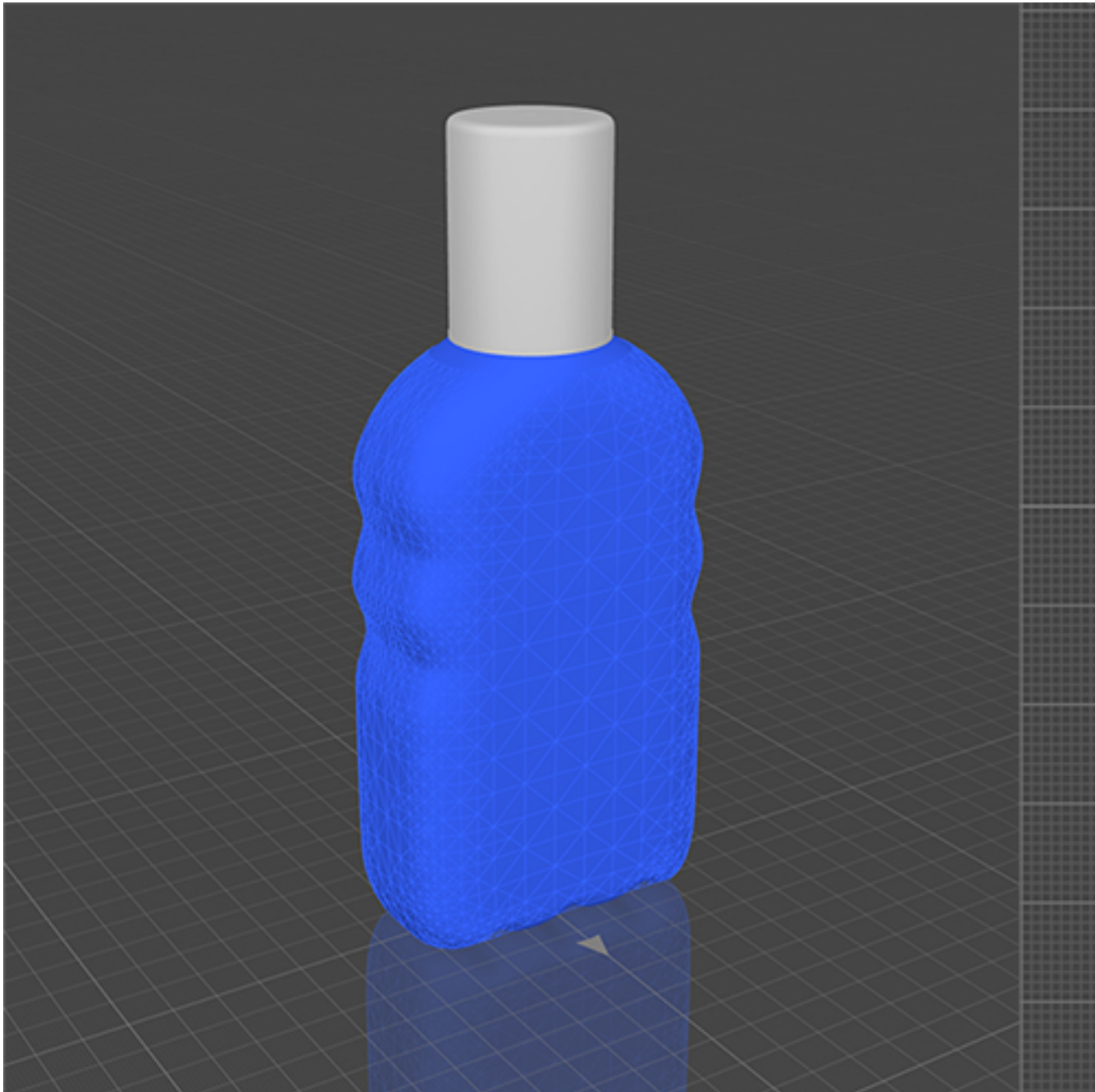
To help with accurately aligning objects, a **Grid** can be shown on the floor.

The grid also contains a **Front Indicator**: an arrow that points to the front of the scene, making it easier to identify the sides of the design.



**Note:** The Grid and Front indicator are only visible in **Perspective** and **Top** view modes.

1. Select **View > Show Grid** to enable the Grid and the Front Indicator
2. Select **View > Hide Grid** to disable it again.

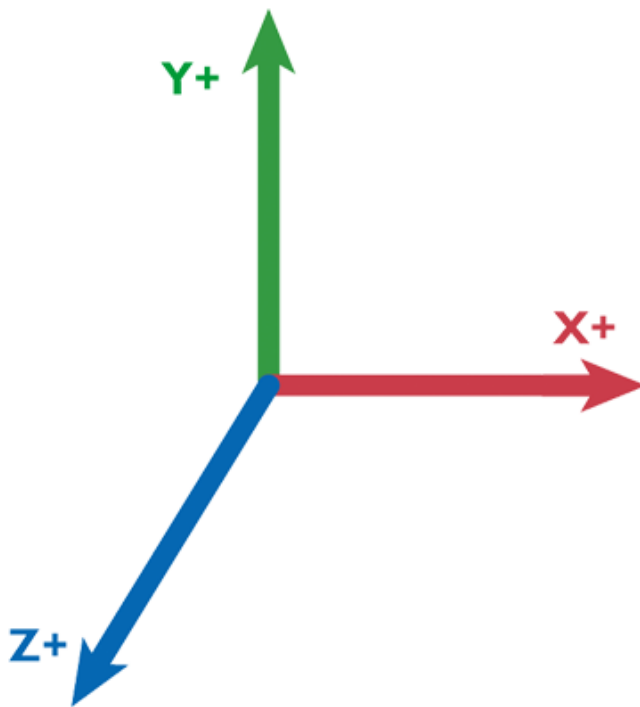


### Transform the selected 3D shape(s)

When you are working in **Perspective View** (see [Changing the View](#) on page 57), you can move and rotate any object based on 3 axis.

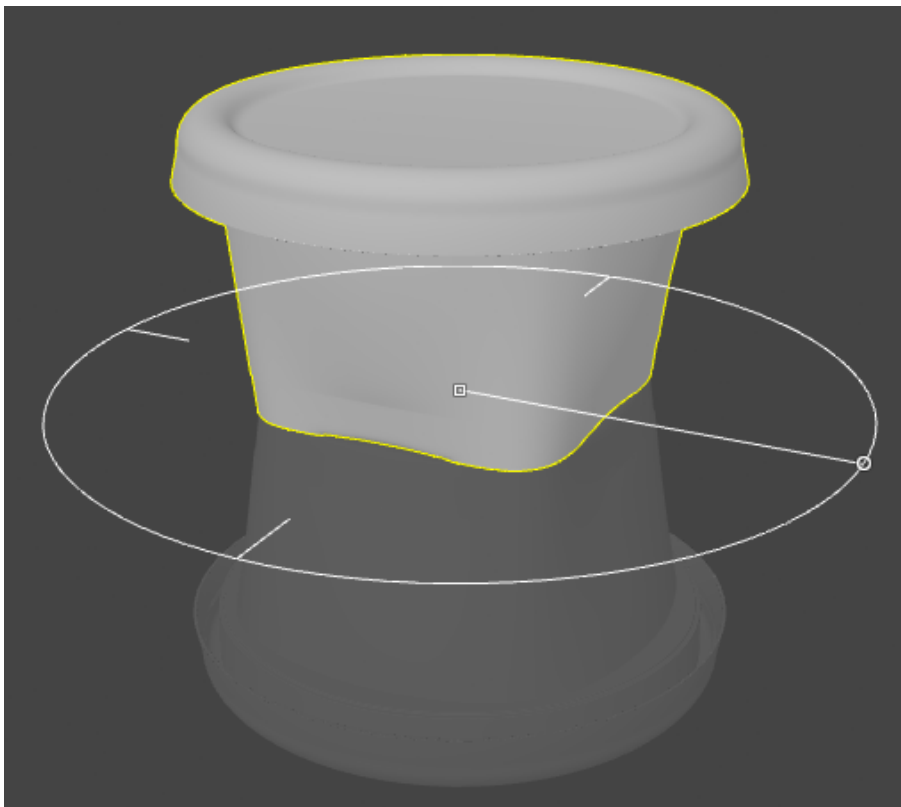
In other View modes, the transformation tools work in 2 direction depending on the chosen view plane. For example, in **Front** view, you can move and rotate only in the front plane (X and Y axis)

Underneath, the different transformation tools are explained for the **Perspective** view.




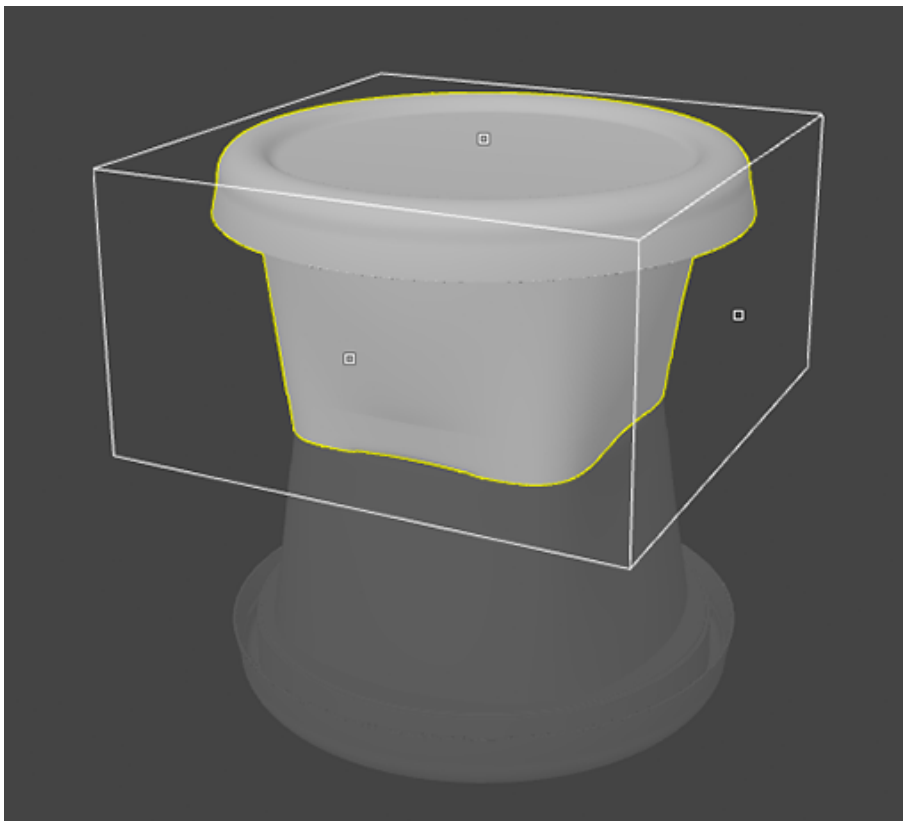
If the **Transform** tool is selected, you can select one of four modes in the settings bar:

- Select  **Simple Transform** or use its shortcut **T**




- Click and drag the center anchorpoint or change the **Offset X** and **Z** value to move the object over the X and Z axis. Holding down the shift while dragging will constrain the movement to either only along the X or Z axis.
- Click and drag the anchor point on the circle or change the **Rotation** value to rotate the object on the Y axis. Holding down the shift while dragging will constrain rotation to multiples of 45 degrees.
- Simple Move and Rotate keeps the object aligned with the floor. However, by setting the **Distance from Floor** option in the settings bar, you can also move the object over the Y axis,.
- If you enable **Snap**, the selected objects will snap to align to other objects. The object(s) your selection is snapping to will be temporarily be highlighted. Holding down the shift while dragging will constrain the snapping to either only along the X or Z axis.

Select  **Move** or use its shortcut **M**



- Click and drag any of the anchorpoints or change the **Offset X, Y** or **Z** value to move the object over the X, Y and Z axis.
- If you enable **Snap**, the selected objects will snap to align to other objects. The object(s) your selection is snapping to will be temporarily be highlighted.
- When moving an object down towards the floor while snapping is enabled, the object will snap to the floor, and the bottom of the object will highlight when the distance to the floor becomes 0.

- Select  **Rotate** or use its shortcut **R**

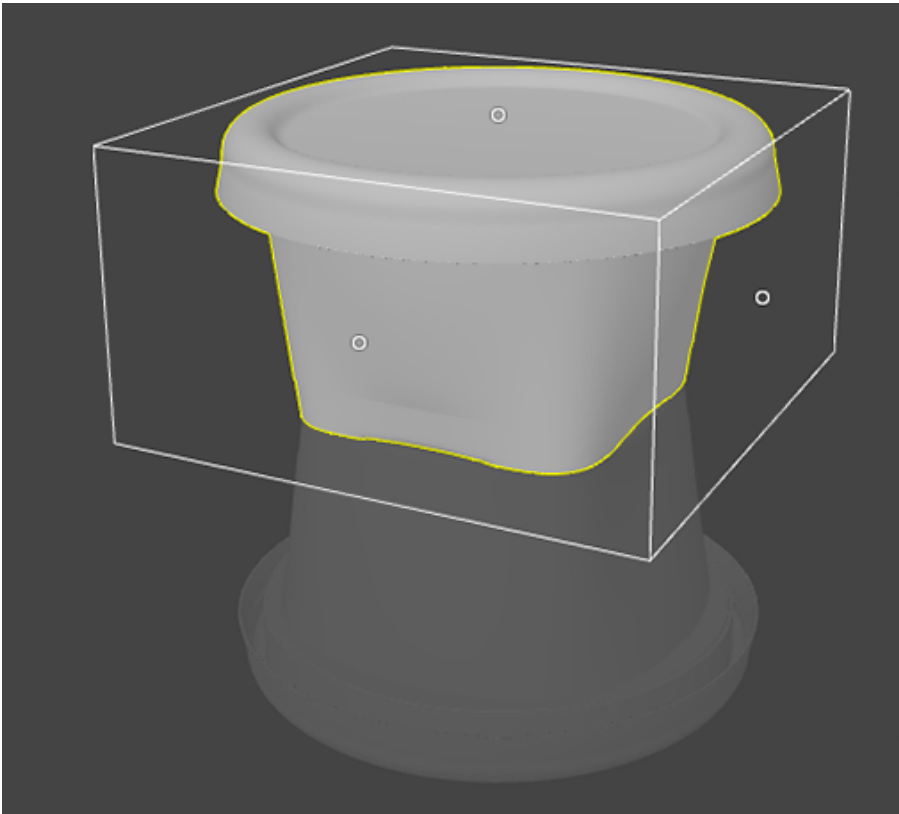


- Click and drag any of the anchorpoints or change the **Rotate X, Y** or **Z** value to rotate the object over the X, Y and Z axis. Holding down the shift while dragging will constrain rotation to multiples of 45 degrees.



**Note:** When moving or rotating a 3D shape, the depending parts (sleeves and labels) are moved / rotated along.

- Select  **Scale** or use its shortcut **S**



- Click and drag one of the anchor points to change the size of the object, using the opposite anchor point as center of origin. If you hold down the **Alt** key, or if you adjust the values in the Scale width, height or depth field, the scaling is done from the 3D mid point of the object.
- By default, the **Uniform** option is selected, so the object is scaled uniformly in the 3 directions. Changing the value for Scale width, height or depth will change the two other values as well.
- By deselecting **Uniform**, you can scale the object in any direction. You can restrain the scaling to uniform by holding down the **Shift** key.



**Note:** Holding down the Shift key does not give the same result as selecting the **Uniform** option again: the first will only restrain the current transformation to Uniform, while reselecting **Uniform** will adjust the complete transformation of the object to a Uniform scaling.

The **Scale** tool is only available when an imported Collada file or OBJ file is selected. It is not available for Bag files, ARD files or for objects that already have a Sleeve or a Label attached in Studio Toolkit for Shrink Sleeves or Studio Toolkit for Labels.

The scale option performs a scale of the three dimensional shape of the selected object. The uniform scale is very useful to correct an object that has suffered from an incorrect unit-conversion from a 3rd party CAD system. The non-uniform scale can be powerful to fine-tune the dimensions of an imported product so that it fits into its packaging.

The scale option is not suitable for printable parts as their size affects other aspects such as the 2D drawing and the artwork mapping. A straightforward scale of a printable object in 3D would result in unwanted side-effects.

To change the size of printable objects, you should use other tools instead:

- To scale an object with a label or a shrink sleeve, first scale the container (without the label or sleeve) and then add the label or sleeve.
- To scale a flexible bag, modify its dimensions in the details panel.
- To scale a box, tray or carton, or a shape created in a third party application, go back to the application where you created it (Toolkit for Boxes, ArtiosCAD, the third party application used to create the shape).
- For Shapes models, you can order a new (scaled) variant via Esko's 3D modeling service.

If you click and drag but not on any of the anchor points, you will change the camera position, but the object will NOT move or scale. This might be necessary to make all handles visible.



**Tip:**

After rotating or scaling, you might need to align the object with the floor again. You can do so by switching to Simple Move and Rotate, and set the **Distance from floor** to zero.

For vertical alignment, you can also use **Drop Down** and **Lift Up**. See [Drop Down and Lift Up](#) on page 64

## Nudge

When creating compositions it is sometimes much easier and faster to simply move an object into its final place by using the arrow keys. This is called nudging. Nudge works on any selected object, even without the Transform tool activated.

It is available in all 3D views.

- The arrow keys move the selected 3D objects over the distance defined in the Preferences. Holding down the Shift key multiplies the step by 10.
- In **Perspective** view, the arrow keys let you move in the horizontal floor plane. Use the option + up (Macintosh) or alt + up (Windows) or down keys to move the object up or down.
- In the axis-aligned views (Front, Left, Back,...) the arrow keys let you move in the corresponding direction on screen. In those views upwards or downwards movement is not available.

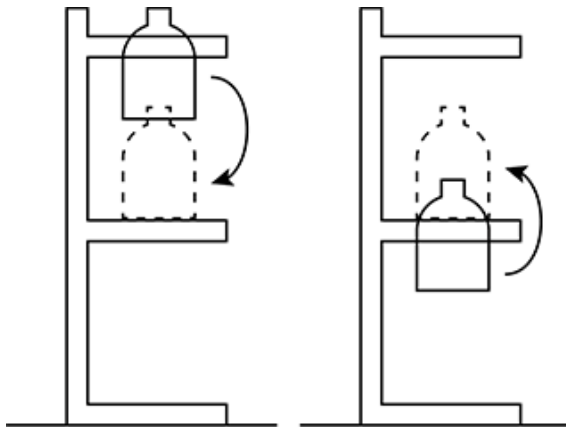
## Drop Down and Lift Up

You can use **Drop Down** and **Lift Up** to put an object on top of another object or put it on the floor.

The selected objects are moved (down or up) to the next intersection free position where the selected objects is on top of another object or on the floor.

Objects that are (partially) underneath the floor can only be moved upwards.





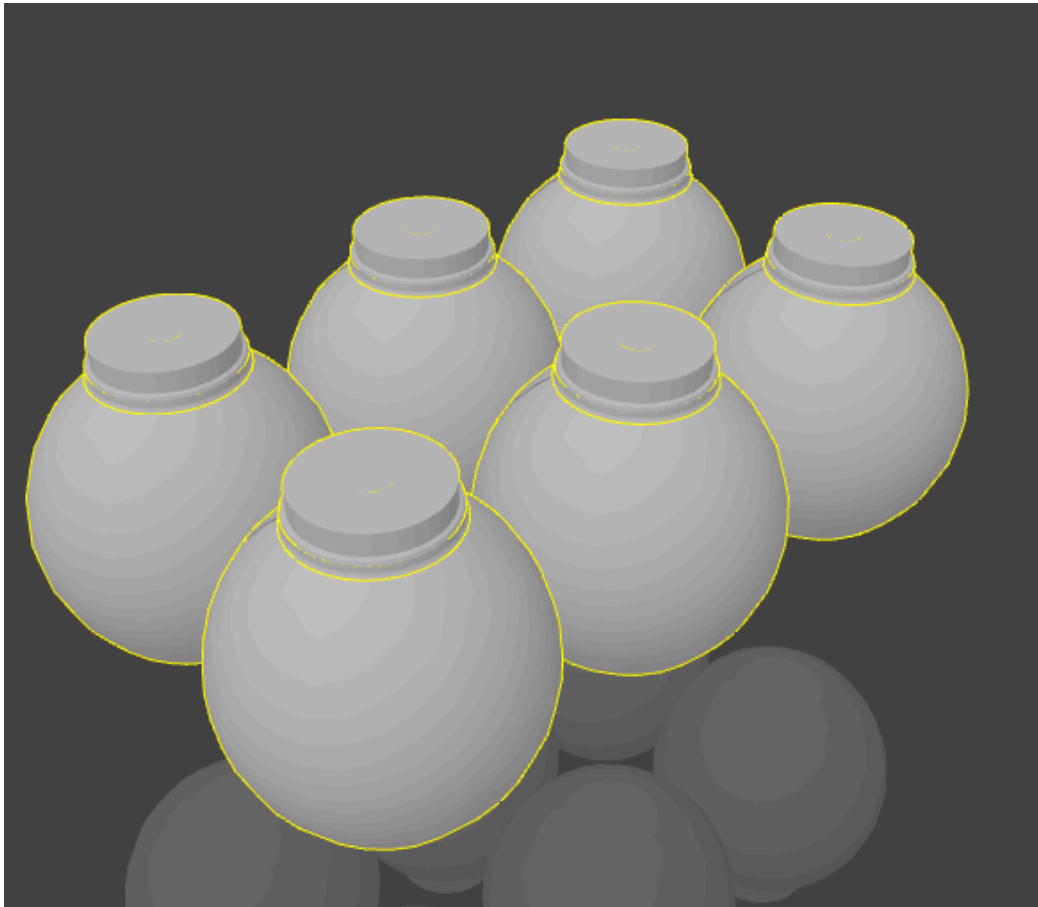
- To drop down: select **Edit > Drop Down** or use its shortcut **Cmd + Arrow Down** (Mac) or **Ctrl + Arrow Down** (Windows)
- To lift up: select **Edit > Lift Up** or use its shortcut **Cmd + Arrow Up** (Mac) or **Ctrl + Arrow Up** (Windows)

## Repeat

Using the **Repeat** button, you can create a simple repeat of the selected object(s).

Repeat X: <input style="width: 40px;" type="text" value="1"/>	Z: <input style="width: 40px;" type="text" value="1"/>	Y: <input style="width: 40px;" type="text" value="1"/>	Gap: <input style="width: 100px;" type="text" value="0,0 mm"/>	<input type="button" value="Done"/>
---	--	--	--	-------------------------------------

- Enter the number of repeats you want along the X, Z and Y axis
- Enter a **Gap** value to add distance in between the objects
- Click **Done**



After the repeat, you will have multiple instances of a single object. This means making changes to one of the objects will also modify the others, while you can move and rotate the instances independently.

If you have one instance selected, you can use **Edit > Select all copies** to select all instances.



**Note:** All instances of the object will use the same Printable Part. This means that all instances will share the same graphics. See [Different graphics on shapes of the same size](#) on page 227

## Selecting objects

When you import or create objects in Studio Toolkit you also might need to select them. Go to the **Edit** menu to view the selection options.

There are several ways of selecting objects:

- Simply click on an object to select it.
- Hold Shift and click to select multiple objects.
- Use the Cmd-A (Mac) or Control-A (Windows) shortcut to select all the objects.
- When an object that is part of a repeat is selected, you can use **Select all copies** to select the other instances of the repeat. You can also use the Cmd+Option+A (Mac) or Control+Alt+A (Windows) shortcut.



**Tip:** By holding the option (Mac) or alt (Windows) key and clicking on one object several times, you can select objects that are behind the selected object.



**Note:** Most selection options also work in 2D view.

## Replace Imported Shape

When you select an imported shape (ArtiosCad ARD file or a Collada file), you can use the **Replace** button in the info pane on the right side to import another shape, replacing the selected one.

The newly imported shape will keep the position and preview color of the originally selected shape.

If you are replacing shapes in a structural design document that is already used in Adobe Illustrator:

- If a printable part of the structural design file is used in Adobe Illustrator, the name of the printable part should stay the same to guarantee the printable part is correctly replaced when updating the structural design file in Studio in Adobe Illustrator. You can change the name of a printable part by editing the 2D tab name in Studio Toolkit.
- If the structural design file is loaded as a scene in Studio, and you no longer see the correct artwork on the replaced printable part, you should place this new printable part in the Illustrator document with the artwork.

## Tabs

At the bottom of your Studio Toolkit window, you can see the different **Tabs**.

First is always the **3D** tab. Next to that, a 2D tab is shown for every 2D object created in Studio Toolkit: a Sleeve, a Label, a Bag, ...

Deleting an object will also delete the corresponding 2D tab. Different instances of the same object (created using **Repeat**) share the same 2D tab. In that case the 2D tab will be deleted if the last instance of the object is removed.

You can rename any 2D tab by double clicking the name and entering the new name.



**Note:** The name entered for the 2D tab will be stored as the name for the technical drawing in the collada file, and will thus be used when importing the collada file e.g. in Studio Designer.

You can switch between the 3D tab and the 2D tab of the selected object, by choosing **View > Go to 3D** or **View > Go to 2D**, or by using its shortcut Cmd-G

## Measurements

Using the **Measurements** tool in the 2D drawing of a bag, shrink sleeve or label, you can add essential **measurements** to the technical drawing.

The measurements you set up are automatically recalculated if you change the dimensions or other settings of a bag. In some cases, if the changes are too drastical, some measurements might be removed.

All measurements are saved inside the Studio Toolkit file and visible when placed in e.g. Adobe Illustrator. When placed in Adobe Illustrator, the measurements are placed in a separate sub-layer of the Structural Design file.

### Adding measurements

To add new measurements:

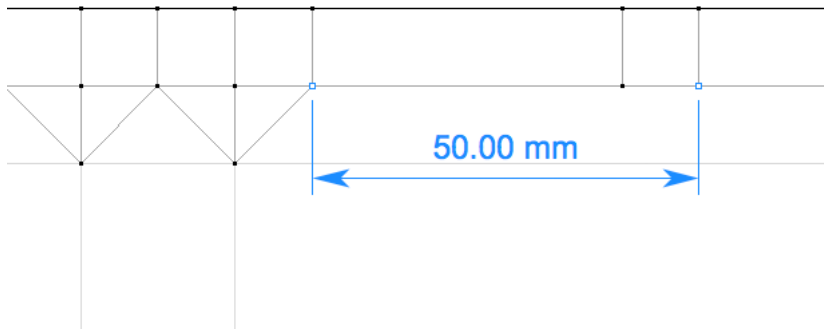
1. Select the 2D tab in which you want to add measurements
- 2.



Select the **New Measurement** tool

A measurement is drawn between the points of line intersections. When the **Measurement** tool is activated those points are clearly visible and light up when nearly selected.

3. Click and drag from one intersection point to another to add the measurement to your document.



**Note:** When measuring slanted lines, you will see either the vertical or horizontal distance. See [Slant measurements](#) on page 69

### Setting up measurements

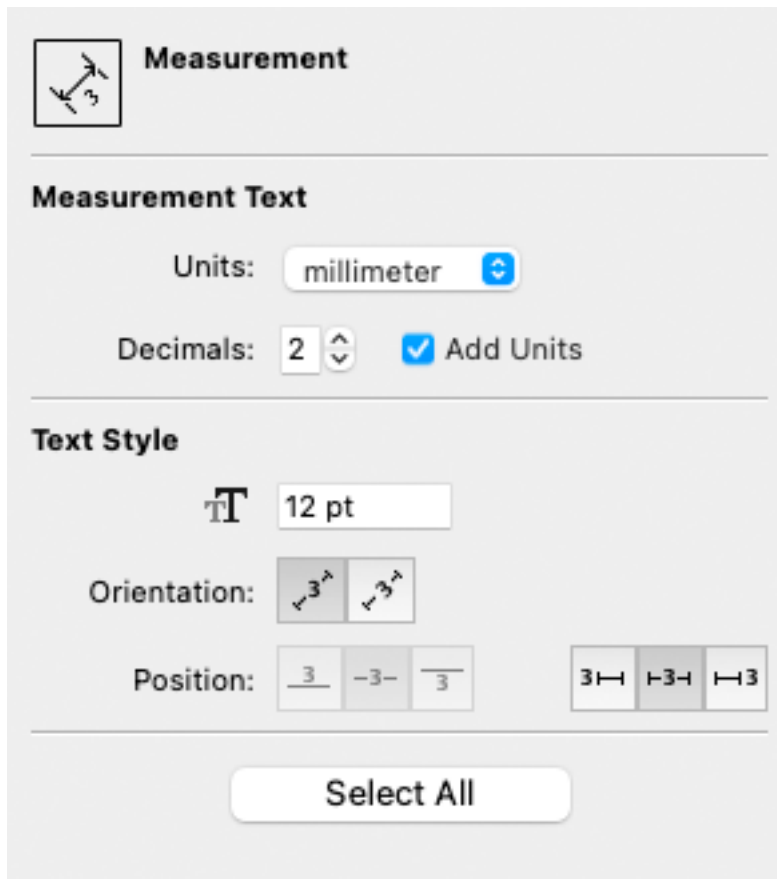
You can change the way measurements are shown on your document

1. Select the 2D tab in which you want to change the measurements
2. Select the measurement(s) you want to modify.



**Note:** You don't need to have the **New Measurements** tool active to select and modify a measurement.

The palette will show the settings of the selected measurement.



### 3. Make the changes you want

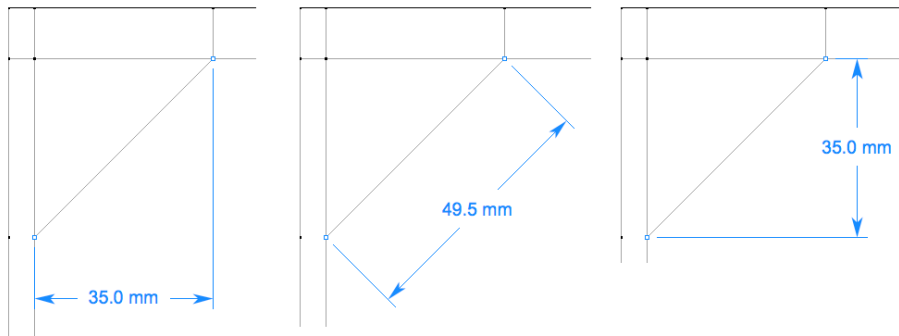
- click and drag the measurements to move them closer to or further away from the intersection points.
- for slant measurements, click and drag to rotate the measurement. See [Slant measurements](#) on page 69
- In the Measurement Text section, change the unit for the selected measurement, the number of decimals, and whether or not the units need to be shown.
- In the Text Style section you can set the text size in points. Note that the size of the arrow heads is changed accordingly.
- You can define if the text should always be horizontal, or according to the measure line. In the latter case, you can define if the text should be above, on or below the line. You can also set if the text should be positioned on the left / bottom, on the center or on the right / above.
- Click the **Select All** button to select all measurements at once. This allows to change the units, font size, ... for all measurements in one go.

### Slant measurements

When measuring slant lines, or simply measuring between two points that are not on a vertical or horizontal line, the measurement will by default show either the vertical distance or the horizontal distance, whatever is the biggest value.

If you want to change what distance to show (either vertical, horizontal or slanted distance), you can do so by clicking and dragging the measurement to rotate it.

Below you see some different results for the same two intersection points.



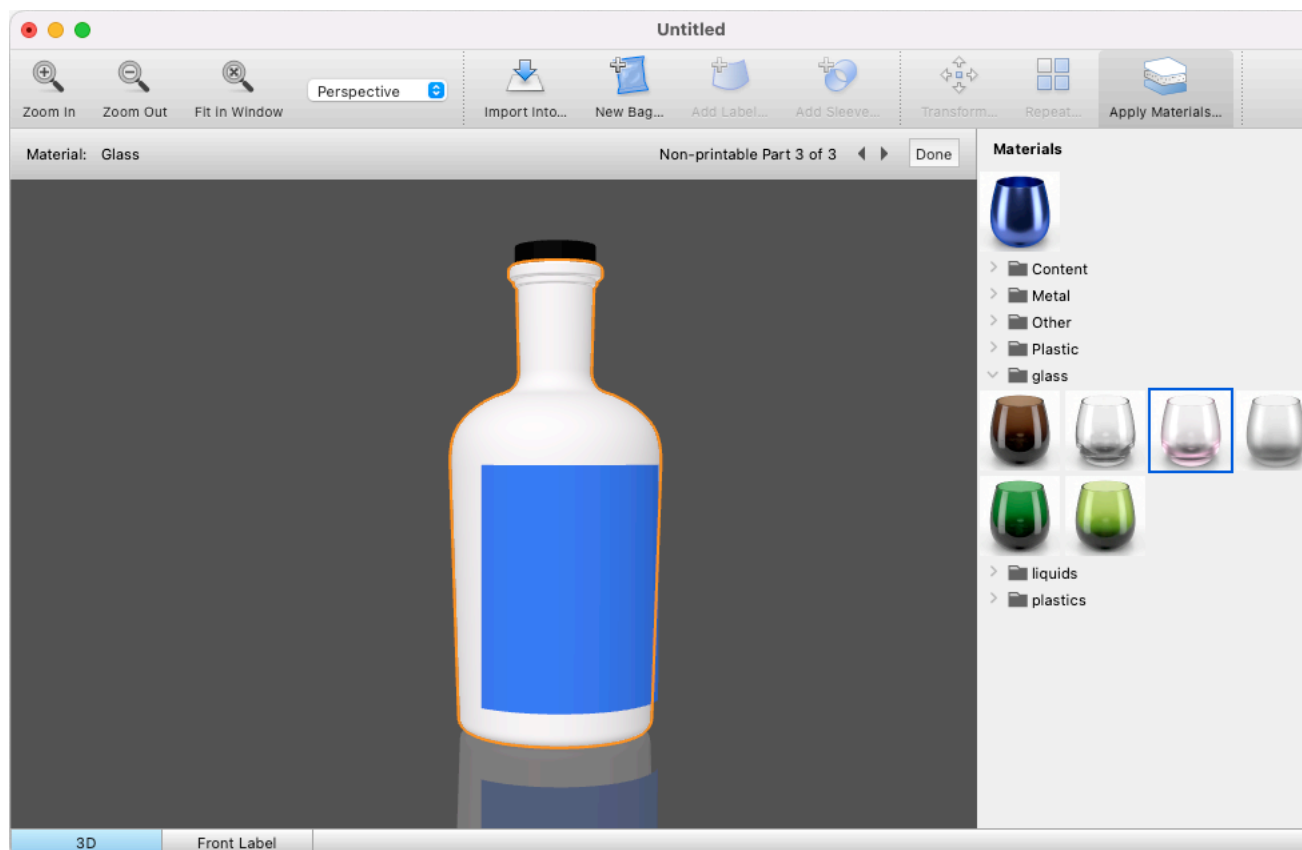
## Apply Materials

The Apply Materials mode allows you to assign material presets to non-printable parts. The materials will be stored in the Structural Design when saved.

1.



Click the **Apply Materials** button




2. Select the non-printable part you want to assign a Material Preset to.

When in Apply Material Mode, you can only select the non-printable parts in your document. You can select the non-printable part by clicking, or you can use the triangles to step through the non-printable parts of the scene

3. Select the **Material Preset** for the selected non-printable part.

- The Material Presets are shared with the Adobe Illustrator application, where you can create, rename and remove presets. See [Working with Material Presets](#) on page 179

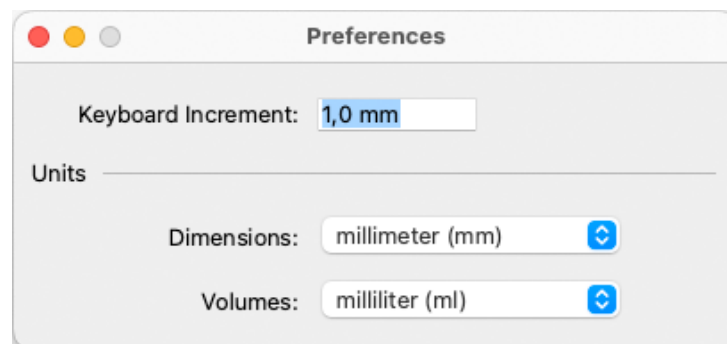
- In the fly-out menu  you can choose the view for the presets: small list view, large list view or grid view.

4. Click **Done** to exit Apply Material Mode.

## Preferences

You can open the preferences by choosing **Studio Toolkit > Preferences...** (Mac) or **Edit > Preferences...** (Windows).

In the preferences, you can set the **Keyboard Increment** for nudging (see [Nudge](#) on page 64), the unit to be used for **Dimensions** (millimeter, centimeter or inch) and for **Volumes** (milliliter, centiliter or US fluid Ounce).



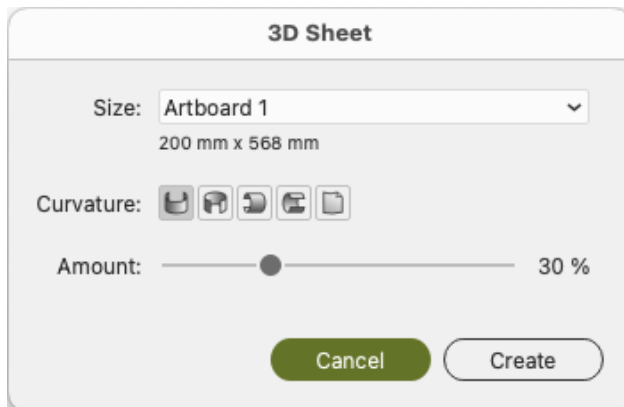
## 3.2. Create a 3D Sheet

---

A **3D Sheet** is a 3D representation of a simple sheet, that can be used e.g. to visualize finishing operations in Visualizer quality.

You can only create a 3D Sheet if no Structural Design file is placed in the current document.

1. To view the Studio window, choose **Window > Esko Studio > Studio Window** or use the shortcut **Cmd+Alt+4** (Mac) or **Ctrl+Alt+4** (Windows).
2. Click **Create a 3D sheet** in the Studio window, or select **3D Sheet...** in the fly-out menu of the Studio Window.



3. Select the **Size**. You can select any Artboard, or any DeskPack Page Box defined in the document.

You can set DeskPack Page Boxes using the Trim Box and Media Box plugin, part of Esko Data Exchange and installed along with Studio: **Window > Esko > Trim Box and Media Box**

4. Set the shape of the sheet by selecting the **Curvature** and setting the **Amount**.

5. Click **Create**

You can change the settings of your 3D sheet by selecting **3D Sheet...** in the flyout menu of the Studio Window, changing the settings and clicking **Modify**

You can remove a 3D sheet by selecting **Remove** in the **Scene** dropdown. Placing a Structural Design file will also remove the 3D sheet.

## 3.3. Create a box

---

You can create a box or any other folded structure, such as a tray, in Adobe Illustrator using the Studio Advanced tools.

- You can create a basic box from scratch. See [Creating a Basic Box](#) on page 72
- You can create a box based on die lines, e.g. from an imported die shape. See [Create a box based on die lines](#) on page 76

Sometimes a die-drawing fails to fold properly because of inaccuracies in the die drawing. In that case, you can use the Studio Advanced tools to check, correct and fold a placed ARD file.

See

- [Check the die and solve inaccuracies](#) on page 83
- [Fold ArtiosCAD file](#) on page 88

### 3.3.1. Creating a Basic Box

This tool lets you create a simple rectangular box. This can be used to start working on a design before you get the final die lines, or to create a simple box from within Illustrator.

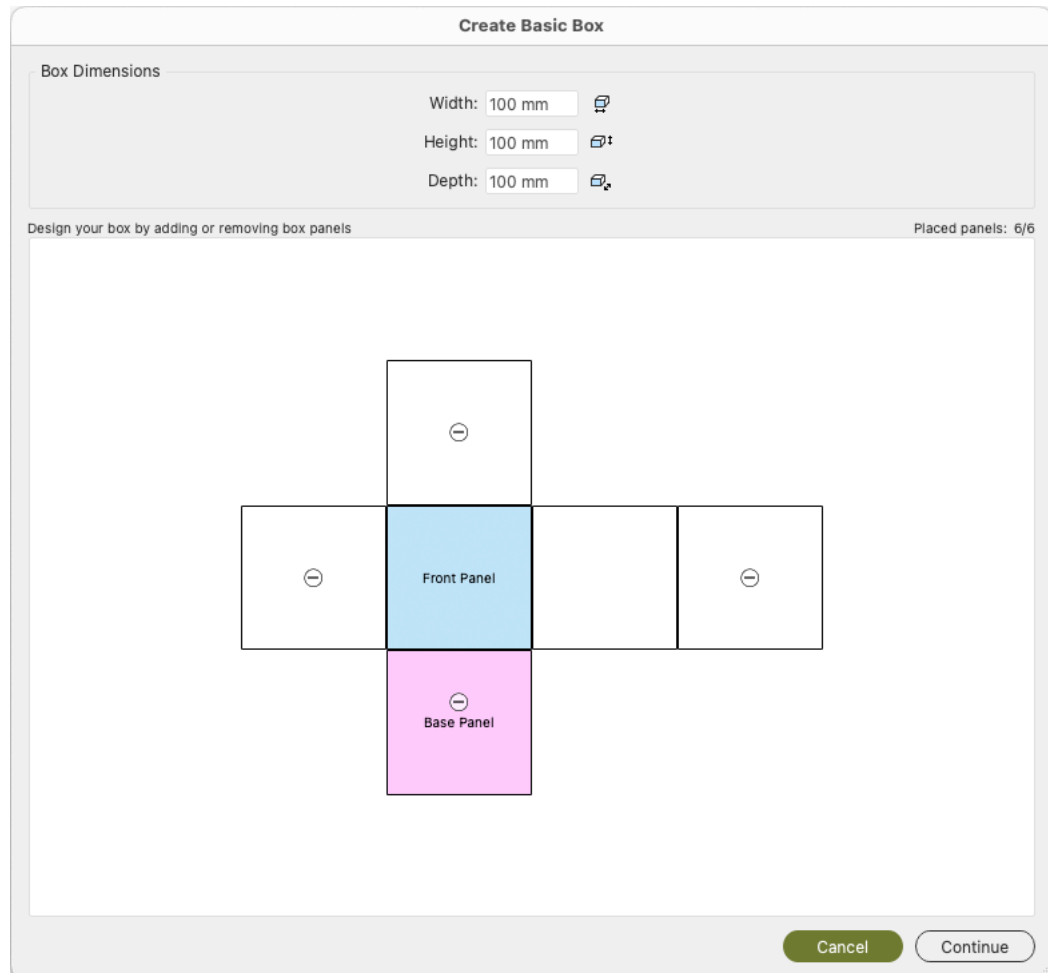
1. Open the **Create Basic Box** dialog:

- Choose **Window > Esko Studio > Create Basic Box...**



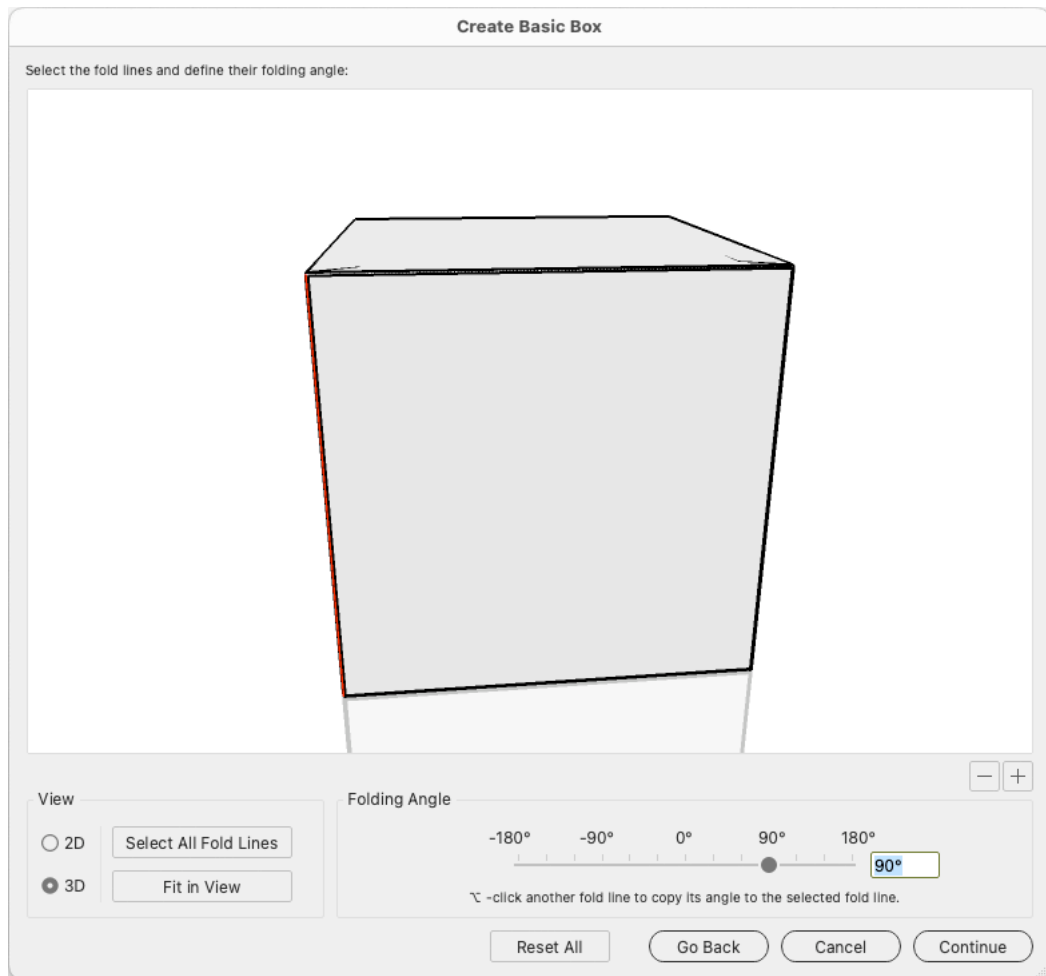
- If you have no Structural Design in your document, you can access this tool from the (empty) **Studio** window, by clicking **Create Basic Box**.

The **Create Basic Box** dialog appears.



2. Fill in the **Width** , **Height** and **Depth** for the box you want to create.
3. Define the Panels. You can choose how your box is built by adding or removing panels. The box must have 6 panels to continue.
  - Remove a panel clicking the - button
  - Add a panel clicking the + button
4. Click **Continue** .

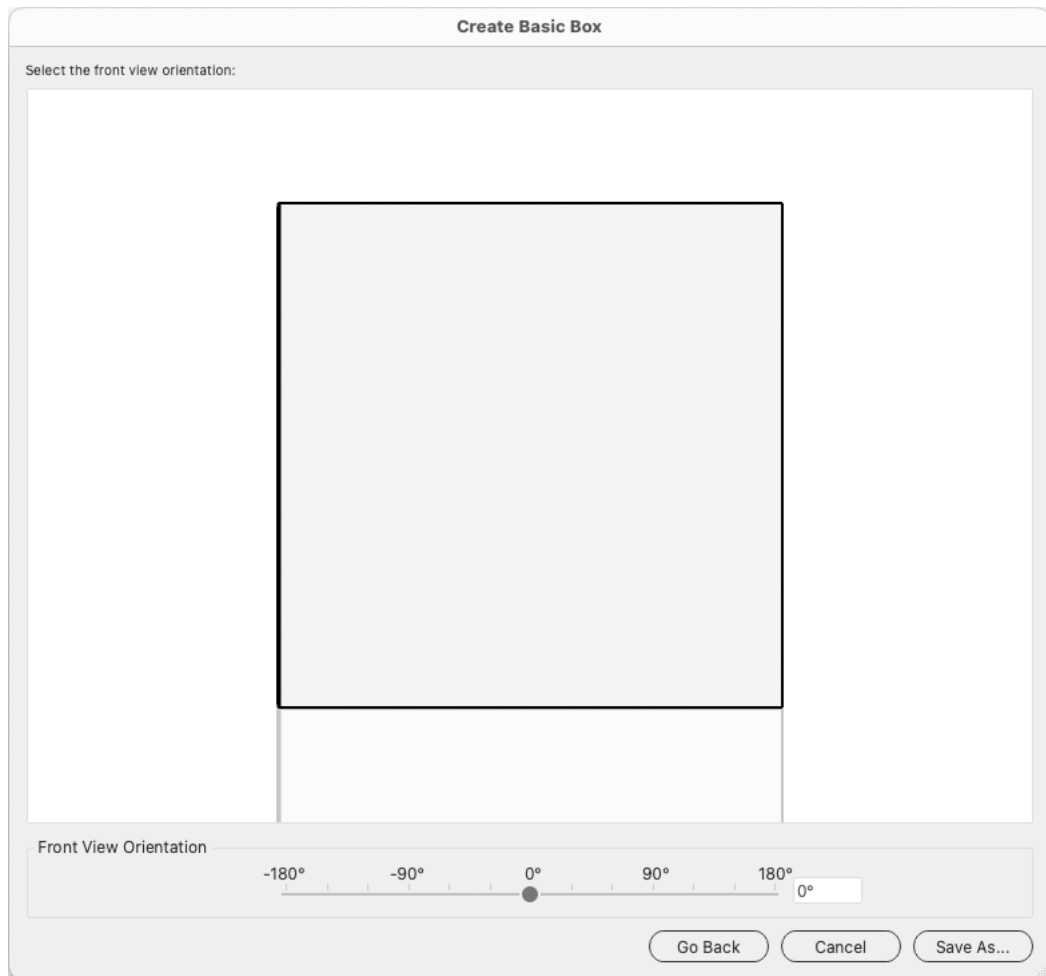
You now get a 3D preview of the closed box.



5. If you want to modify the fold angles of one or more faces, select a fold line and use the slider to change the fold angle. You can also enter a value manually, or click one of the labels above the slider.

6. Click **Continue** .

The box turns to its **Front View**.



7. If you want to modify the **Front View Orientation**, you can click and drag the box interactively in the 3D view, or use the slider to change the angle. You can also enter a value manually, or click one of the labels above the slider.

The Front View Orientation is used when applying the **View Preset "Front"** in the Studio window. See [View](#) on page 217

8. Click **Save As** to save the result as an ArtiosCAD ARD file.
9. Define the name and location for the file.
10. You get the option to place the file directly in the document.  
If you click **Yes** :
  - the **Studio** window will show the folded ArtiosCAD ARD file. The new ARD file will be placed next to already placed Structural Design files.
  - the selected items will be moved to a locked layer.
11. You can also use the ArtiosCAD ARD file in Studio Toolkit.

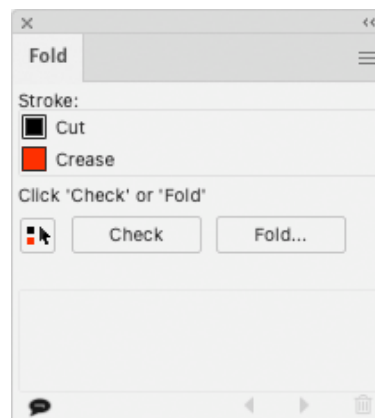


**Note:** Keep in mind that the resulting box is not a technically accurate and produceable box.

### 3.3.2. Create a box based on die lines

You can create a box starting from a die drawing. This can be any die drawing that you imported in Illustrator.

To fold a die drawing to a folded box, you use the **Fold** window: choose **Window > Esko Studio > Show Fold Window** .



The **Fold** window assists you in all necessary steps to fold a die:

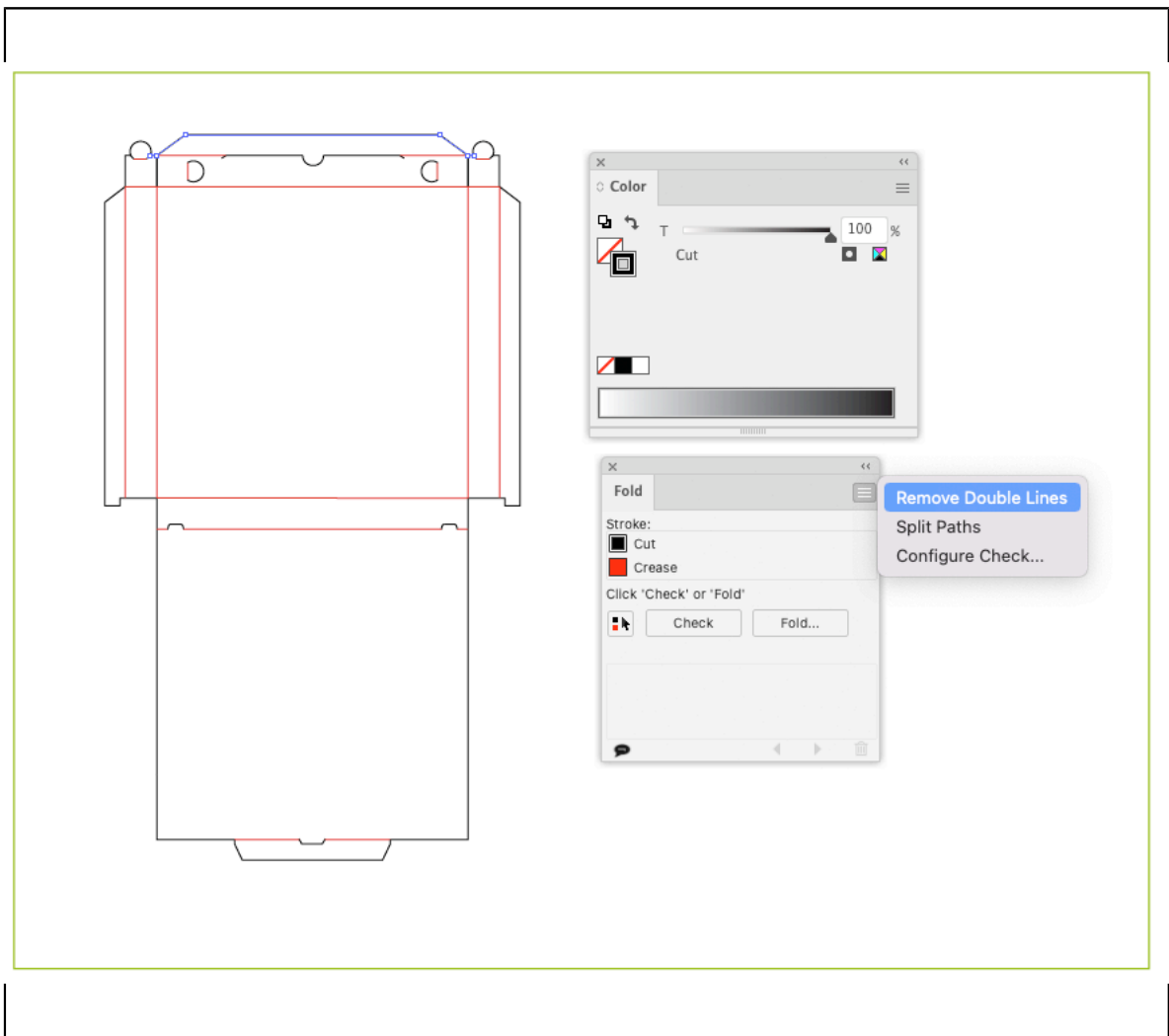
1. Assign fold and cut lines. See [Assign fold and cut lines](#) on page 77
2. Fold the design, using the **Fold** button.
3. Sometimes a die-drawing fails to fold properly because of inaccuracies in the die drawing. In that case, you need to check the die and solve any inaccuracies:
  - by going back one step and using the **Check** function and manual correction;
  - by using **Automatic Correction** in the **Fold Selection** window.
4. Select a base panel. See [Select the Base Panel](#) on page 78
5. Select a board and fill in the board thickness. See [Select the Board and Board Thickness](#) on page 79
6. Set the fold angles. See [Set the folding angles](#) on page 79
7. Set the front view. See [Set the Front View](#) on page 83
8. Click **Save As** to save the result as an ArtiosCAD ARD file.
9. Define the name and location for the file.
10. You get the option to place the file directly in the document. If you click **Yes** :
  - the **Studio** window will show the folded ArtiosCAD ARD file. The new ARD file will be placed next to already placed Structural Design files.
  - the selected items will be moved to a locked layer.
11. You can also use the ArtiosCAD ARD file in Studio Toolkit.

## Assign fold and cut lines

After importing a die drawing into Illustrator, you have to indicate which lines represent a cut and which lines represent a fold line or “crease”.


A line is indicated to be a cut line by applying the designated ink named “Cut”. A line is indicated to be a crease line by applying the designated ink named “Crease”.

- Select the proper paths, and click the **Cut** or **Crease** swatches in the **Fold** window.
- If you want a single path to be partially a cut path and partially a fold line, select the path, and select **Split Paths** from the flyout menu in the **Fold** window. This will split the selected path in different segments, so that the fold lines can be selected apart from the cut lines.
- With some die drawings it is hard to assign cut and crease strokes to the lines because the die drawing consists of rectangles on top of each other. This creates double lines. **Remove Double Lines** in the flyout menu of the **Fold** window will remove the double lines in the selection. This will take all lines in the selection into account, irrespective of the stroke color they have.



## Select the Base Panel

The Base Panel is the panel that will be facing down. All other panels are folded relative to this base panel.

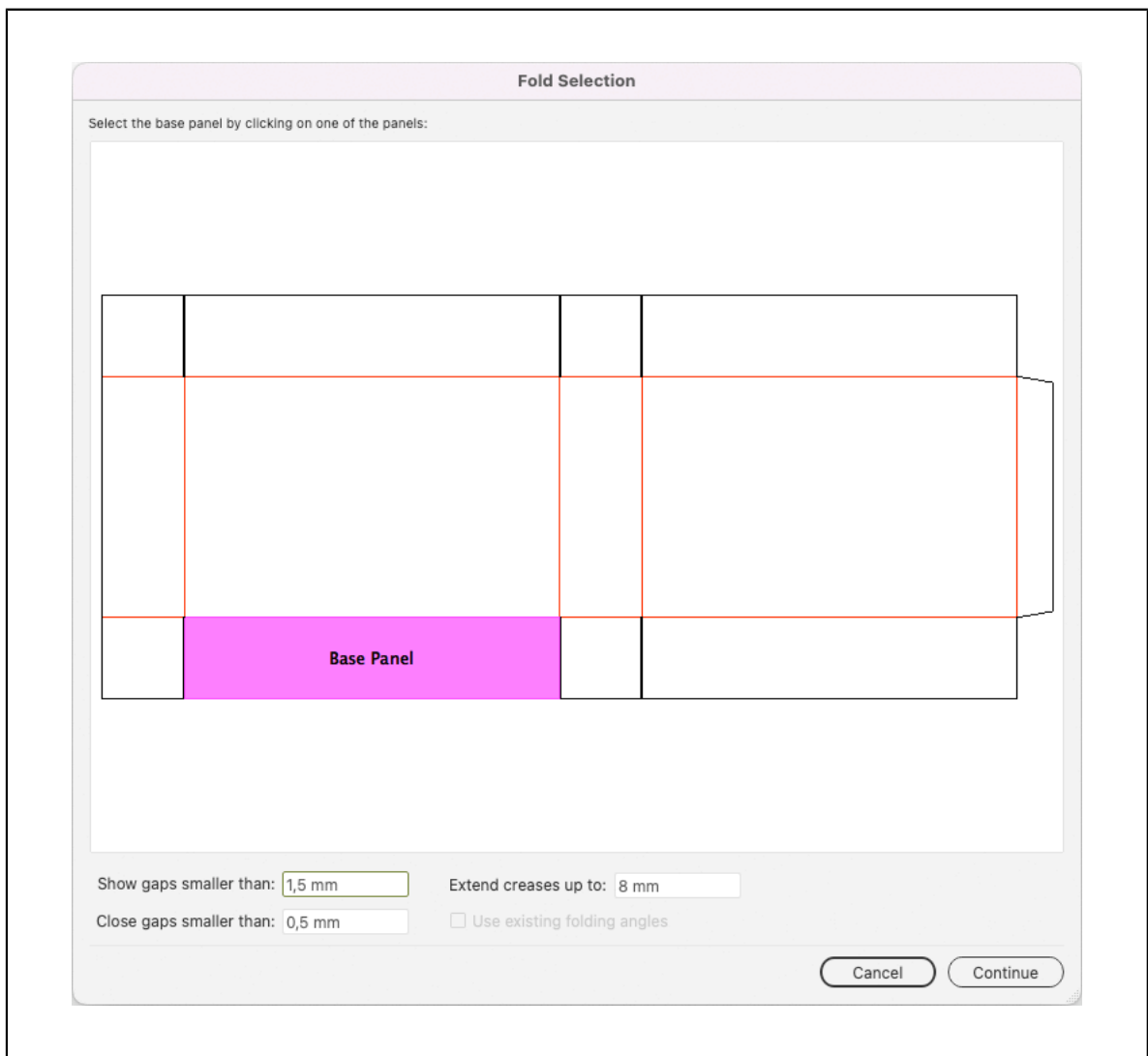
1. Select all cut and crease lines by clicking the **Select All Cuts and Creases** button in the **Fold** window. 

2. Click the **Fold** button.



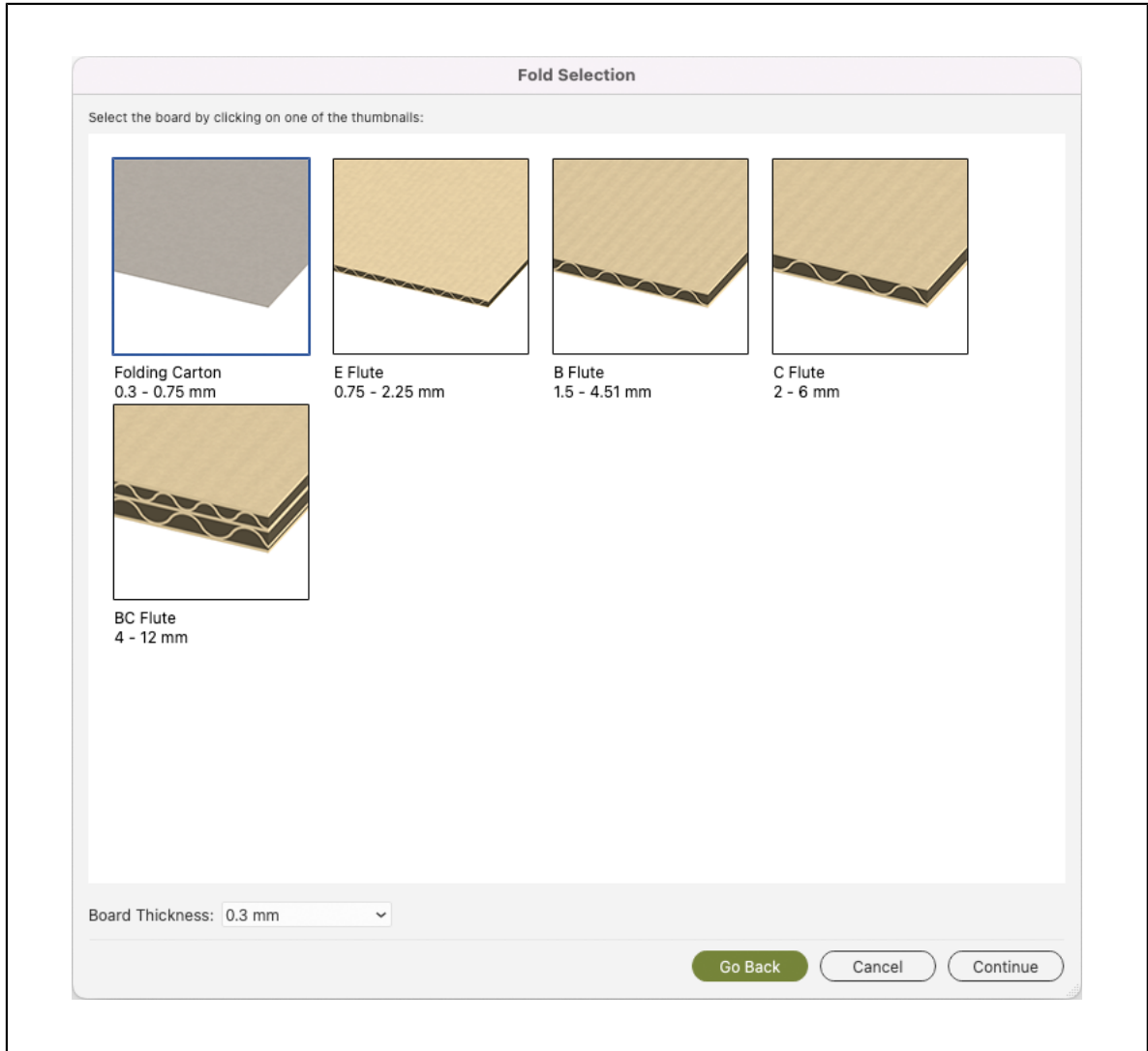
**Note:** If you don't see all the panels, or if you are not able to select the base panel you had in mind, there could be inaccuracies in the die. In that case you need to check the die and resolve any inaccuracies.

3. Select a Base Panel.
4. Click **Continue**.



## Select the Board and Board Thickness

1. Select the correct board by choosing one of the boards and fill in the board thickness.
2. Select the **Flute direction**
3. Click **Continue** .



## Set the folding angles

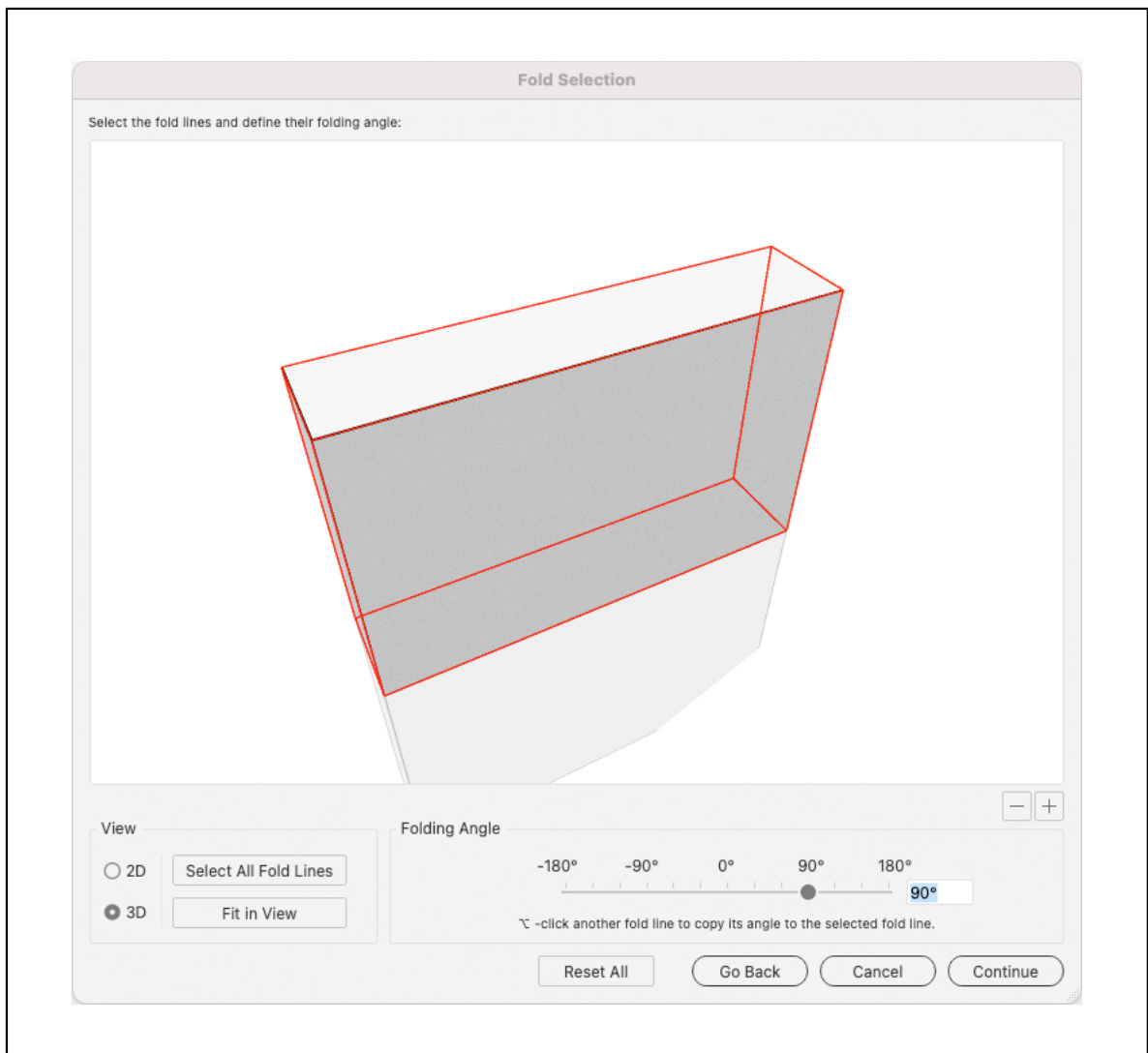
After selecting the cut and crease lines, defining the base panel and choosing a board you will get a preview of the design in 3D, laying flat on the floor with the backside facing up. The box can be folded by defining the fold angles for all fold lines.



**Note:** If your box contains panels that are coincident, a warning will be shown, indicating the number of coinciding panels. See [Coinciding panels](#) on page 81

- Select a fold line by clicking on it, and specify the fold angle using the slider or by entering the value in the **Folding Angle** field.

- Hold down the **Shift** key to add or remove fold lines to the selection.
- Click **Select All Fold Lines** to select and change all fold lines at once.
- You can copy the Folding Angle from one fold line to another:
  - a) Select the fold line you want to change
  - b) Hold down the **Option** key on Mac or the **Alt** key on Windows, and click on the fold line with the folding angle you want to copy
- You can change the angle of the selected fold line(s) using the arrow keys on your keyboard:
  - a) up / down changes the value in steps of one degree.
  - b) Shift + up / down changes the value in steps of ten degrees.
- Click **Reset All** to return all folding angles back to the angles you started with.



### Switching between 3D and 2D view

In some cases it can be difficult to select fold lines while being in 3D view. In that case, you can switch to 2D view to select the appropriate fold line. After selecting it, you need to switch back to 3D view to change the fold angle.

1. Select **2D** to switch to 2D view.



2. Select the fold line you need. If necessary, you can navigate in the 2D view:

Action	Mac	Windows
Zoom in	Hold down the <b>spacebar</b> and the <b>command</b> key	Hold down the <b>CTRL</b> key and click
Zoom out	Hold down the <b>spacebar</b> , the <b>command</b> and the <b>Option</b> key, and click	Hold down the <b>CTRL</b> and the <b>ALT</b> key and click
Pan	Hold down the <b>spacebar</b> and click and drag	Hold down the <b>CTRL</b> and the <b>SHIFT</b> key and click and drag
View the entire box	Click <b>Fit in Window</b>	

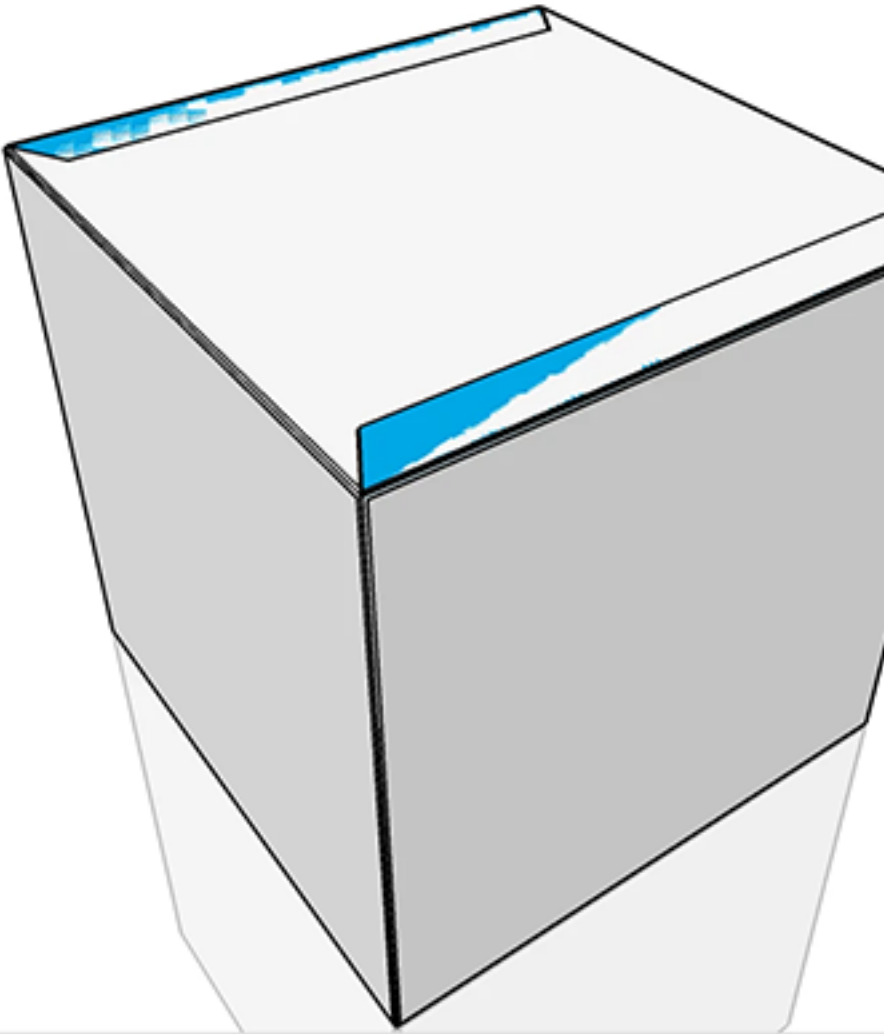
3. Select **3D** to switch back to 3D view.
4. Set the fold angle for the selected folding line.


### Coinciding panels

If your box contains panels that are coincident, a warning will be shown, indicating the number of coinciding panels.

### Fold ArtiosCAD File

Select the fold lines and define their folding angle:



 There are 11 panels that are coincident. This could lead to render artefacts or reduced performance. See the [Studio User Guide](#) for more information.

**View**

2D Select All Fold Lines

3D Fit in View

**Folding Angle**

-180°      -90°      0°

⌘ -click another fold line to copy its angle to

Reset All
Go Back

Coincident panels are panels that occupy the same space in 3D. Coincident panels can lead to these issues:

- A box with a lot of coincident panels will render slowly in Esko viewers
- In ray tracing quality, the wrong panel might be shown in front
- In third party viewers, coincident panels can show artefacts, such as z-fighting.

In boxes, this mostly occurs when tuck flaps are coinciding with the main large panel. This can be fixed by folding the tuck flap inwards, (e.g. use folding angle of 89° instead of 90°) so that it is no longer coincident with the main panel.



**Note:** The Fold dialog can show z-fighting for coincident panels. This is to help you see which panels you need to fold inwards. The box will still look ok in the Studio window in Designer and Visualizer quality.

### Set the Front View

After folding the box, the wizard will turn to the **Front View** of the box.

If you want to modify the **Front View Orientation**, you can click and drag the box interactively in the 3D view, or use the slider to change the angle. You can also enter a value manually, or click one of the labels above the slider.

The Front View Orientation is used when applying the **View Preset** "Front" in the Studio window. See [View](#) on page 217

### 3.3.3. Check the die and solve inaccuracies

When you import a die drawing in Illustrator and define its cut and crease lines, some inaccuracies in the die lines may prevent you from generating a correct and clean fold.


For this reason, Studio Advanced offers a number of tools to check and correct the most common inaccuracies.

#### Checking the die

If the die drawing contains inaccuracies, these can become obvious when creating the fold:

- Panels may be missing;
- An error may appear, stating that some cut lines do not make an outline;
- Inaccuracies may be found and indicated in the **Fold Selection** window;
- ...



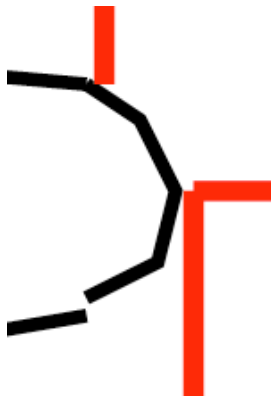
A more efficient way to check for inaccuracies and their location is to run a Check.

1. Select all cut and crease lines by clicking the **Select All Cuts and Creases** button in the **Fold** window. 

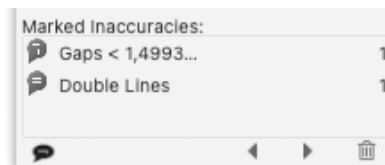
2. Click the **Check** button. The die lines will be checked for double lines and for gaps.

For every inaccuracy that was found, a marker is placed on top of your document.

If double lines were found, you get the option to clean them up automatically.

Marker	Type of inaccuracy	Possible corrections
	<b>Double Line</b> marker. Double lines occur when two lines fall exactly on top of each other e.g. when the die drawing was created with rectangles against each other	<ul style="list-style-type: none"> <li>Delete lines manually</li> <li>Use the <b>Remove Double Lines</b> function</li> <li>Clean up double lines automatically after a <b>Check</b></li> </ul>
	<b>Gaps</b> marker. Gaps occur if two lines don't meet exactly as they should. 	<ul style="list-style-type: none"> <li>Manually, using Illustrator path tools</li> <li>Manually, using the <b>Trim and Extend</b> tool</li> <li>Using the Automatic Correction values in the <b>Fold Selection</b> window</li> </ul>

3. Click the entry in the **Marked Inaccuracies** list to zoom in on the first occurrence.

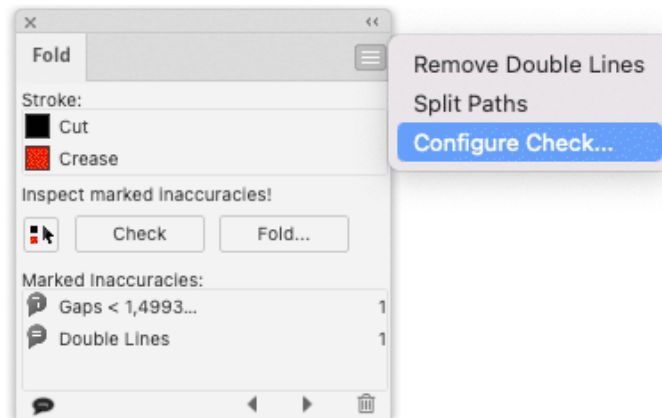


4. Use the **step buttons** in the **Fold** window to step through the markers.

- You can hide and show the markers using the **Show Markers** button in the left bottom corner of the **Fold** window.
- You can remove all markers by clicking the trash can icon at the bottom right of the **Fold** window.

### Configure Check

The Configure Check dialog can be opened by selecting **Configure Check** in the flyout menu of the **Fold** window, by clicking the flyout button.

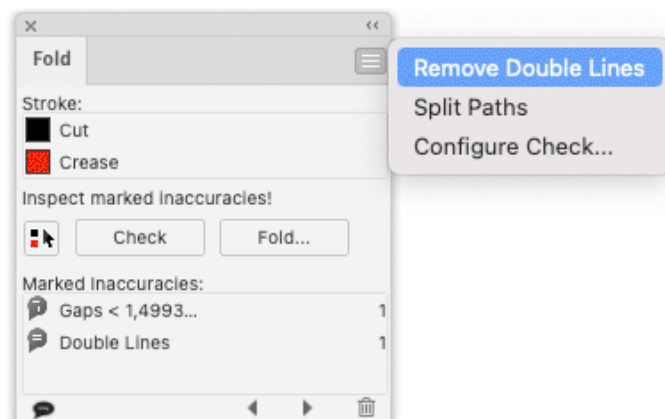


In the Configure Check dialog, you can define the **Show Gaps Smaller Than** value. Gaps larger than the **Show Gaps Smaller Than** value will not be treated as Gaps, and will thus not be shown.

## Remove Double Lines

**Remove Double Lines** in the flyout menu of the **Fold** window will remove the double lines in the selection. This will take all lines in the selection into account, irrespective of the stroke color they have. The **Remove Double Lines** function can be applied before or after assigning the **Cut** or **Crease** swatch.

1. Make the selection in which you want double lines to be removed.
2. If the **Fold** window is not open yet, select **Window > Esko Studio > Show Fold Window**.
3. Select **Remove Double Lines** from the flyout menu of the **Fold** window, by clicking the flyout button.



All double lines in the selection will be removed.



**Note:** Keep in mind that the **Remove Double Lines** function removes the bottom most line, regardless of what line it is. If you have already indicated which lines are cut lines and which are crease lines, make sure that only the appropriate lines are removed by moving them to the back of the canvas.



**Note:** Accepting to remove double lines automatically after running a Check works in the same way, but only affects cut and crease lines.

## Remove gaps using the Trim and Extend tool

The **Trim and Extend** tool can be used to correct gaps in the die drawing. These gaps can be found manually or by using the **Check** function.

1.



Click the **Trim and Extend** tool in the toolbox.

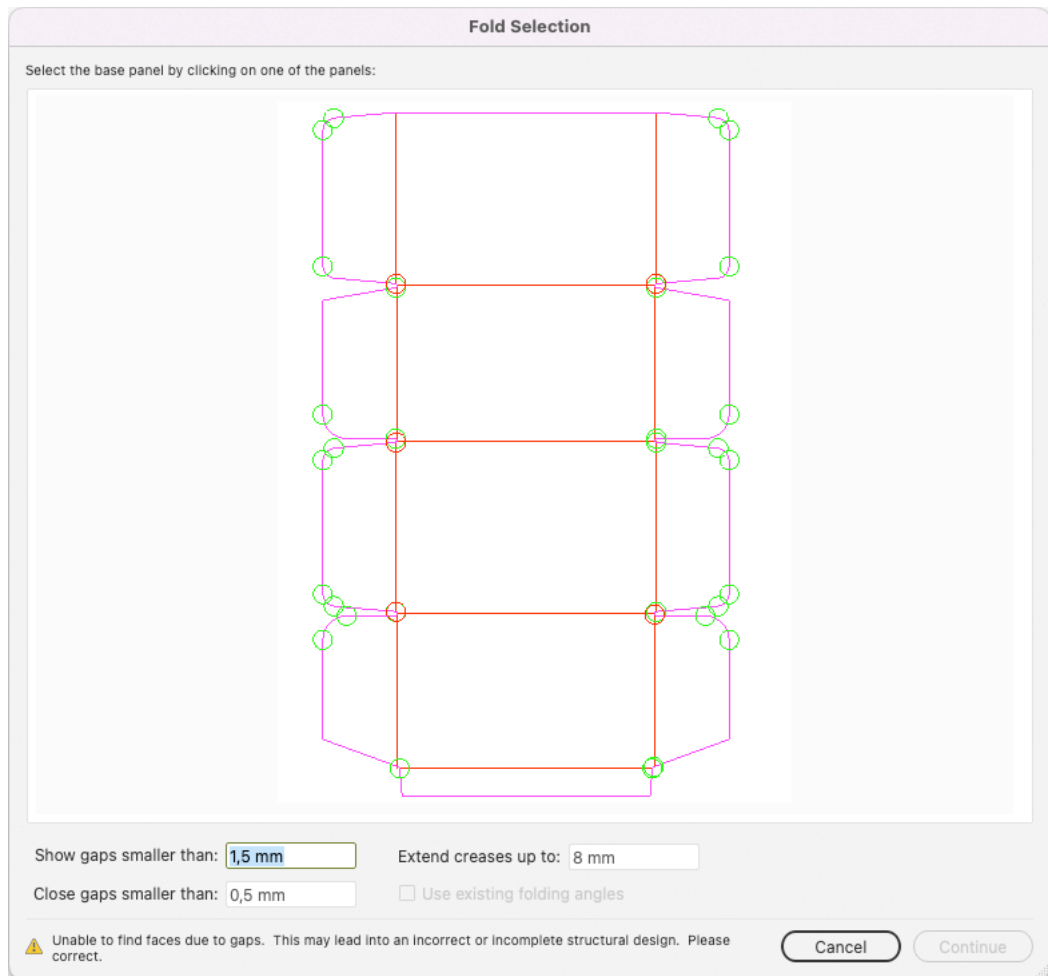
2. Click and drag the end point you want to change.

- Release to trim or extend the line up to the point where you release the mouse.
- Release near or on another line to snap the end point to the intersection of both lines.

## Inaccuracies when folding the selection

When creating a fold using the Fold function in the Fold window, the die drawing is checked. Inaccuracies can be presented in different ways:

- If the cut lines are not closed to an outline, a warning message is shown. The gaps must be fixed in order to make a fold.
- Gaps can be indicated by red and green circles in the **Fold Selection** window.
  - Green circles indicate gaps that will be solved with the **Automatic Correction** values in the **Fold Selection** window.
  - Red circles indicate gaps that need to be solved manually.



### Automatic Correction

The settings at the bottom of the **Fold Selection** window define what gaps are shown, and how they can be corrected automatically.

#### Show Gaps Smaller Than

In the **Fold Selection** window, you can define the **Show Gaps Smaller Than** value. Gaps larger than the **Show Gaps Smaller Than** value will not be treated as Gaps, and will thus not be shown.



**Note:** This is the same setting as the **Show Gaps Smaller Than** value in the **Configure Check**. Changing the value in the **Fold Selection** window changes it in the **Configure Check** as well, and vice versa.

#### Close Gaps Smaller Than

In the **Fold Selection** window, you can define the **Close Gaps Smaller Than** value.

All gaps smaller than or equal than this value will be closed automatically. By incrementing this value, more gaps will turn green, and the fold tool will try to close them automatically. Be aware that the larger this value becomes, the more risky the outcome will be.



**Note:** The **Close Gaps Smaller Than** value can not be higher than the **Show Gaps Smaller Than** value. Setting it to a higher value will change the **Show Gaps Smaller Than** value to the same value.

### Extend Creases Up To

Gaps between Crease lines and Cut lines are common in a lot of die drawings. The **Extend Creases Up To** makes sure that these gaps are closed by extending the fold lines up to the value entered.

## 3.3.4. Fold ArtiosCAD file

Using **Fold ArtiosCAD File...** you can change the folding angles of an already folded box.



**Note:** If a placed ARD file does not contain folding angles, the plug-in cannot know how the box has to be folded. In that case 90-degree foldings are assumed on all folding lines. If the resulting shape is not the intended one, the proper folding angles need to be added to the ARD file, for example using ArtiosCAD or the **Fold ArtiosCAD File...** function described here.

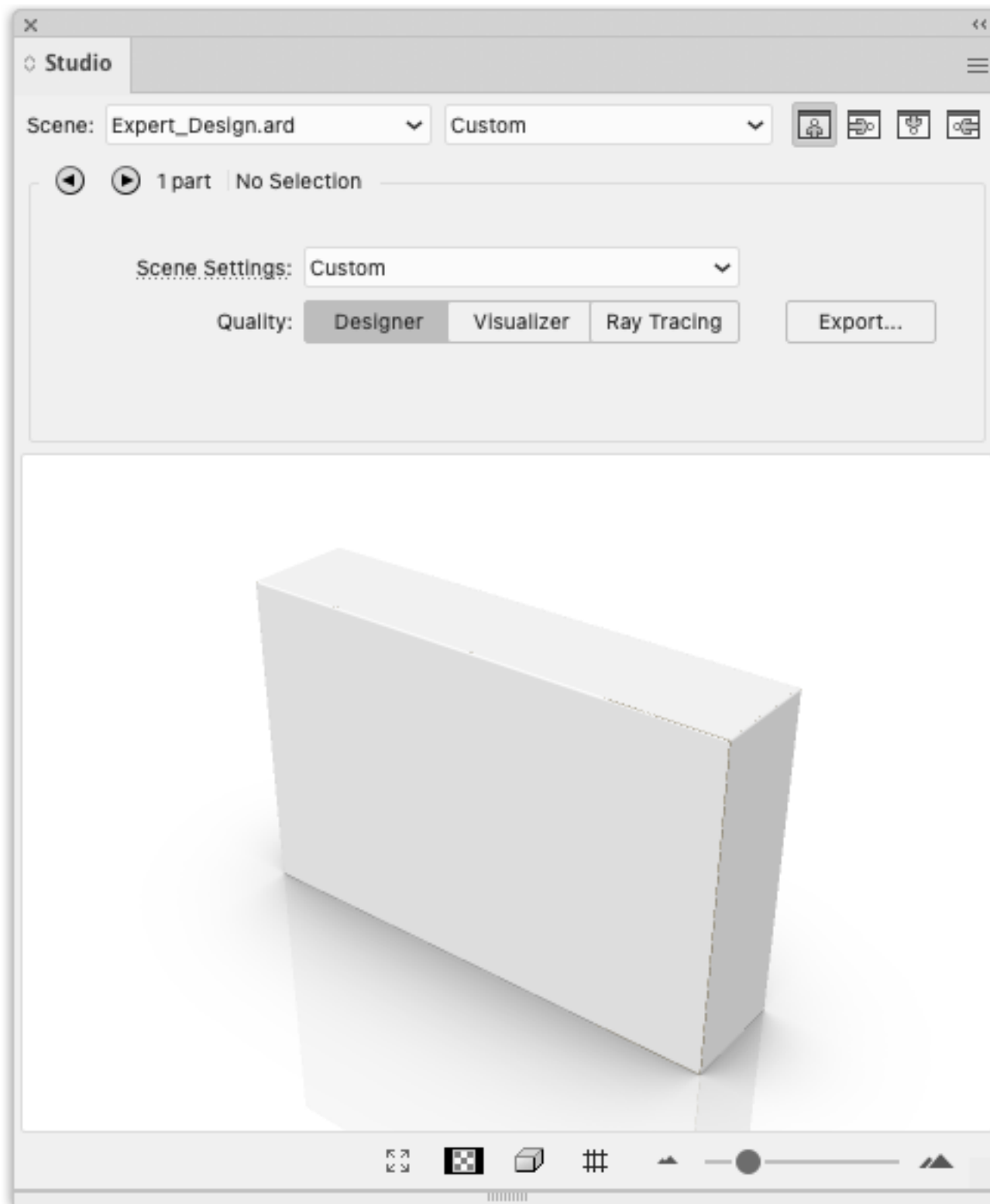
1. Open the Fold Selection window:
  - Select **Window > Esko Studio > Fold ArtiosCAD File...**
  - If you have the **Studio** window, you can select **Fold ArtiosCAD File...** in the flyout menu.
2. Change the fold angles as explained earlier. See [Set the folding angles](#) on page 79
3. Set the front view. See [Set the Front View](#) on page 83
4. Click **Save As** to save the result as an ArtiosCAD ARD file.
5. Define the name and location for the file.
6. You get the option to place the file directly in the document.  
If you click **Yes** :
  - the **Studio** window will show the folded ArtiosCAD ARD file. The new ARD file will be placed next to already placed Structural Design files.
  - the selected items will be moved to a locked layer.
7. You can also use the ArtiosCAD ARD file in Studio Toolkit.

## 3.3.5. Tips & Tricks: create a cutout window in a box

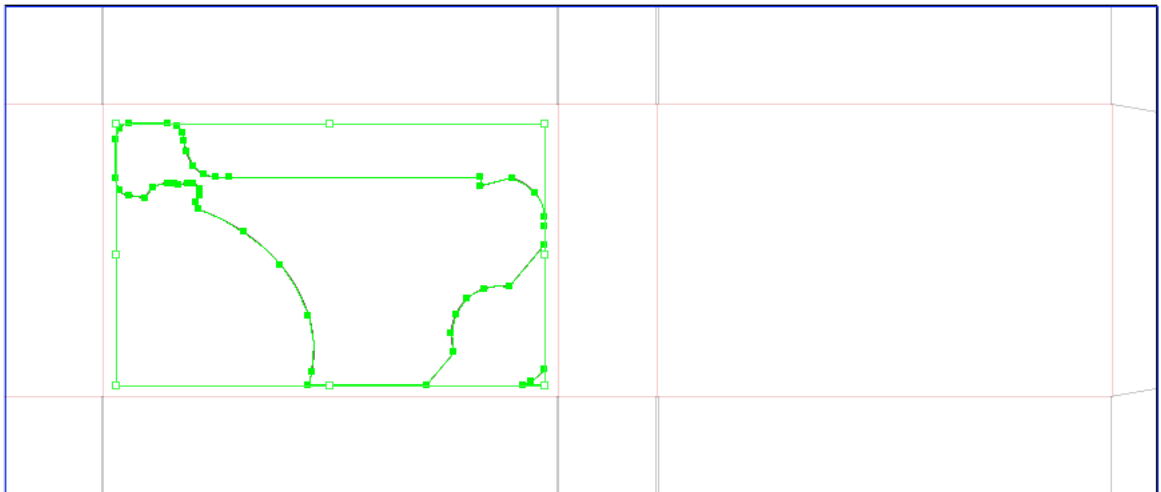
If you want to create a cutout window in an existing ARD box, you can create the shape and add it to the ARD file.

1. Open or place an ARD file.



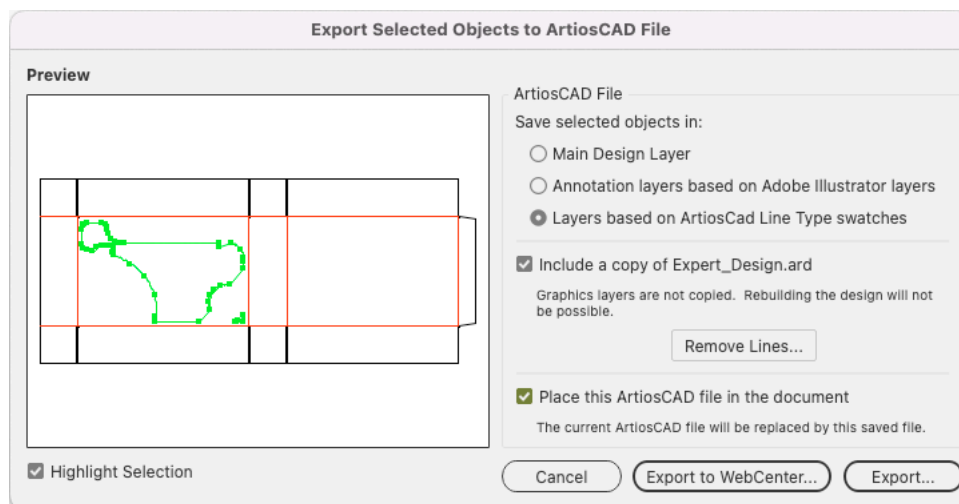


2. Create and select the cutout shape that you want to add to the ArtiosCAD file.



3. Choose **File > Structural Design > Export Selected Objects to ArtiosCAD File**.

The **Export Selected Objects to ArtiosCAD File** appears.

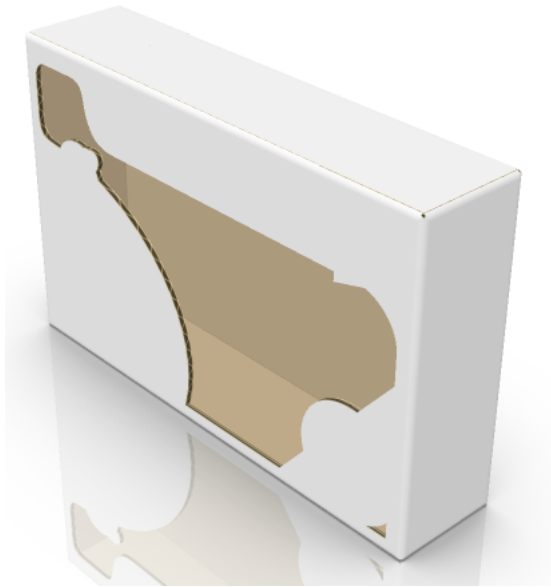


4. Select the following options

- Save the selected objects in the Main Design Layer.
- Include a copy of the original ARD file.
- Place this ArtiosCAD file in the document.

5. Click **Save As...**

The selected objects are saved in the **Main Design Layer**. They get the cut line type (which is the default if you did not specify a swatch with as name an ArtiosCAD line type). Apart from the selected objects, the original ARD file is copied in the resulting ARD file and the resulting ARD file is immediately placed in the Illustrator document.



## 3.4. Create a label

There are three different ways to create labels in Studio.

	Where	Extra functionality
1. Front, Back and Wrap Around	Studio Toolkit	<ul style="list-style-type: none"> <li>• Die Cut path</li> <li>• Labels can be edited</li> </ul>
2. Freeform Label	Studio Toolkit	<ul style="list-style-type: none"> <li>• Labels can be edited</li> </ul>
3. Revolved shape	Adobe Illustrator	<ul style="list-style-type: none"> <li>• Conical Warping</li> </ul>

### 1. Front, Back and Wrap Around Labels

If you have an existing 3D object (e.g. a collada file of a bottle, can, jar, ...) you can import it in Studio Toolkit (see [Importing Shapes, Images or Paths](#) on page 52) and add a cylindrical or conical label. See [Front, Back and Wrap Around Labels](#) on page 92

The result will be a Collada file that you can use in Studio Advanced in Adobe Illustrator. It will contain a Printable Part for every label.

If you are working with a Front, Back or Wrap Around label, you can use a Die Cut path to refine the die cut shape of the label. See [Using a Path as a Die Cut](#) on page 94



**Note:** Conical warping is not available on these labels. If you have a Studio Toolkit for Shrink Sleeves license, you can however use **Predistort**. See [Artwork Predistortion for Shrink Sleeves](#) on page 204

## 2. Freeform Labels

If you have an existing 3D object (e.g. a collada file of a bottle, can, jar, ...) you can import it in Studio Toolkit (see [Importing Shapes, Images or Paths](#) on page 52) and brush a bespoke **Freeform Label** anywhere on the container. See [Creating a Freeform Label](#) on page 96

The result will be a Collada file that you can use in Studio Advanced in Adobe Illustrator. It will contain a Printable Part for every label.

## 3. Revolved Shape

If you don't have an existing 3D shape, you can create a round shape by revolving a profile path. See [Creating a revolved shape with labels](#) on page 99

During this procedure you can immediately add a Front, Back, Top, Bottom or Roll around label.

When working on one of these labels, you can apply **Conical warping**. See [Conical Warp](#) on page 203

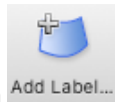


**Note:** You can also use the **Revolve** function to create the shape (e.g. of a bottle), save this shape as a collada file, open it in Studio Toolkit and apply a **Front, Back and Wrap Around Labels** or **Freeform Label**.

### 3.4.1. Front, Back and Wrap Around Labels

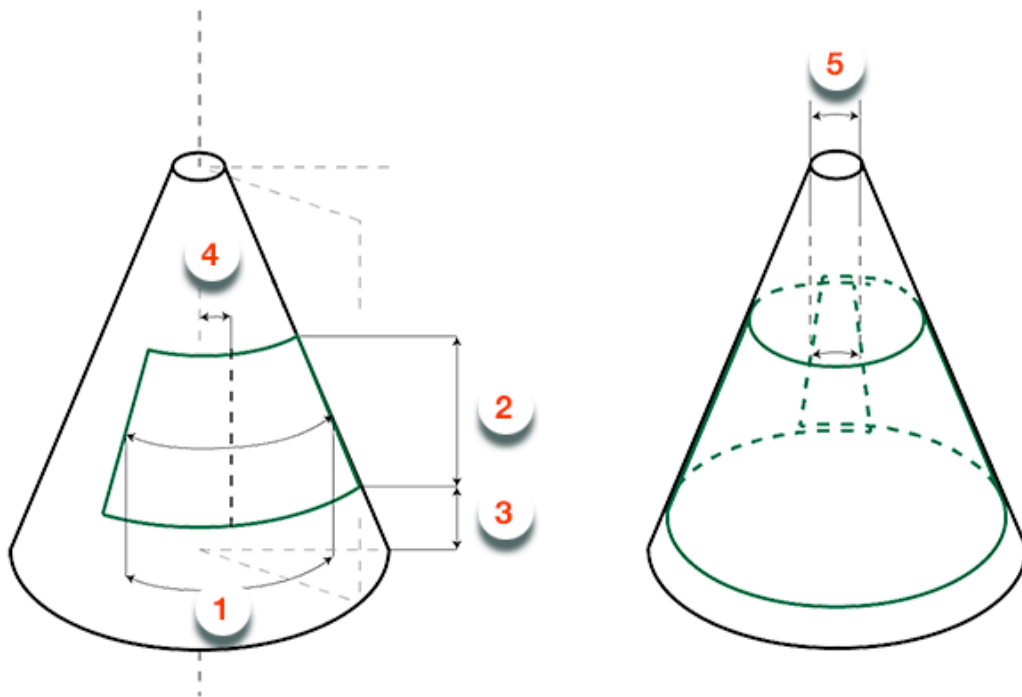
Front Labels, Back Labels and Wrap Around Labels are three similar types of labels that can easily be created and controlled in Studio Toolkit.

1. Import the shape into Studio Toolkit. See [Importing Shapes, Images or Paths](#) on page 52
2. Select the shape on which you want to add the label
- 3.



Click the **Add Label** button **Add Label...** and select **Front Label, Back Label** or **Wrap Around Label**.

A default Front Label, Back Label or Wrap Around Label is created.



4. You can set the **Dimensions** and **Position**, either numerically in the **Settings** panel on the right, or manually by dragging the handles on the label.
- For a Front Label And Back Label, you can set the **Width** (1) and **Height** (2). For a Wrap Around Label, you can set the **Overlap** (5), **Overlap direction** and **Height** (2). The actual width is defined by the size of the shape and the positioning of the label.
  - Set the **Base** (3) to define the distance between the bottom of the object and the bottom of the label
  - Set the **Off-Center** (4) to shift the label from the center of the shape, either the front (for Front and Wrap Around labels) or back (for Back labels) center
  - Drag one of the four handles on the label edges (in 3D view) to resize the label. Hold the Alt key to keep the label centered.
  - Drag the handle in the middle of the label to move it. Hold the Shift key to only move it vertically or horizontally.
5. Using the **Visualization offset** you can change the distance between the label and the shape in the 3D preview without changing the 2D technical drawing. For shapes that are not perfectly cylindrical or conical, this can avoid flickering or intersections between the label and the shape.
6. Set the shape of the label to **Cylindrical** or **Conical**
- For Conical labels, the horizontal sizes Width (1) and Overlap (5) are measured half way the height of the label.
- The Height (2) of a label is measured vertically in 3D, so for conical labels, the actual height is slightly bigger.
7. If necessary, repeat the previous steps to add another label
- A 2D tab will be added for every label you create.

The result will be a Collada file that you can use in Studio Advanced in Adobe Illustrator. It will contain a Printable Part for every label.

You can use a Die Cut path to refine the die cut shape of the label. See [Using a Path as a Die Cut](#) on page 94

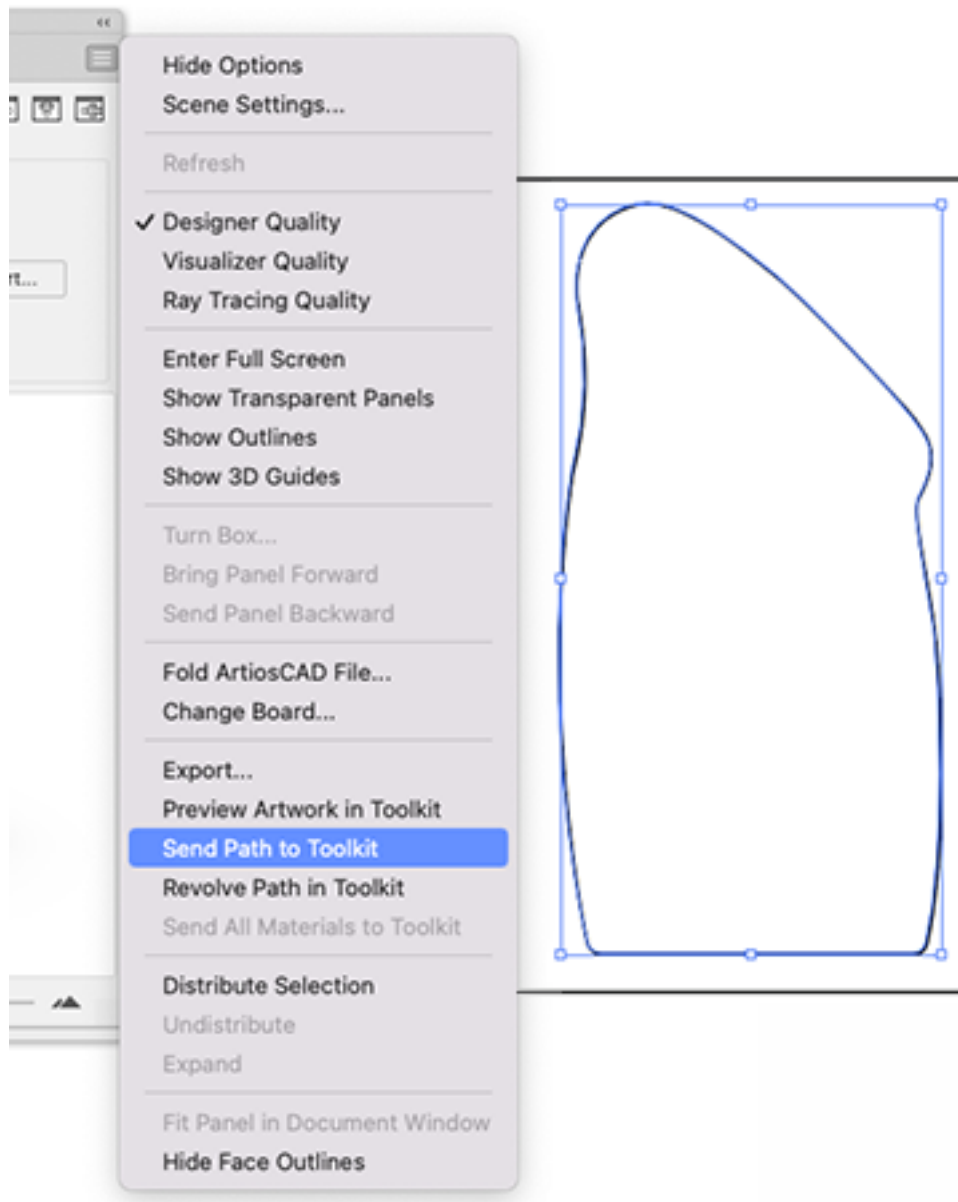
## Using a Path as a Die Cut

If you create a Front, Back or Wrap Around label, the shape of your label will always be rectangular. You can however use a **Die Cut Path** to cut away parts of the label.

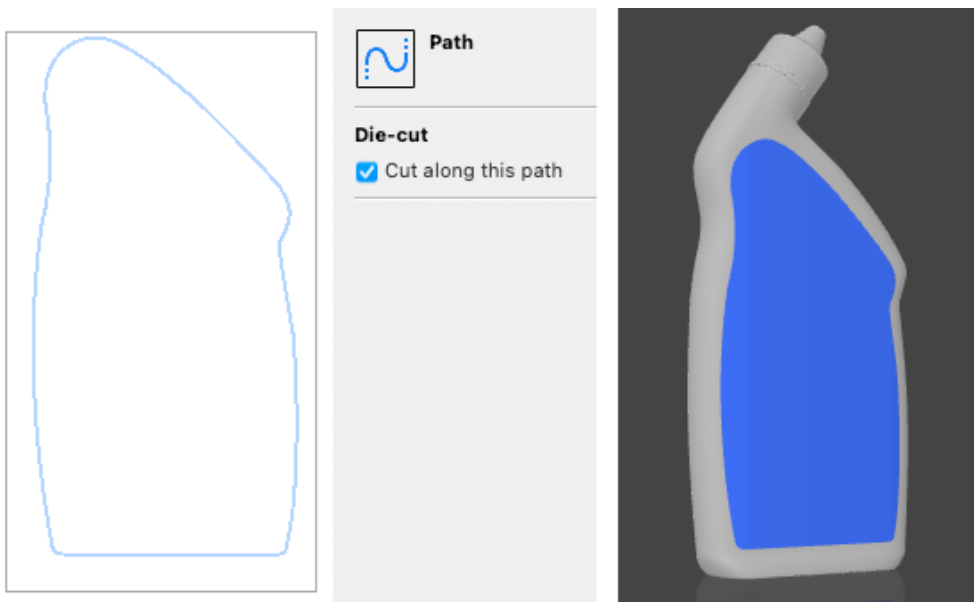
A Die Cut path can only be used on a Front Label, Back Label or Wrap Around Label. Other object types are not supported. The Die Cut path should overlap with the object in the 2D tab, and the **Cut along this path** option should be enabled.

- If you want to start from a Label in Studio Toolkit:
  - a) Add a Front, Back or Wrap around label in Studio Toolkit. See [Front, Back and Wrap Around Labels](#) on page 92
  - b) Set the label size and position, so that the label is large enough to completely include the die cut.
  - c) Save as a collada file. See [Saving and opening Collada files](#) on page 51
  - d) In Adobe Illustrator, use **File > Structural Design > Place File** and select the Collada file you saved. If necessary, select the correct printable part, e.g. "Front Label".
  - e) Create the Die Cut path in Adobe Illustrator, using the label shape as a visual guide.
  - f) Select the path.
  - g) From the fly-out menu in the Studio window, select **Send Path to Toolkit**.  
The path becomes available in the 2D tab in Studio Toolkit, and is automatically set as Die Cut path.
- If you want to start from an existing path in Adobe Illustrator:
  - a) In Studio Toolkit, open the document in Studio Toolkit you want to add the Die Cut to.
  - b) In Adobe Illustrator, select the path you want to use.
  - c) From the fly-out menu in the Studio window, select **Send Path to Toolkit**.  
The path becomes available in the 2D tab in Studio Toolkit, and is automatically set as Die Cut path.
  - d) Add a Front, Back or Wrap around label in Studio Toolkit. See [Front, Back and Wrap Around Labels](#) on page 92
  - e) Set the label size and position, so that the label is large enough to completely include the die cut.
- After these steps, you have a shape with a Label and a Die Cut path, which you can save as a collada file and use in Adobe Illustrator to apply graphics on.

In Adobe Illustrator:



In Studio Toolkit, both 2D view (left) and 3D view (right):



### 3.4.2. Creating a Freeform Label

Using the **Freeform Label**, you can "brush" a label on an existing shape (collada file, obj, ...).

1. Import the shape into Studio Toolkit. See [Importing Shapes, Images or Paths](#) on page 52
2. Select the shape on which you want to add the label
- 3.

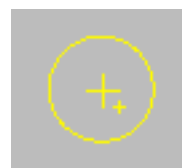


Click the **Add Label** button **Add Label...** and select **Freeform Label**.

The shape will be represented with all the triangles that it consists of.

4. Draw your label.

- If you click and drag from inside the label, or if no label exists yet, your cursor will be yellow, and



anything you brush will **add** the triangles to the label.

- If you click and drag from outside the label, your cursor will be blue, and anything you brush will



**remove** it from the label.

- Using the slider at the top of the window, you can define the **Brush size**. You can also change the brush size using the shortcuts [ and ].



**Note:** The label you draw can NOT contain any holes. You won't be able to add or remove areas that would result in a hole in the label.



- To stop drawing the label, click the **Done** button at the top of the window. You can also click the **Add Label** button again, or click the **Modify Area** button in the pane on the right.



**Note:** After clicking **Done**, it is advisable to check the **Maximum Distortion**. See [Distortion](#) on page 97



**Tip:**

- If you received a curve representing the shape of the label (i.e. a die-cut in Illustrator), you can save this as a .PNG or .JPG file, and import it onto the 2D view of the label to check if the brushed area has the right size and shape. See [Using graphic files](#) on page 53
- If the edges of your label are too rough, you can select a slightly oversized area and use the **Die Cut** operation in the **Finishing Operations** to trim away the unwanted parts. See [Tips&Tricks: Using a Diecut operation](#) on page 240. Alternatively, you can consider using a Front, Back or Wrap Around label in combination with a Die Cut path. See [Front, Back and Wrap Around Labels](#) on page 92 and [Using a Path as a Die Cut](#) on page 94

- If necessary, repeat the previous steps to add another label

A 2D tab will be added for every label you create.

The result will be a Collada file that you can use in Studio Advanced in Adobe Illustrator. It will contain a Printable Part for every label.

## Modifying a Freeform Label

To modify a label you drew earlier:

- Select the label
- In the pane at the right, click the **Modify Area** button.

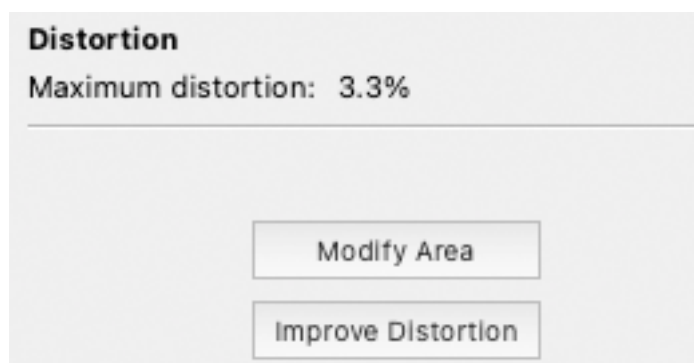


**Note:** If you would click the **Add Label** button, you would create a new label instead.

- Modify the area by adding or removing to the label.

## Distortion

If a label is selected in Studio Toolkit (i.e. not while you are drawing it, but after you clicked **Done**), the pane at the right will show the **Maximum distortion**.



In Studio Toolkit, you can draw a (virtual) label on any surface. However, a real adhesive label (pressure-sensitive label) can not be applied to just any area of a container. It depends on the curving: on surfaces with too much curving, a real label would either have a stretch or wrinkle to fit the shape.

This is shown in the **Maximum distortion** value. A high value means that the virtual label is stretched or wrinkled.

If the distortion is higher than 3% and if you need accurate artwork placement, we suggest you try the **Improve Distortion** function.

By clicking the **Improve Distortion** button, you can try to change the way the 3D label is unfolded. The process tries to lower the Maximum distortion by distributing the distortion over the complete label. The improvement will continue until you click the **Done** button, or until a message "Reached the optimal distortion" is given.

If after **Improve Distortion** you still have a distortion value that is too high, you have probably selected an area that is not suited for a label.



**Note:** Modifying the area will reset the improvement.

### Tips&Tricks: trim a Freeform label

By drawing a label on a 3D shape, it is rarely possible to draw the exact shape of label you want to add.

As your printable part is the only place you can place artwork, the label drawn should be bigger than the label you want to place on your shape.

In Adobe Illustrator, you can then use a **Die Cut operation** to trim away the excess material in the 3d Preview.

For more information on Die Cut operations, see [Tips&Tricks: Using a Diecut operation](#) on page 240

The example underneath shows the shape with the label drawn in Studio Toolkit (1), the Studio preview in Designer quality without die cutting (2) and in Visualizer quality using the Die Cut operation (3).



Alternatively, you can consider using a Front, Back or Wrap Around label in combination with a Die Cut path. See [Front, Back and Wrap Around Labels](#) on page 92 and [Using a Path as a Die Cut](#) on page 94

### 3.4.3. Creating a revolved shape with labels

In Studio Advanced, you can create a shape (e.g. bottles) based on a profile path, and add labels to it.

There are two ways to create a revolved shape:

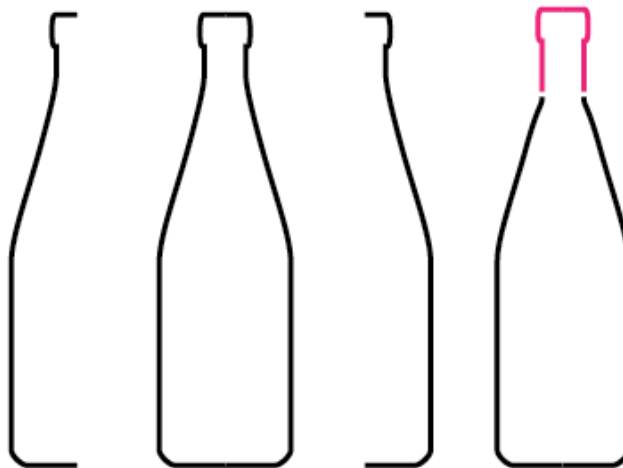
- Revolve the shape and add labels in Adobe Illustrator. See [Revolve a profile and Add Labels in Adobe Illustrator](#) on page 102
- Revolve the shape in Studio Toolkit, and add labels using the Studio Toolkit functionality. See [Revolve a profile and Add Labels in Studio Toolkit](#) on page 110

The principle of revolving a path is similar, but the resulting labels behave differently:

- When working on a label created on a revolved shape in Adobe Illustrator, you can apply **Conical Warp**. See [Conical Warp](#) on page 203
- When working on a Front, Back or Wrap Around label created on a revolved shape in Studio Toolkit, you can use a path as a Die Cut. See [Using a Path as a Die Cut](#) on page 94

#### Create a profile path

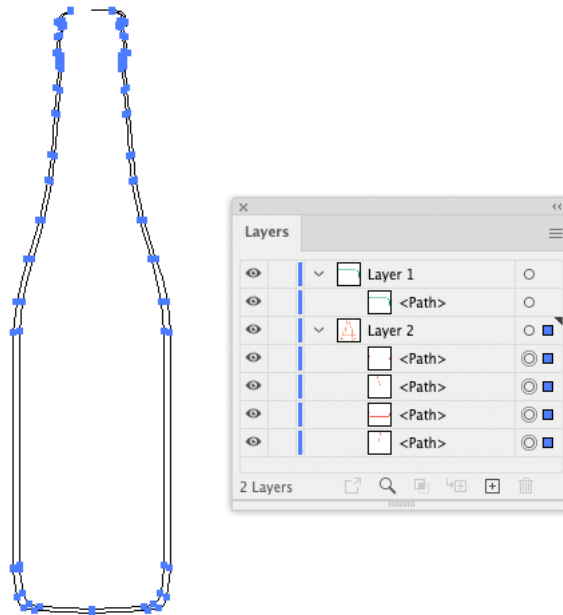
The first step in creating a revolved shape is creating or selecting the Illustrator paths to be used as profile paths.



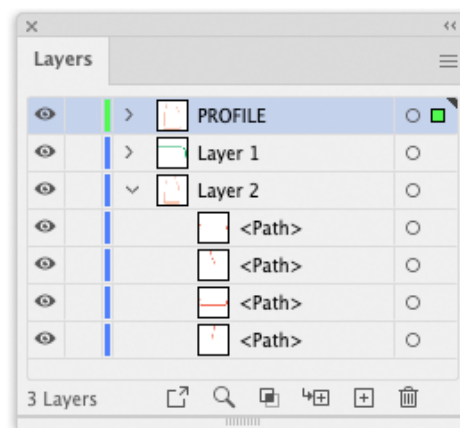
Studio supports half profiles, full profiles and multi-part profiles (based on multiple paths). Multi-part profiles can be used to set different materials for different parts (for example the bottle and the cap).

It is important to connect paths that can share the same material. If the path is not connected or needs cleanup, you can use the **Connect and Clean** function for this.

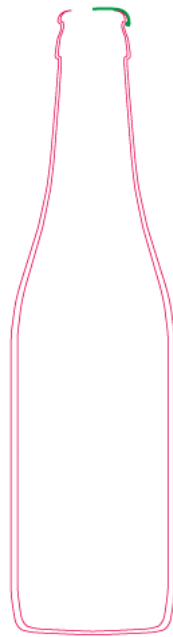
In the example below, the shape consists of two parts. The bottle itself which will have glass as material and the cap which will be metal.



1. Select the paths that make up the bottle. In the example above, the profile of the bottle consists of three paths.
2. Select **Window > Esko Studio > Connect and Clean** . This will create a layer called "PROFILE" that contains the connected path.

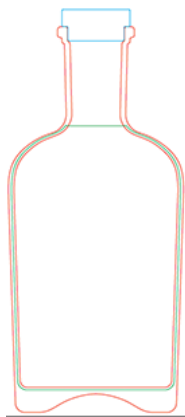


3. Select this path and the path making up the cap, and revolve it. See [Revolve a profile and Add Labels in Adobe Illustrator](#) on page 102 or [Revolve a profile and Add Labels in Studio Toolkit](#) on page 110



### Create a profile path for liquids

When using Ray Tracing quality, you can model a liquid material inside a container. The example underneath contains the path for the bottle (red), the cap (blue) and the liquid (green)



- Make sure there is an overlap at the boundaries between the liquid and the container. This is required to ensure a physically correct rendering. The actual area of overlap doesn't matter, and will be rendered as container material (e.g. glass).
- All clear parts (glass, liquid, ...) need to be closed surfaces.



**Limitation:** When choosing Cloudy Plastic as container material, the liquid will be rendered black. As a workaround you can choose a different material for the liquid (e.g. plastic), since most of the detail of the liquid will be lost when viewed through the cloudy plastic. Alternatively you can leave a small gap in between the liquid and the container.

## Revolve a profile and Add Labels in Adobe Illustrator

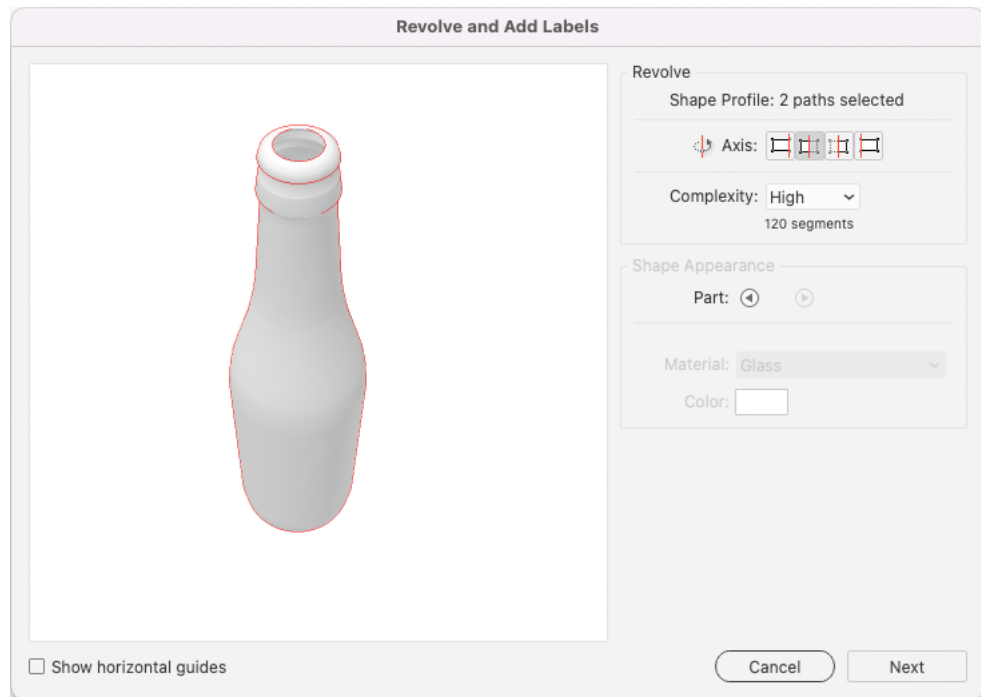
**Revolve and Add Labels**, the dialog to create shapes and labels, can be opened from **Window > Esko Studio > Revolve and Add Labels...**

### Revolve

The first step in the Revolve and Add Labels procedure is to create the shape by revolving a profile path.

1. Select one or more Illustrator paths to be used as profile paths.
2. Select **Window > Esko Studio > Revolve and Add Labels...**

The **Revolve and Add Labels** dialog is opened.

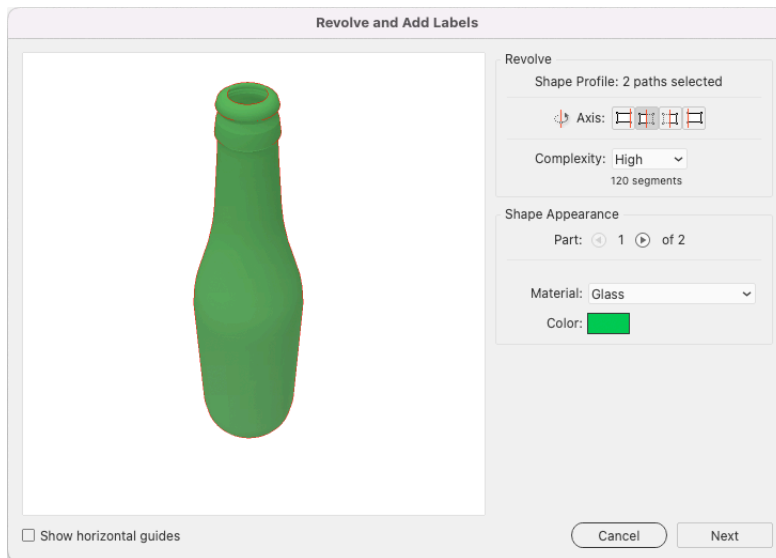


On the left is a 3D rendering of the result. You can click and drag to change the viewing angle.

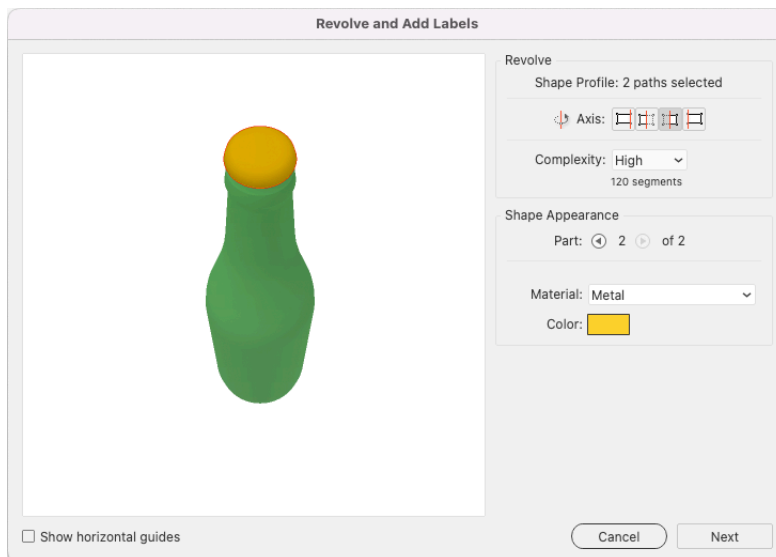
3. Set the **axis** to be used for the revolution. There are four options: you can set the axis completely on the left or right of the path (1), or through the middle, taking the left or the right side of the design (2).



In the example profile path shown earlier, only the right half of the bottle cap is drawn. By choosing the axis through the middle and taking the left side of the design, you can revolve the bottle without the cap.



By revolving the right side of the design, you can revolve the bottle with the cap.



The same axis will be used for all paths of a multi-part profile.

4. Set the **Complexity** of the model. The higher the complexity, the smoother the revolved model will be. This setting only controls the horizontal complexity of the model. To modify the vertical complexity of the shape, you can increase or decrease the number of anchor points on the profile curves, using the Adobe Illustrator tools, such as **Object > Path > Add Anchor Points**



**Note:** A higher Complexity results in a larger Collada file. If you create a shape that will be repeated and used in a larger scene, you might want to keep complexity low(er).

5. For each of the parts, define the **Material**. You can choose Matt Plastic, Glossy Plastic, Clear Plastic, Glass or Metal.




**Note:**

Transparency of e.g. clear plastic or glass will only be visible in the Studio window using **Visualizer Quality**. See [Visualizer Quality](#) on page 211

6. If necessary, click the **Color** field to define the color for the material.
7. Click **Next** .

### Add Labels

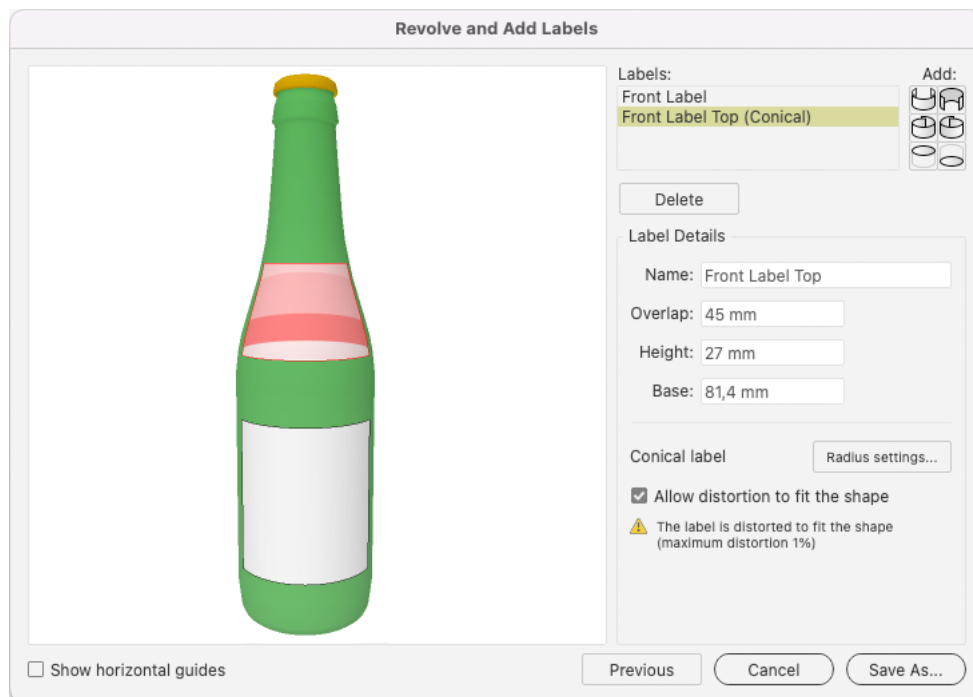
In this second step, you can add the labels.


**Note:**

If you do not want to add a label, just click 'Save as' to save the result as a Collada file. Note that this collada file will not contain a Printable Part. You can however open the shape in Studio Toolkit and add a label there, or add a shrink sleeve.

The **Labels** list shows all defined labels.

1. Add a label.



There are 6 types of labels to choose from:

- Front label
- Back label
- Roll around label (right/end over left/begin)

- Roll around label (left/begin over right/end)
  - Top label
  - Bottom label
2. Select the label by clicking inside the label to change the properties of the label.
  3. Enter the **name** for the label.  
The default name is based on the selected type, such as "Front Label" or "Round label".
  4. Define the **width** for Front or Back labels. For conical labels, the width is measured at mid height.
  5. Define the **Overlap** for Roll-around labels. The overlap is always centered at the backside.
  6. Set the **height** for the Front, Back or Roll-around label.


**Note:**

You can also change the height of a label interactively by dragging the handles in the 3D view

7. Set the **Radius** for a Top or Bottom label
8. Check the **Radius Settings**

The Revolve and Add Labels dialog will show if the label is cylindrical or conical.

Every label except Top and Bottom has a top radius and a bottom radius. By default, both radius are calculated automatically from the position of the label and the size of the container. If these are equal, the label is cylindrical. If they are different, the label is conical.

To manually change the Radius settings:

- a) Click the **Radius Settings** button  
The Radius Settings dialog will open
- b) Disable **Calculate radius automatically from shape**
- c) Enter the Top of Label and the Bottom of Label radius
- d) Click **OK**


**Note:**

The specified radius settings are used for the 2D calculations. Yet the label in 3D still fits perfectly to the container shape.

9. Check the Distortion warning.  
See [Distortion](#) on page 108 for more information
10. Click **Save As** to save the result as a Collada file.
11. Define the name and location for the file.
12. You get the option to place the file directly in the document.  
If you click **Yes** :
  - the **Studio** window will show the Collada file, replacing any earlier ARD or Collada files.
  - the selected items will be moved to a locked layer.

- If you added more than one label, there will be multiple printable parts in the Collada file. In that case, a message dialog will show up, allowing to select one printable part from a list with the names of all printable parts. The selected printable part will be placed in the Illustrator file. For more information on working with multiple Printable Parts, see [Scenes and Multiple Documents](#) on page 219

**13.** Add artwork to the labels.

When using Visualizer Quality in Studio, the Collada file could look like this in the Studio window:

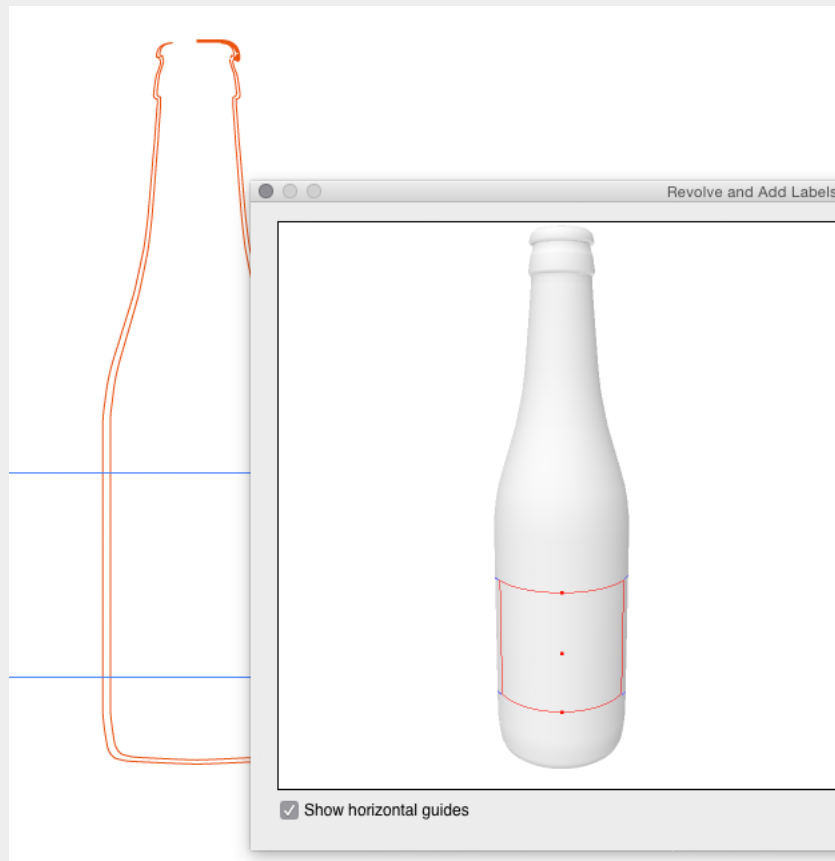


You can also use the Collada file in Studio Toolkit.



**Note:**

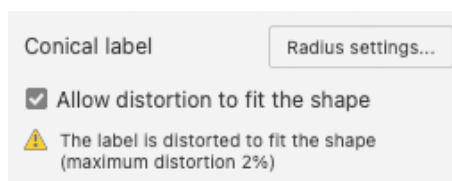
Please note that you can also change the height or the position of your label by dragging the handles on the label in the 3D view. Even more, if you know what the height of your label needs to be in the Illustrator document view, just add two horizontal guides to the Illustrator document view and toggle on 'Show Horizontal Guides' in the Revolve dialog. You now can drag the top and bottom of your label to the horizontal guides.



**Distortion**

Adhesive labels can always be folded to cylinders or cones, but on many other shapes, some distortion (stretch or wrinkling) is required to make the label fit. A typical label substrate only allows for very small amounts of distortion.

The software allows distortion up to 3%. If there is distortion below 3%, a warning will be shown in the Revolve and Add Labels dialog, and the distorted areas are highlighted.



You can disable the **Allow distortion to fit the shape** option to avoid distortion of your label.

### Tips&Tricks: Die cut operation on a label

If you create a label on a revolved profile in Adobe Illustrator, the shape of your label will always be rectangular. You can however use a **Die Cut operation** to cut away parts of the label. See also [Tips&Tricks: Using a Diecut operation](#) on page 240

The example underneath shows the Studio preview without die cutting and in Visualizer quality using the Die Cut operation.

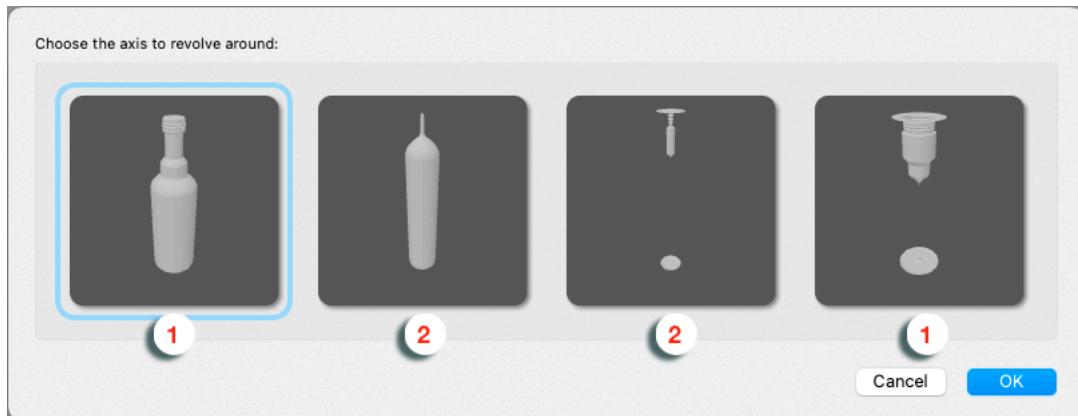


Alternatively, you can consider using a Front, Back or Wrap Around label in combination with a Die Cut path. See [Front, Back and Wrap Around Labels](#) on page 92 and [Using a Path as a Die Cut](#) on page 94

## Revolve a profile and Add Labels in Studio Toolkit

To create a revolved shape in Studio Toolkit, you create the profile path in Adobe Illustrator (see [Create a profile path](#) on page 99) and revolve the path in Studio Toolkit.

1. Select the path(s) you want to revolve
2. Choose **Revolve path in Toolkit** in the fly-out menu of the Studio window  
The Studio Toolkit application will open
3. Select the **axis** to revolve around.



There are four options: you can set the axis completely on the left or right of the path (1), or through the middle, taking the left or the right side of the design (2).

Studio Toolkit will show a preview of the result, and by default select the most likely option.

4. Click **OK**
5. For every part of the revolved object (based on the different paths in the profile) you can change the settings
  - In **Geometry** you can set the **Quality**. The higher the quality, the smoother the revolved model will be. This setting controls both the horizontal and vertical complexity of the shape. A high quality will follow the profile curves more closely, but will result in a higher number of triangles.
  - In **Appearance** you can set the **Material** and **Color**.
6. Every part of the revolved object without holes can be made a printable metal part by clicking the **Print on Metal** button. See [Print on Metal](#) on page 111

The resulting 3D shape can be handled as any other 3D shape in Studio Toolkit: you can add a freeform label, a Front, Back or Wrap Around label, a Shrink sleeve, etc.

When using a Front, Back, or Wrap Around label, you can use a path as a Die Cut. See [Using a Path as a Die Cut](#) on page 94.

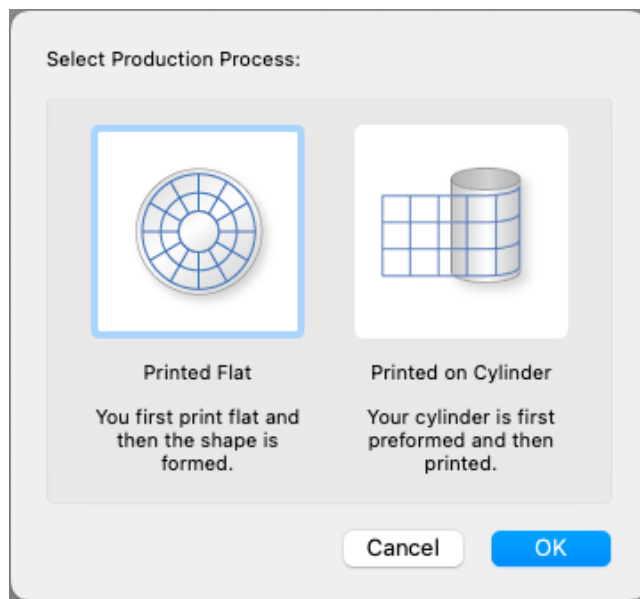
See:

- [Front, Back and Wrap Around Labels](#) on page 92
- [Creating a Freeform Label](#) on page 96
- [Working with Shrink Sleeves](#) on page 161

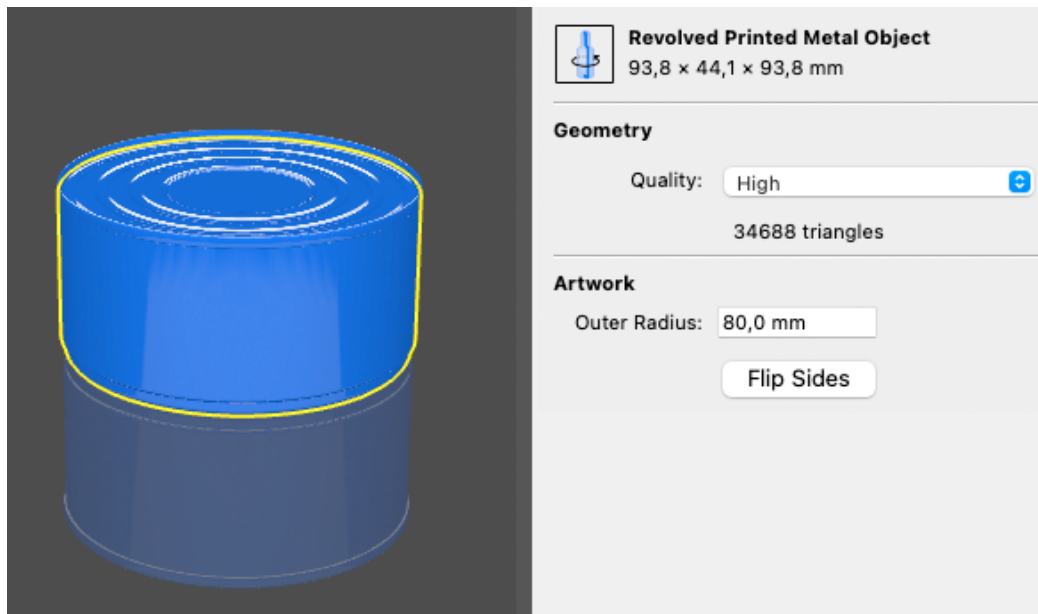
## Print on Metal

Every part of a revolved object in Studio Toolkit without holes can be made a printable metal part. This can be used when the part represents a metal deep-drawn object made from a flat disk, or when the metal is preformed first and then printed.

1. Revolve the profile in Studio Toolkit as described in [Revolve a profile and Add Labels in Studio Toolkit](#) on page 110
2. Select the part you want to use, and click the **Print on Metal** button. You will then be asked to define the Production Process.



3. Choose **Printed Flat** if the metal is printed first, and then formed into the shape, and click **OK**. The object changes into a **Revolved Printed Metal Object**.



- a) The **Outer Radius** is calculated based on the shape, but can be modified.
- b) Studio Toolkit will decide where to place the front and the back side (light blue and dark blue). You can click **Flip Sides** to overrule that decision.

The 2D drawing of this shape will be a circle. Note that if you place artwork on this part, there will be noticeable distortion, but always in a way that is area-preserving.

4. Choose **Printed on Cylinder** if the metal cylinder is formed first, and then printed. The cylinder will be further formed into the revolved shape after printing. Click **OK**

The object changes into a **Revolved Printed Metal Object**.

- a) The 2D representation will be a rectangle, i.e. the unfolded cylinder.
- b) The **width** and **height** of the rectangle is calculated based on the shape, but can be modified.

Underneath is an example of a can printed flat on the metal, and then formed into the shape.





### 3.4.4. Creating a label from Curves

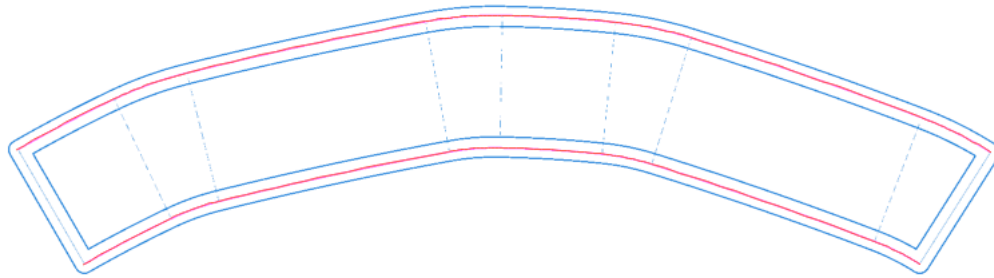
In case you have the die lines of a (conical) label, but no 3D model of the corresponding container, you can create a 3D model of only the label, using a combination of ArtPro+ and Studio Toolkit.

This can be used e.g. to create a 3D shape of a complex conically warped label in an in-mould-label printing environment.

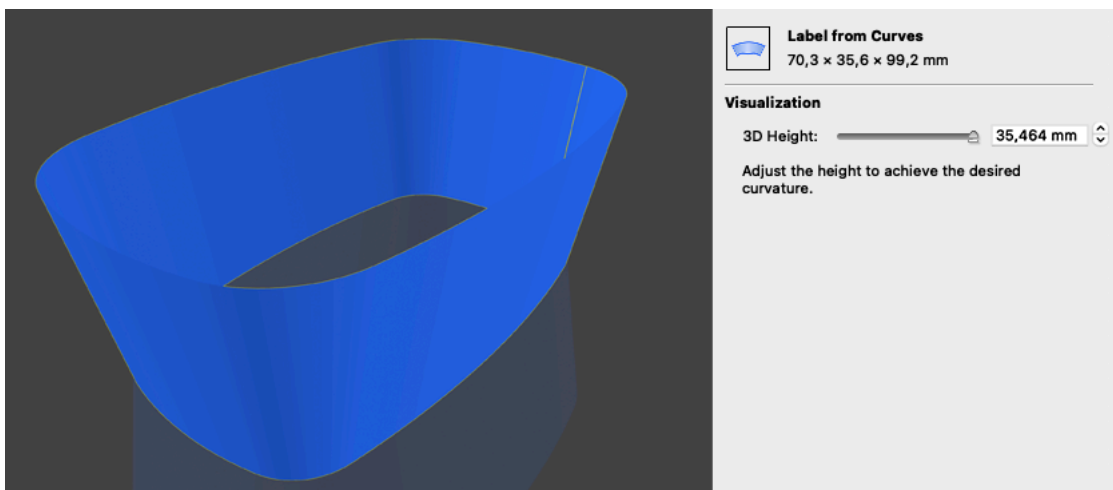
1. In ArtPro+, create the Label Outline Curves based on a technical drawing of the Source Grid.

The Label Outline Curves should be two separate smooth, open, non-intersecting paths that follow the top and bottom edges of the label. Only curves that bend in a single direction are supported.

Below an example of a technical drawing, and the two selected Label Outline Curves.



2. With the Label Outline Curves selected, choose **Object > Path > Create Label from Curves in Toolkit**. A "Label from Curves" object is created in Studio Toolkit.
  - In case Studio Toolkit was not running, the application will be started automatically.
  - If Studio Toolkit was running and had an open document, the newly created object will be added in the open document.
  - A 2D tab is added containing the connected top and bottom curves, and the folded label is shown in the 3D tab.
  - The convex side of the label is considered to be the front side.



3. Set the 3D Height, i.e. the height along the vertical axis. This defines the curvature of the folded label.
 

When the input field is active, you can use the arrow keys to adjust the height by 0.001mm increments (or 0.01mm when holding the shift key). Due to physical constraints, the 3D height is limited.
4. You can then save the label as a Collada file, and place it e.g. in ArtPro+ to get a 3D preview of your label.



For more information on ArtPro+, we refer to the [ArtPro+ Documentation](#)

## 3.5. Create a flexible bag

---

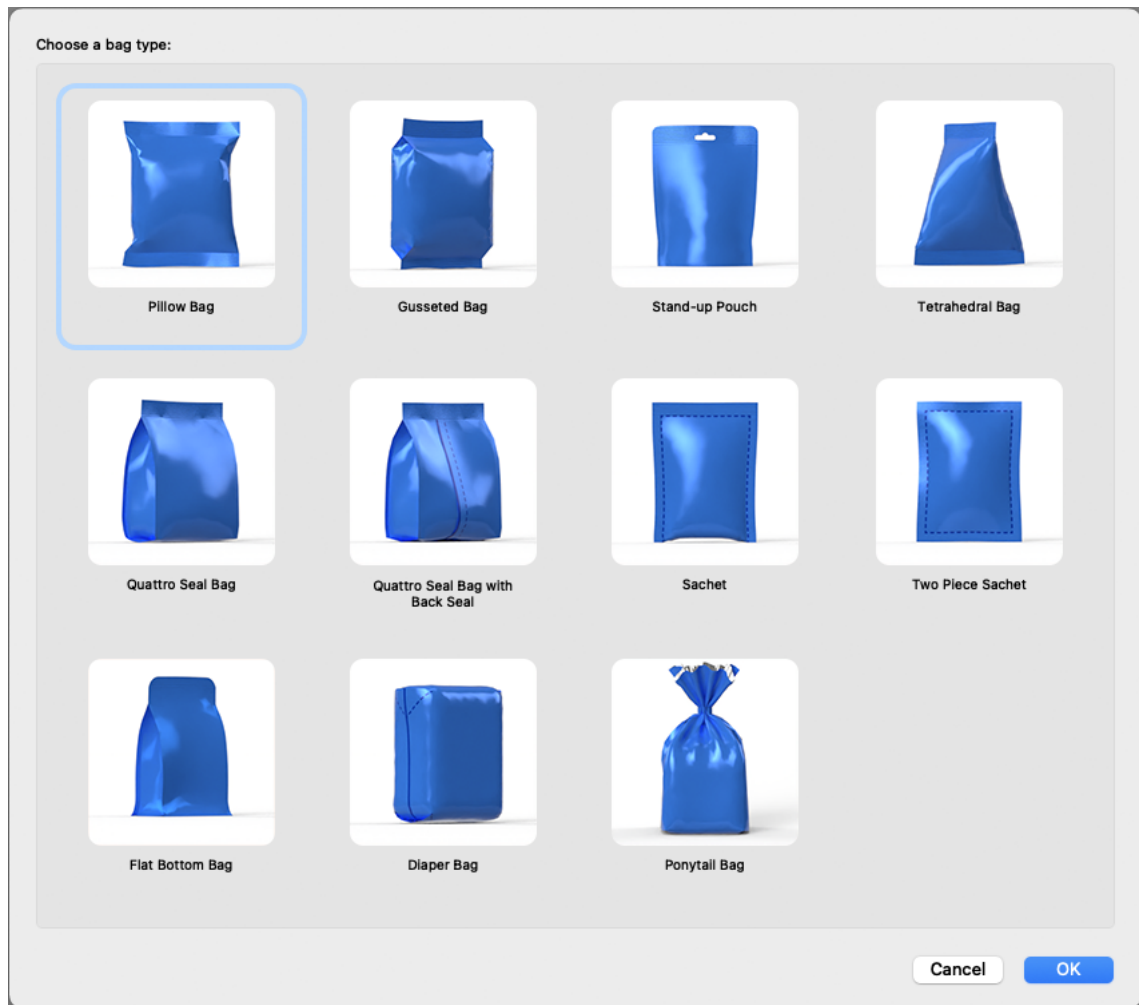
In the Studio Toolkit application, you can create a flexible bag, and finetune its appearance.

### 3.5.1. Creating a New Bag

1.



Click the **New Bag** button to create a new flexible bag.



2. Select a bag type and click **Ok** .

A bag of the selected type will be created, using default settings. A 2D tab containing the 2D die is added.

If the bag is selected, all parameters can be changed in the right panel.

When creating or changing a bag, some initial Live Shaping will be applied to the 3D bag.



**Note:** If provided, you can place graphics on your shape, e.g. place a technical drawing to check the position of your seams. See [Preview Artwork in Toolkit](#) on page 54 and [Using graphic files](#) on page 53

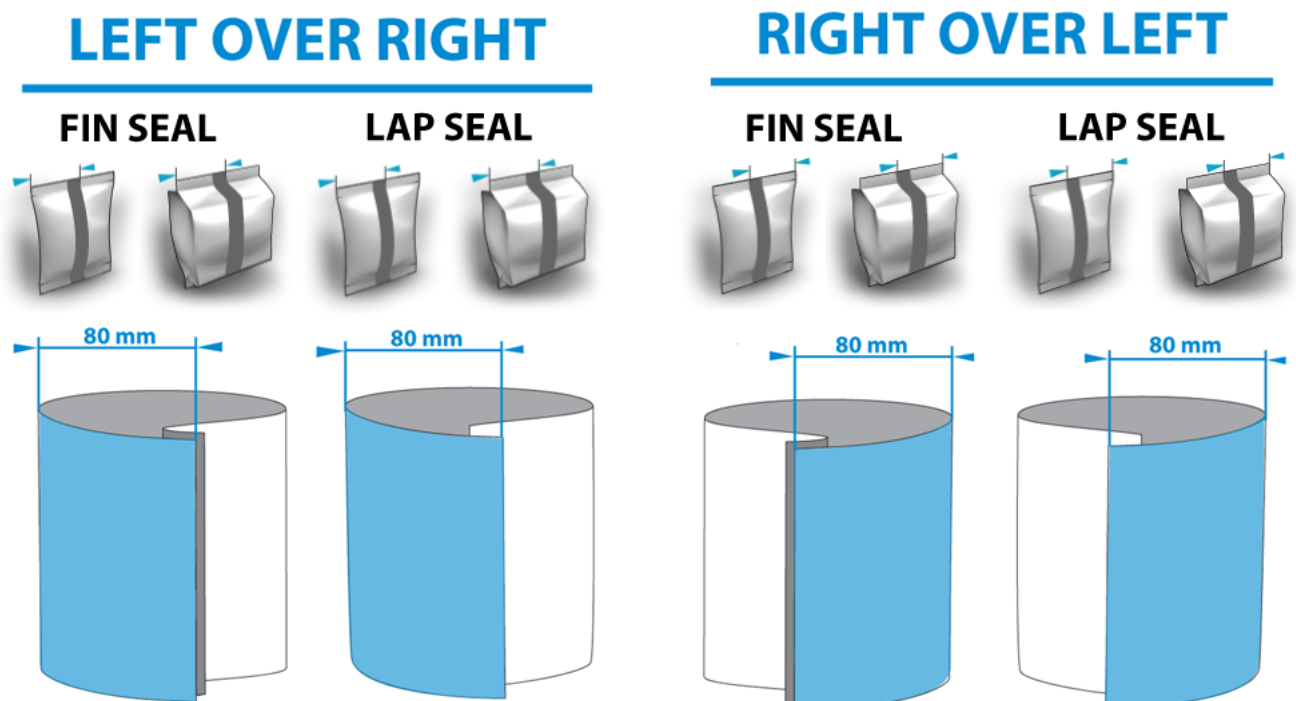
## Pillow Bags

A pillow bag is a simple flexible bag with a top and bottom seal, and a centered or off-center vertical backseal. The most common examples of pillow bags are potato chips bags and certain candy bar wrappers.



**Settings:**

- Dimensions: Width, Length Top Seal and Bottom Seal
- Back Seal: Size, Type (Fin Seal or Lap Seal), Order, and Position. See [Panel Order and Fin vs. Lap Seals](#) on page 118
- Package Content. See [Put an Object inside the Package](#) on page 138
- Appearance: Highlights, Rounding. See [Tweaking the Substrate shading](#) on page 140 and [Setting the Rounding Value](#) on page 141

**Panel Order and Fin vs. Lap Seals**


A back seal can be folded ( **Fin Seal** ) or glued ( **Lap Seal** ) to the back side of the package in two ways: **Left over Right** or **Right over Left** . Depending on the selection, the image of the seal will be adjusted.

For Gusseted, Pillow and Quattro Seal bags with a Back Seal, you can specify the **Position** of the back seal: select **Centered** to center the back seal on the back panel, or disable **Centered** and provide an offset value in the field below that option.

In Studio Toolkit for Flexibles 14 and newer, the back seal can overlap the gusset.


**Note:**

The offset value in the Position field is the width of the left or right back flap, whichever is on top as specified in the **Order** list ( **Left over Right** or **Right over Left** ). In other words, if the Order is set to Left over Right, the Position value you type is the width of the Left back flap.

## Gusseted Bags

A gusseted bag is a more complex flexible bag with top, bottom and back seals and gussets at both sides. The gussets allow the bag to make a more block-like shape. Just like pillow bags, Studio Toolkit supports back seals that are either centered or off-center at the back. For gusseted bags, you can also choose whether you want an open or a closed (glued) gusset.

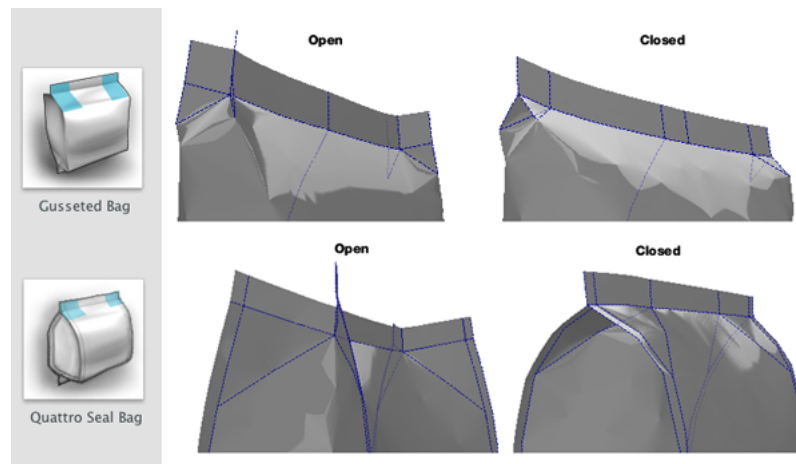


### Settings:

- Dimensions: Width, Length, depth
- Seals: Top Seal & Bottom Seal, Open or Closed Gusset. See [Open or Closed Gussets](#) on page 119
- Back Seal: Size, Type (Fin Seal or Lap Seal), Order, and Position. See [Panel Order and Fin vs. Lap Seals](#) on page 118
- Package Content. See [Put an Object inside the Package](#) on page 138
- Appearance: Highlights, Rounding. See [Tweaking the Substrate shading](#) on page 140 and [Setting the Rounding Value](#) on page 141

### Open or Closed Gussets

For gusseted and quattro seal bags, you can specify whether you want to have **Open Gussets** for the top and/or bottom gussets.



**Note:** For pouches you can only choose to have open or closed bottom gussets.

### Stand-up Pouches

A stand-up pouch is a flexible bag with top, left, right and optional bottom seals, with a gusset in the bottom part but not in the top part. You can specify an open or a closed (glued) gusset.

Currently, only pouches in one piece are supported, meaning that the bottom is part of the complete package. Studio Toolkit for Flexibles only supports rectangular pouches.



**Tip:**

You can also create a pouch without bottom seals. Simply set the bottom seal value to 0mm/inches.



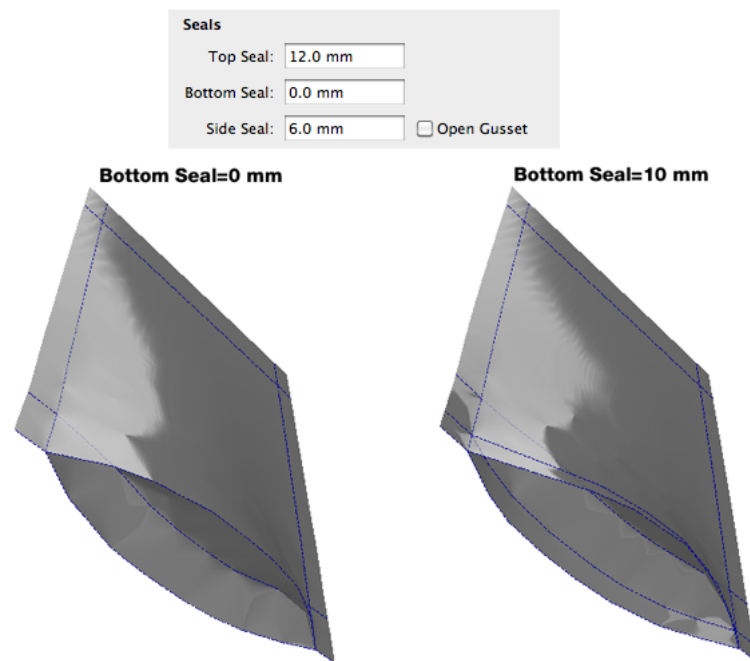


### Settings:

- Dimensions: Width, Length, depth
- Seals: Top Seal, Bottom Seal and Side Seal. Open or Closed Gusset. See [Open or Closed Gussets](#) on page 119
- Appearance: Highlights, Rounding. See [Tweaking the Substrate shading](#) on page 140 and [Setting the Rounding Value](#) on page 141

### Stand-Up Pouch without Bottom Seal

You can create a stand-up pouch with no bottom seal by setting the **Bottom Seal** value to 0mm/inch.



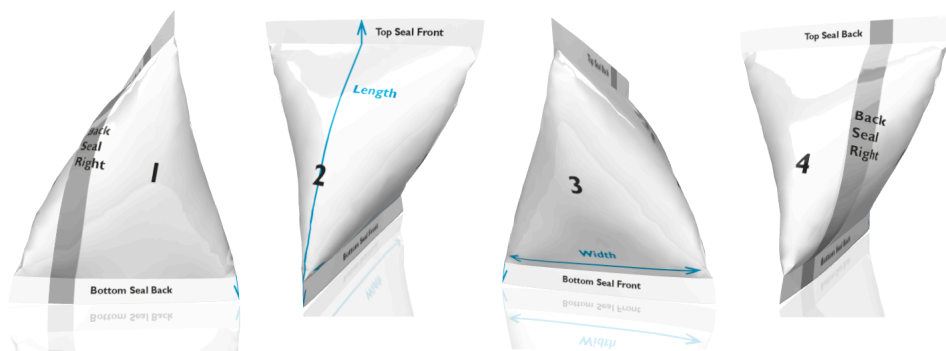
## Tetrahedral Bags

The **Tetrahedral Bag** is a special version of the **Pillow Bag**. The difference is that for a Tetrahedral bag, the top and bottom seals are turned 90 degrees towards each other. This technique produces the typical tetrahedral bag.

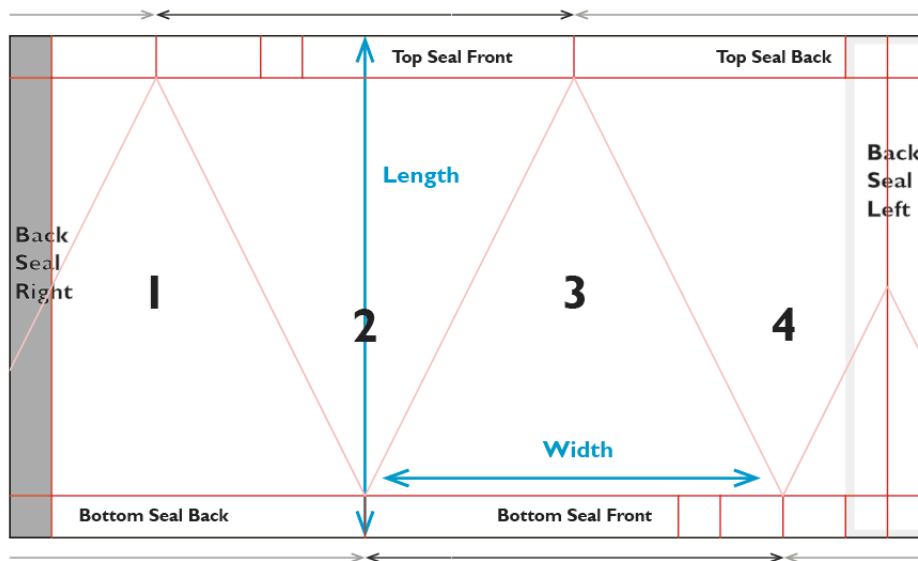


Because of its shape, it is not so obvious to see the connection between the 3D and 2D view.

This is an example Tetrahedral Bag in 3D:



And the corresponding 2D view:



### Settings:

- Dimensions: Width, Length
- Seals: Top Seal and Bottom Seal
- Back Seal: Size, Order, and Position. The Back Seal is always a lap seal. See [Panel Order and Fin vs. Lap Seals](#) on page 118
- Appearance: Highlights, Rounding. See [Tweaking the Substrate shading](#) on page 140 and [Setting the Rounding Value](#) on page 141



**Note:** You can use the **Move and Rotate...** tools to put the bag on its side. See [Transform the selected 3D shape\(s\)](#) on page 59

## Quattro Seal Bags

Like the gusseted bag, the quattro seal bag is a complex flexible bag with top and bottom seal and gussets at both sides. The gussets can be open (unglued) or closed (glued) near the top and/or bottom seals.

Different from the gusseted bag, the quattro seal bag **also has four vertical side seals**. Studio Toolkit also supports the version without any side seals: simply set the side seals value in the application to 0mm/inch.

Common for a quattro seal bag is the fact that the (back) seal is "hidden" in one of the four corners of the bag. A quattro seal bag can have a tapered or square bottom and/or top. This bag type is commonly used for products such as coffee pads, cookies and animal food.

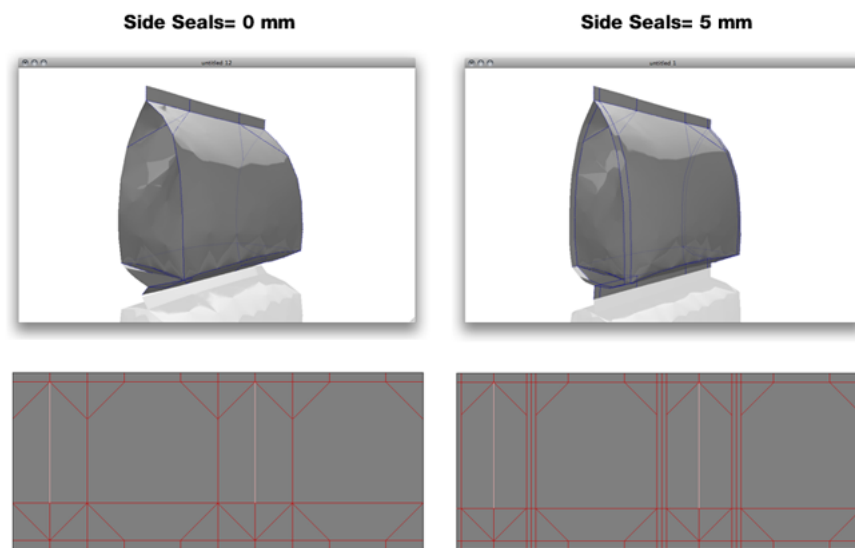


### Settings:

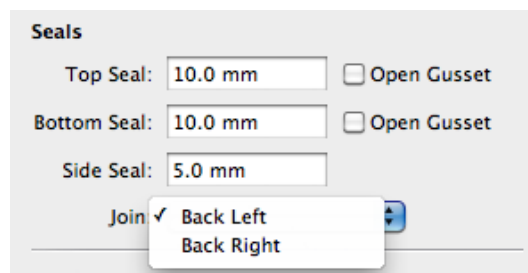
- Dimensions: Width, Length, depth
- Seals: Top Seal, Bottom Seal and Side Seal, Open or Closed Gusset. See [Open or Closed Gussets](#) on page 119.
- The Join position: see [Seals for Quattro Seal Bags](#) on page 125
- Style: Tapered or Square. See [Seals for Quattro Seal Bags](#) on page 125
- Package Content. See [Put an Object inside the Package](#) on page 138
- Appearance: Highlights, Rounding. See [Tweaking the Substrate shading](#) on page 140 and [Setting the Rounding Value](#) on page 141

### Seals for Quattro Seal Bags

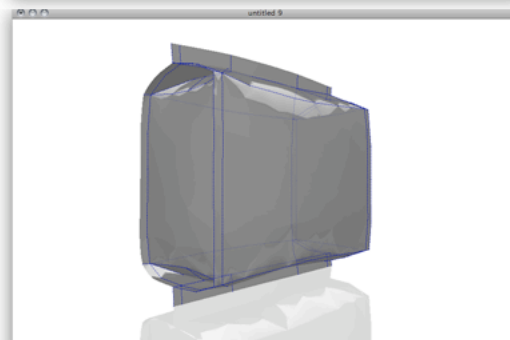
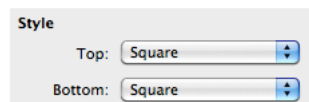
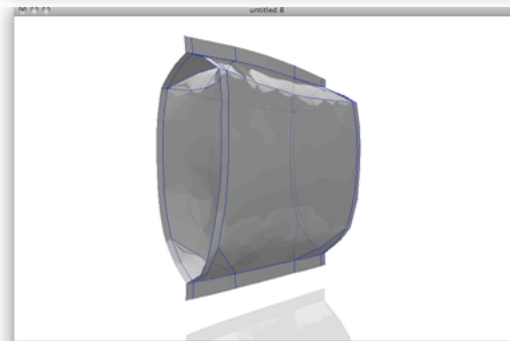
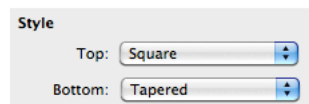
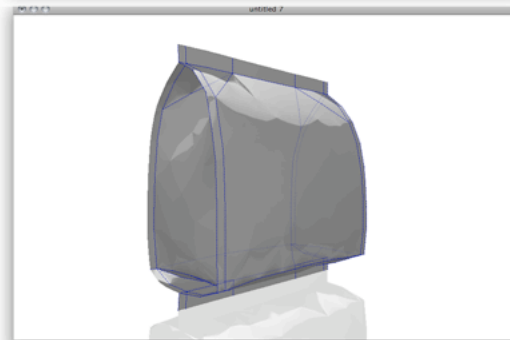
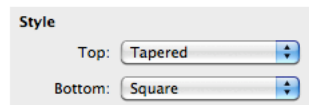
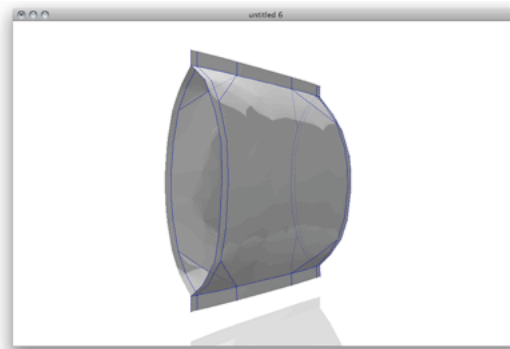
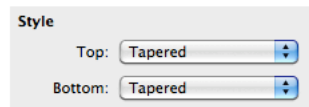
You can create a quattro seal bag **without side seals** by setting the **Side Seals** value to 0 mm/inch



The **Back Seal** for quattro seal bags is hidden in one of the four corners of the bag. The **Join** setting in Studio Toolkit for Flexibles allows you to specify whether the back seal is hidden in the back left or the back right corner of the bag.



Quattro seal bags can have a **tapered or square top and/or bottom** .



### Quattro Seal Bag with Back Seal

The **Quattro Seal Bag with Back Seal** is a special version of the **Quattro Seal Bag**. See [Quattro Seal Bags](#) on page 124

The **Quattro Seal Bag with Back Seal** is identical to the **Quattro Seal Bag** but has a seal on the back of the bag, instead of a "hidden" back seal in one of the four corners.

Studio Toolkit also supports the version without any side seals: simply set the side seal values in the application to 0 mm or inch.

A **Quattro Seal Bag with Back Seal** can have a tapered or square bottom and/or top.



### Settings:

- Dimensions: Width, Length, depth
- Seals: Top Seal, Bottom Seal and Side Seal, Open or Closed Gusset. See [Open or Closed Gussets](#) on page 119.
- Back Seal: Size, Type (Fin Seal or Lap Seal), Order, and Position. See [Panel Order and Fin vs. Lap Seals](#) on page 118
- Style: Tapered or Square. See [Seals for Quattro Seal Bags](#) on page 125
- Package Content. See [Put an Object inside the Package](#) on page 138
- Appearance: Highlights, Rounding. See [Tweaking the Substrate shading](#) on page 140 and [Setting the Rounding Value](#) on page 141

### Sachets

A sachet is a simple flexible bag type with three seals and a fold, or with four seals:

- For three-seal sachets, Studio Toolkit lets you choose whether the fold is at the top, right, bottom, or left side of the sachet.
- For four-seal sachets, you can only change the orientation of the die shape, either horizontally aligned front and back or vertically.



The sachet bag type is commonly used for powder products like dried herbal mixes, instant soup, baking powders,...

A four-seal sachet, sealed along the four sides:



A three-seal sachet with a fold at the bottom and seals along the left, right and top sides:



### Settings:

- Dimensions: Width, Length
- Type and Orientation. See [Sachet Type and Orientation](#) on page 130
- Seals: Top & Bottom Seal, Left & Right Seal
- Package Content. See [Put an Object inside the Package](#) on page 138
- Appearance: Highlights, Rounding. See [Tweaking the Substrate shading](#) on page 140 and [Setting the Rounding Value](#) on page 141

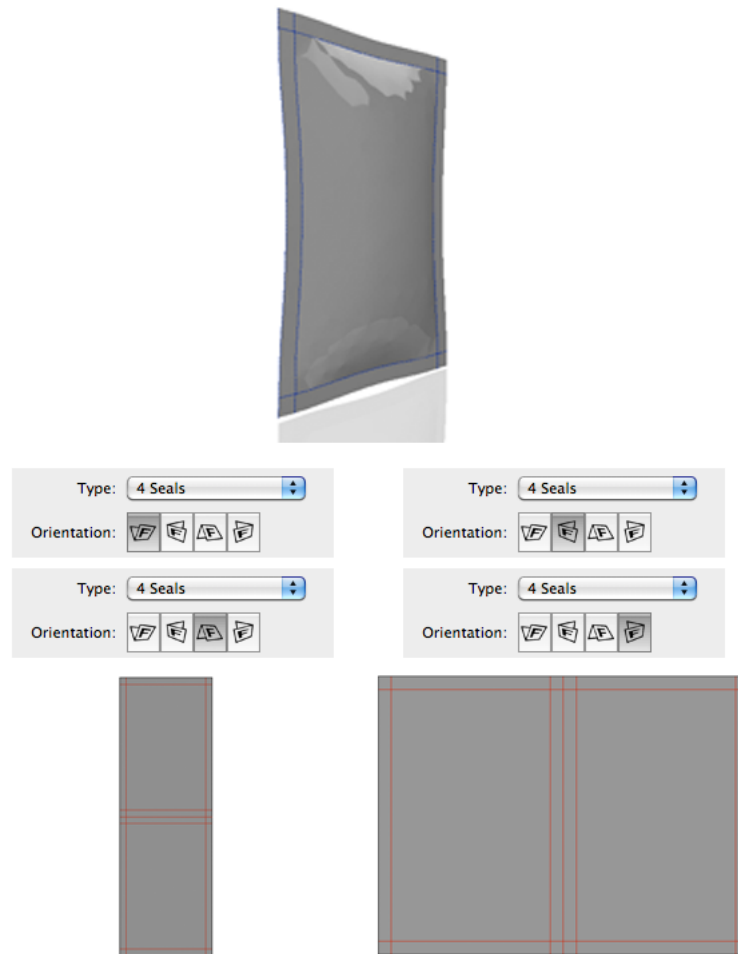
### Sachet Type and Orientation

Studio Toolkit for Flexibles supports both three-seal sachets with a fold and three seals, and four-seal sachets.

If you have specified a three-seal sachet with a fold, Studio Toolkit for Flexibles allows you to choose where you want the fold to appear (left, right, top or bottom).



If you chose a sachet with four seals, the orientation has no effect on the 3D representation, because there is no fold. However, it applies to the layout of front and back of the 2D die: either front and back will be joined vertically or horizontally.



## Two Piece Sachet

A **Two Piece Sachet** is a variation of the four-seal Sachets. See [Sachets](#) on page 128. The shape is identical to the four-seal Sachet, however the front and back of a Two Piece Sachet are two separate printable parts. Therefore the front and back have a separate technical drawing, and end up in two different tabs in Studio Toolkit.



### Settings:

- Dimensions: Width, Length
- Seals: Top & Bottom Seal, Left & Right Seal
- Package Content. See [Put an Object inside the Package](#) on page 138
- Appearance: Highlights, Rounding. See [Tweaking the Substrate shading](#) on page 140 and [Setting the Rounding Value](#) on page 141

### Flat Bottom Bag

A **Flat Bottom Bag** (also known as a flat bottom pouch) is a complex flexible bag type characterized by its flat bottom. It consists of two printable parts:

- The main part containing the bottom, back and front of the bag.
- The sides part containing the left and right side of the bag.

This bag type is commonly used for pet foods, coffee beans and other consumables.



**Tip:** By default the Flat Bottom Bag will not be placed completely flat on the floor. However, a bag can be shaped to have a flat bottom on the floor: nudge it downwards so its bottom is lower than the floor and then shortly enable live shaping. See [Live Shaping](#) on page 144



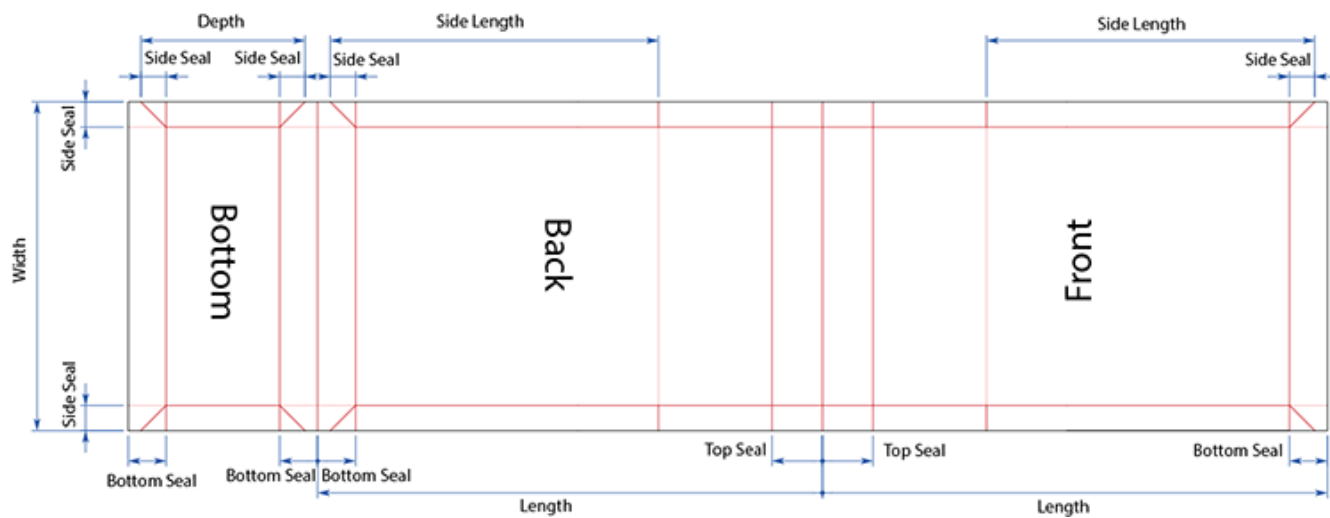
### Settings:

- Dimensions:
  - Width: the total width of the bag, including the side seals.
  - Depth: the depth of the bag is measured as the width of one of the sides, including the side seals.
  - Length: the total length of the front or back of the bag, including the bottom and top seal
  - Side Length: the total length of the sides of the bag, including the side seal
- Seals: Top Seal, Bottom Seal and Side Seal
- Package Content. See [Put an Object inside the Package](#) on page 138
- Appearance: Highlights, Rounding. See [Tweaking the Substrate shading](#) on page 140 and [Setting the Rounding Value](#) on page 141

### Constraints

Due to the many interacting parts of the bag, there are several constraints in place to guarantee a correct shape:

- As the corners of the sides are glued into the bottom seal, the side seal cannot be larger than the bottom seal.
- To guarantee that the bag can be closed at a decent angle, the side length has to be at least twice the depth.
- The total length of the bag has to be at least as large as the side length and the top seal combined. When the bottom and side seals are different from each other, this difference is also added into this constraint.
- The Width has to be at least as large as the Depth to prevent the left and right gusset from intersecting.
- The Depth has to be larger than 2 times the side seal.



## Diaper Bags

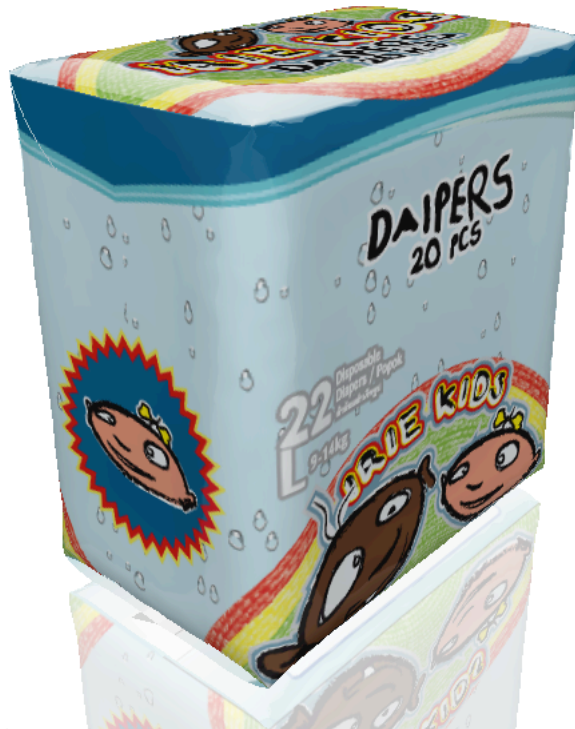
The diaper bag is a very complex flexible bag type. A diaper bag has a bottom seal, side gussets at the bottom (horizontal gussets at the bottom) and top gussets at the top (vertical gussets at the top) of the bag.

Diaper bags are commonly used for diapers, sanitary napkins, ....



### Note:

Certain variants of the diaper bag die shape may not be supported by Studio Toolkit.



#### Settings:

- Dimensions: Width, Length, depth
- Bottom Seal.
- Package Content. See [Put an Object inside the Package](#) on page 138
- Appearance: Highlights, Rounding. See [Tweaking the Substrate shading](#) on page 140 and [Setting the Rounding Value](#) on page 141

#### Ponytail Bag

The **Ponytail Bag** is commonly used for bread and other dry food such as pasta.

The bag has an open top side that is closed by a clip, resulting in the typical ponytail shape.

The image underneath shows a ponytail bag in **Studio** in Visualizer quality. A 3D file of bread has been put inside the bag in Studio Toolkit.



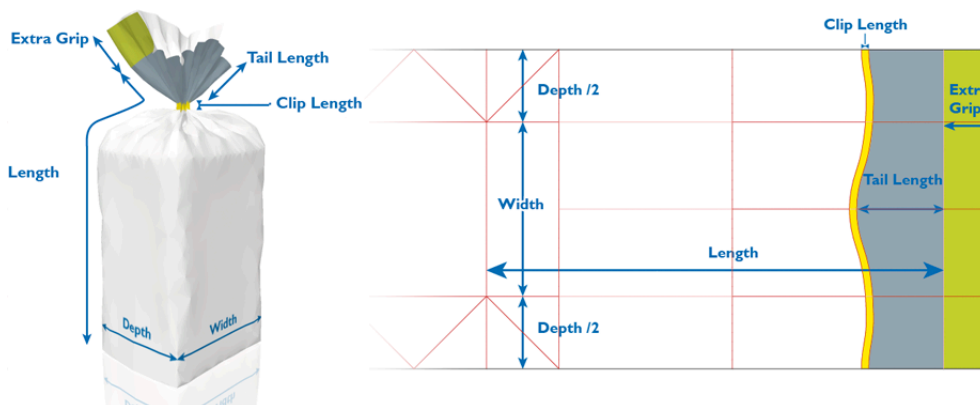


**Note:** Because of the more complex shape of this bag, it needs a fair amount of Live Shaping.

### Settings:

- Dimensions: Width, Length, Depth. The length of the bag is the distance from the bottom of the bag to the top, including the Clip Length, and Tail Length, but without the Extra Grip.
- Clip Length, Tail Length and Extra Grip. The Tail Length is the distance from the clip to the top of the tail without the Extra Grip. Very often the tail length is not the same everywhere. In that case, the longest distance is taken. The Extra Grip is an extra bit of Tail, sometimes needed for filling machines. When viewed in 2D, the Extra Grip is added on the right side of the bag.
- Package Content. See [Put an Object inside the Package](#) on page 138
- Appearance: Highlights, Rounding. See [Tweaking the Substrate shading](#) on page 140 and [Setting the Rounding Value](#) on page 141

The image underneath gives a clear view of the different settings, both in 3D and 2D.




**Tip:**

You can download a 3D bread shape and some clips from **Shapes** in Adobe Illustrator. You can also use ArtPro or PackEdge.

1. Open Adobe Illustrator.
2. Choose **File > Structural Design > Open from Shapes**
3. Download the 3D shape you need. The shape appears in your Library.
4. Right-click on the shape in your Library, and choose **Get Info**
5. Go to **Parts** and choose **Export**. You can now save the file to your computer. Please add ".zae" to the filename.
6. You can now import the 3D shape in Studio Toolkit, and position the shape relative to the bag, using the **Move and Rotate** tool.

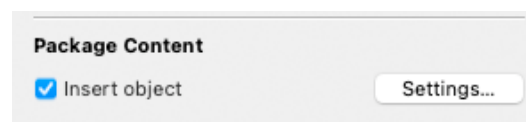
### 3.5.2. Changing the appearance of the bag

There are several ways to change the appearance.

#### Put an Object inside the Package

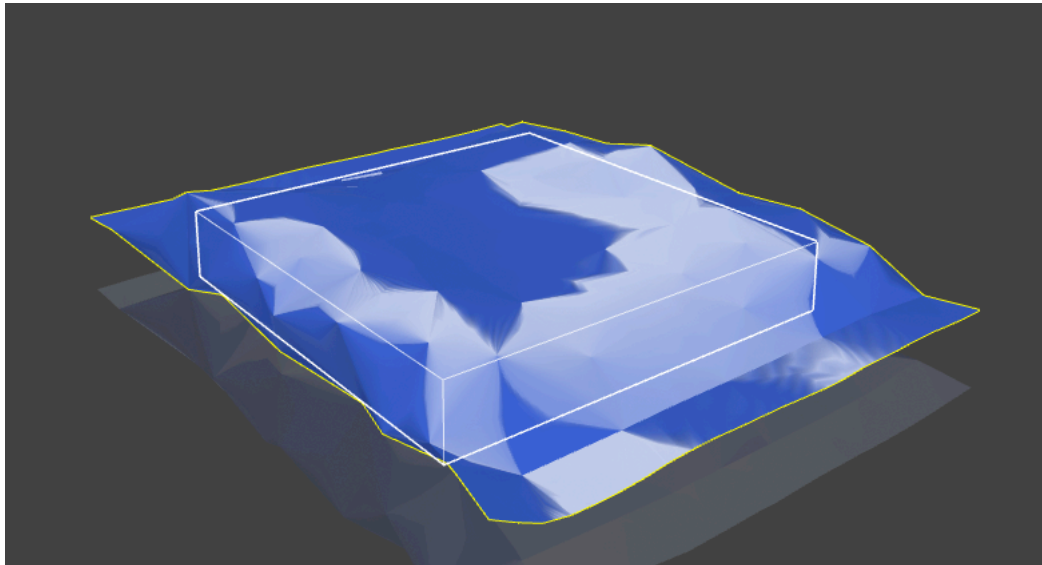
If you are creating a wrapper for a candy bar, a cookie or another regular shape the bag will often look more realistic when an object is inside the bag.

**Package Content** allows you to add a solid object to be wrapped by the package, and specify its shape. You can add an object in all bag types except the Stand-Up-Pouch.



1. Select **Insert Object**

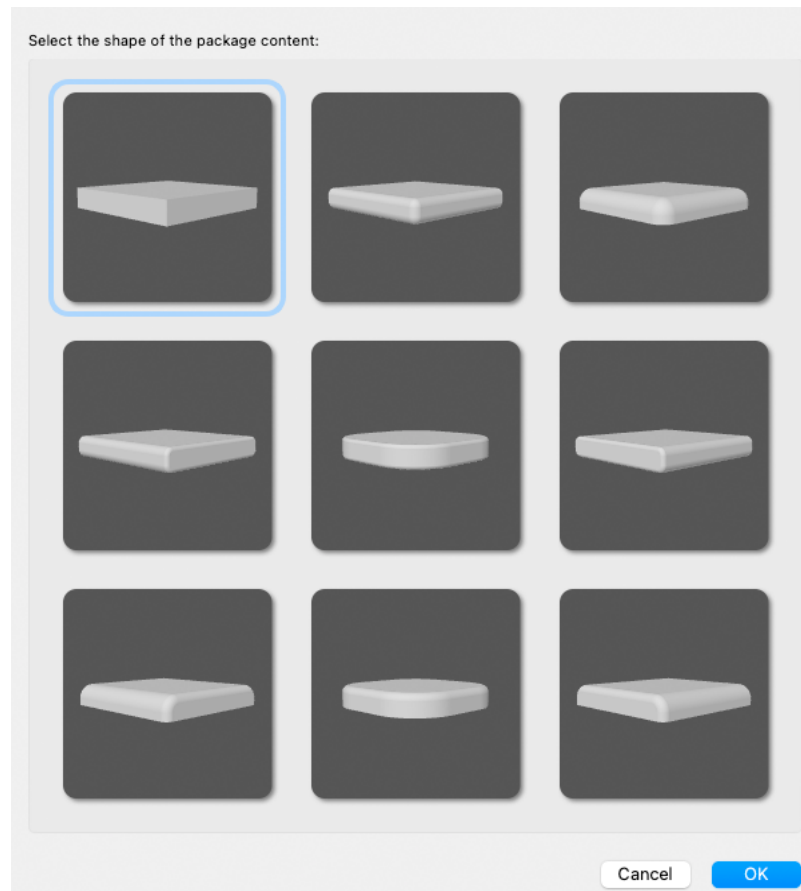
A default object with dimensions based on the shape of the bag is created and put inside the bag. A newly created Pillow Bag, Gusseted Bag and Sachet will be rotated and placed "on the floor" when you insert an object.



2. After creating the object, you can change its settings in the top section of the window. You can change the content width, length and depth.

Width: <input type="text" value="78,0 mm"/>	Length: <input type="text" value="78,0 mm"/>	Depth: <input type="text" value="12,5 mm"/>
Shape: <input type="button" value="Select..."/>	<input type="button" value="Done"/>	

3. Click the **Shape Select** button to select a base shape for the content. You can choose from 9 variations



4. Depending on the shape you select, you can have one or more sliders to further fine-tune the shape. The bag is recreated after each dimension change.
5. Click the **Done** button or the **Settings** button to close the editing mode. The content object will become invisible.

You can return to editing the shape by clicking the **Settings** button in the **Package Content** section.

If you disable **Insert object**, the content object is removed from the bag. Enabling it again puts the content back in the bag using the previous dimensions.

### Tweaking the Substrate shading

The flexible packaging substrate gets a realistic appearance thanks to highlights and shadows that are blended with the substrate color or the graphics.

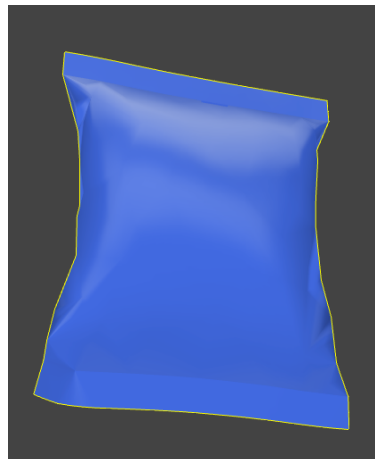
The Highlights can be changed in the **Appearance** section of the Settings panel of a bag. You can choose between two highlight types from the list: **Glossy** or **Matte**.

You can use the Highlights slider to change the intensity of the highlights of the bag. Without changing the polygon mesh, all these changes merely affects the way the bag is rendered. Changes are shown instantly.

Figure 1: Example of a Glossy bag



Figure 2: The same bag but Matte:



### Setting the Rounding Value

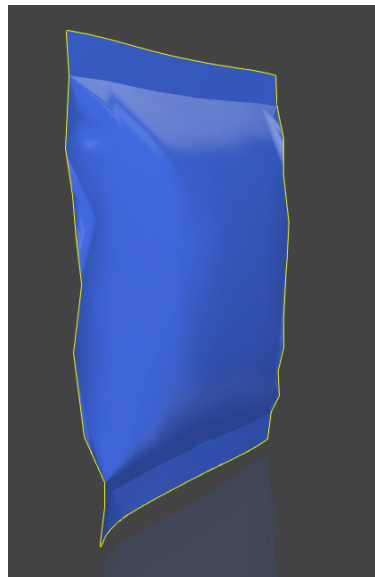
**Rounding** can be set in the Appearance section of the Settings panel of a bag. Without actually changing the polygon mesh, rounding merely affects the way the bag is rendered: roundish or crinkly. Unlike stiffness, changing the roundness of a package happens instantly.



Figure 3: Example of a bag with a low rounding value



Figure 4: The same bag with a high rounding value:



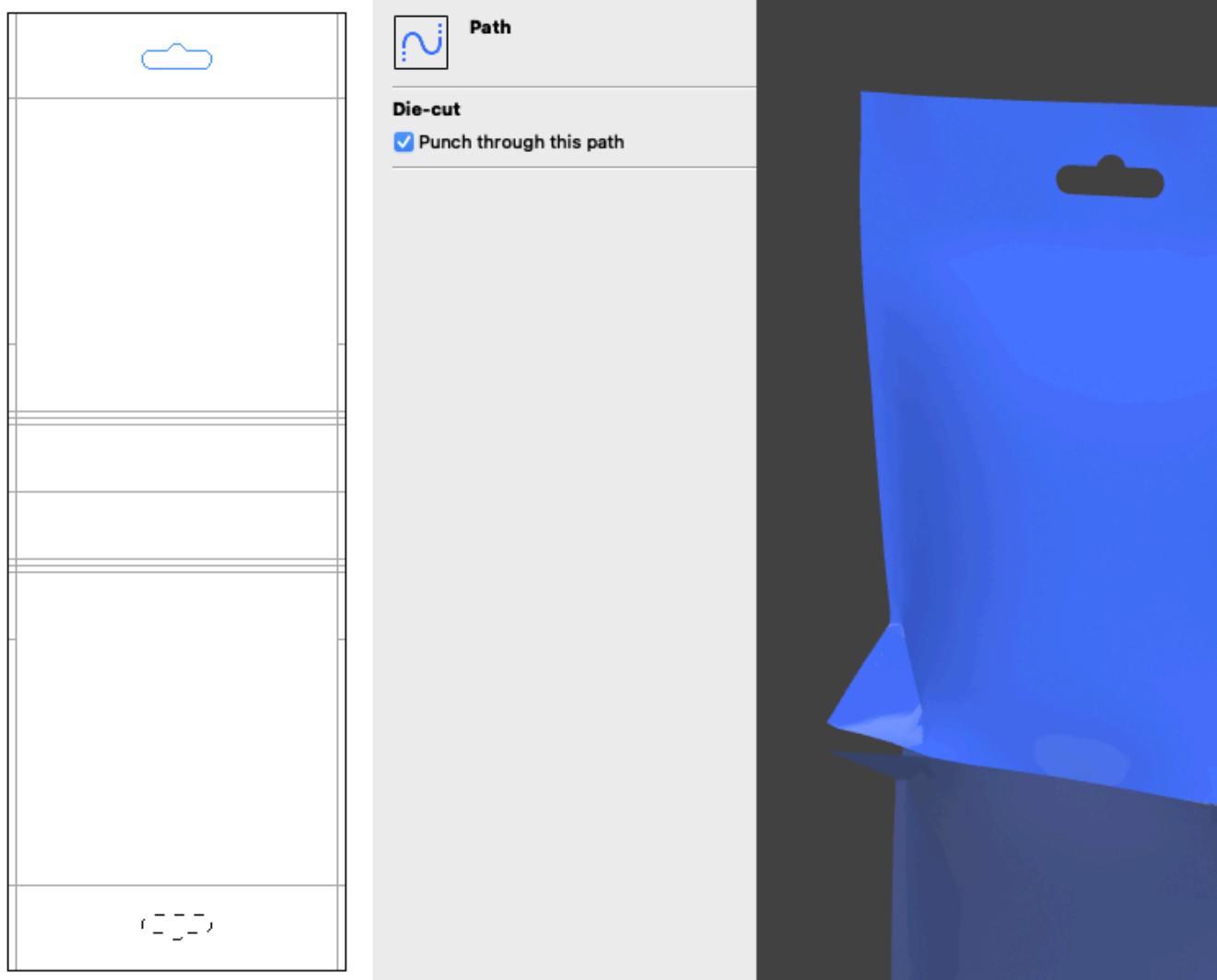
### Using a Path as a Die Cut

When setting up a Flexible Bag, you can use a **Die Cut Path** to cut away parts of the bag. The Die Cut path should overlap with the object in the 2D tab, and the **Cut along this path** option should be enabled.

- If you want to start from a Flexible Bag in Studio Toolkit:
  - a) Create a Flexible Bag. See [Creating a New Bag](#) on page 115
  - b) Save as a collada file. See [Saving and opening Collada files](#) on page 51
  - c) In Adobe Illustrator, use **File > Structural Design > Place File** and select the Collada file you saved. If necessary, select the correct printable part.

- d) Create the Die Cut path in Adobe Illustrator, using the 2D shape as a visual guide.
- e) Select the path.
- f) From the fly-out menu in the Studio window, select **Send Path to Toolkit**.  
The path becomes available in the 2D tab in Studio Toolkit, and is automatically set as Die Cut path.
- If you want to start from an existing path in Adobe Illustrator:
  - a) In Studio Toolkit, open the document in Studio Toolkit you want to add the Die Cut to.
  - b) In Adobe Illustrator, select the path you want to use.
  - c) From the fly-out menu in the Studio window, select **Send Path to Toolkit**.  
The path becomes available in the 2D tab in Studio Toolkit, and is automatically set as Die Cut path.
- After these steps, you have a Flexible Bag with a Die Cut path, which you can save as a collada file and use in Adobe Illustrator to apply graphics on.
  - Unlike when using a Die Cut path on a Label, the Die Cut path cuts away the area inside the path.
  - When a Die Cut is placed on a glued surface, the cut will also be applied on the surfaces glued to it, indicated by a dashed line. In 3D the die cut will create a hole through all overlapping glued layers.

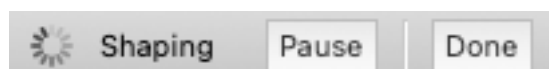
In Studio Toolkit, both 2D view (left) and 3D view (right):



**Note:** During live shaping, the die cut path is temporarily invisible in 3D.

### 3.5.3. Live Shaping

When you interact with a real bag, it responds instantly. When you interact with a virtual bag in Studio Toolkit, your computer has to perform heavy calculations to find a new realistic looking shape. This could take a long time to complete. Instead of waiting for every shaping operation to be finished completely, Studio Toolkit shows the shaping process live and offers you the possibility to keep on interacting, even while it is still shaping. This is called **Live Shaping**. If computers were infinitely powerful, Live Shaping would be obsolete.





You do not have to wait for Live Shaping to finish. Simply interact with the shape, wait and see how Live Shaping reacts and as soon as you are happy with the result, you save it.

## Starting and Stopping Live Shaping

When creating a new bag, a small amount of live shaping is applied to it automatically. To start the Live Shaping process, click the **Live Shaping** button.

At any time you can decide to stop Live Shaping. Just click the **Done** button. The shape will pause in its current state. To continue Live Shaping, click the **Live Shaping** button in the Document Window.

Using the Pauze / Resume button, you can also temporarily pause the Live Shaping. Use the **S** shortcut to quickly pause or resume shaping.



### Note:

After **Live Shaping**, you can no longer change the dimensions or other parameters of the bag. By clicking **Restore Shape** you can undo the live shaping and make changes to the parameters possible. After that, you can redo the Live Shaping.



**Note:** If you **Undo** during live shaping, Studio Toolkit will first stop the live shaping (same as clicking the "Done" button) before undoing it. This way, you can use **Redo** to return to the point before the Undo

## Live Shaping and Done/Stalled

When a certain bag has reached its final form, Live Shaping will indicate this by displaying **Done**. The bag will start shaping again when needed, for example when adding some more air. If for some reason the bag does not Live Shape anymore but still has not reached its final form yet, Live Shaping will display **Stalled**. In this case it is best to save the file and send it to your Esko contact person for further investigation. It is definitely not an intended state of Live Shaping.

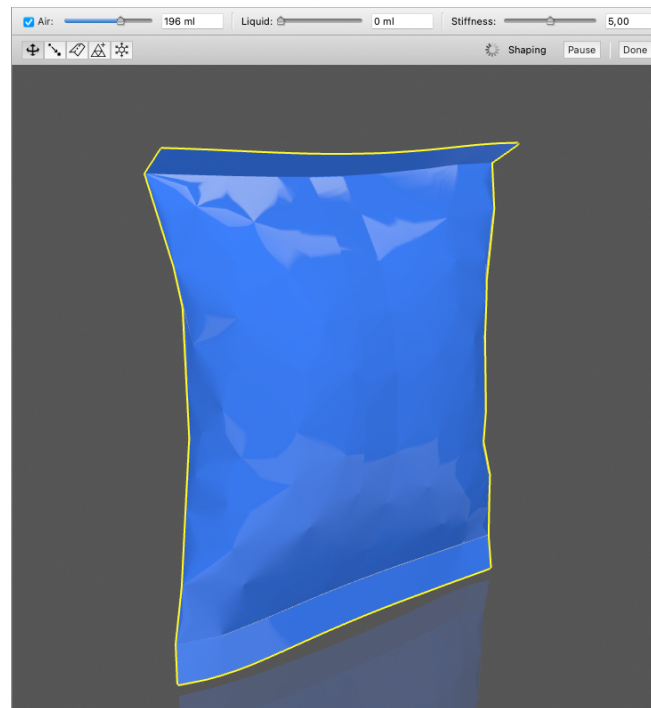
Note that you do not have to wait until Live Shaping stops. You can stop it as soon as you find it reached a pleasing form and save the file.



**Note:** In some cases, putting the stiffness slider to zero unstalls the file.

## Air and Liquid Content

When you create a new document of any of the three different packaging types, the bag will automatically start to fill up with air. You can compare this with a bag that is not completely airtight. It will not stop air from moving in or out of the bag. In the **Shape** section of the Window, the blue air bar will give you an indication of the actual amount of air that is currently in the bag.



You can take control over the amount of air that is put into the bag by checking the **Air** box. When checked, you actually simulate an airtight bag. Use the slider to specify how much air should be put inside the bag. As Live Shaping might need some time to catch up with the new conditions, the actual content (the blue bar) might lag behind a little.



**Note:** If you move the slider too much to the right, you might put an exaggerated amount of air in the bag and make it look overstretched.

Next to air, Studio Toolkit for Flexibles also allows you to add **Liquid**. The difference between air and liquid lies in their respective weights. As liquid is heavier than air, the liquid will be concentrated in the lower part of the package. During Live Shaping, a bag that is filled with liquid will gradually fall down until it eventually lies on the floor.

Adding liquid is also a convenient way to simulate the shape of bags that contain bulky materials such as frozen vegetables or meatballs. If you add liquid while the **Air** box is checked, the total volume of the bag will increase. If you add liquid while the Air box is not checked, part of the air in the bag is simply replaced by liquid.



**Note:** The gravity effect when adding liquid is visualized quite slowly with Live Shaping. Temporarily reducing **Stiffness** might speed it up.



**Note:** You can also put a solid object (like a candy bar) inside the bag.


## Setting the Stiffness Value

The **Stiffness** of the package can be manipulated by moving the slider in the Live Shaping section of the window. The higher the stiffness, the more the substrate will try to straighten itself. The lower the stiffness, the easier the package will 'collapse', as if it were made from a soft, thin foil.


Altering the stiffness has a direct impact on Live Shaping. The resulting shape will be re-calculated and the amount of air and liquid will be added or subtracted accordingly.



## Working with Pullers

The **Pull** tool  allows you to interactively change the shape of the package by creating pullers. A puller grabs a point on the package and pulls it in the desired direction. Pullers look like small needles. One end of a puller is attached to the bag, the other end is a target position fixed in space. A puller will pull the attached point on the surface of the bag towards the target position.

### Creating and Changing Pullers

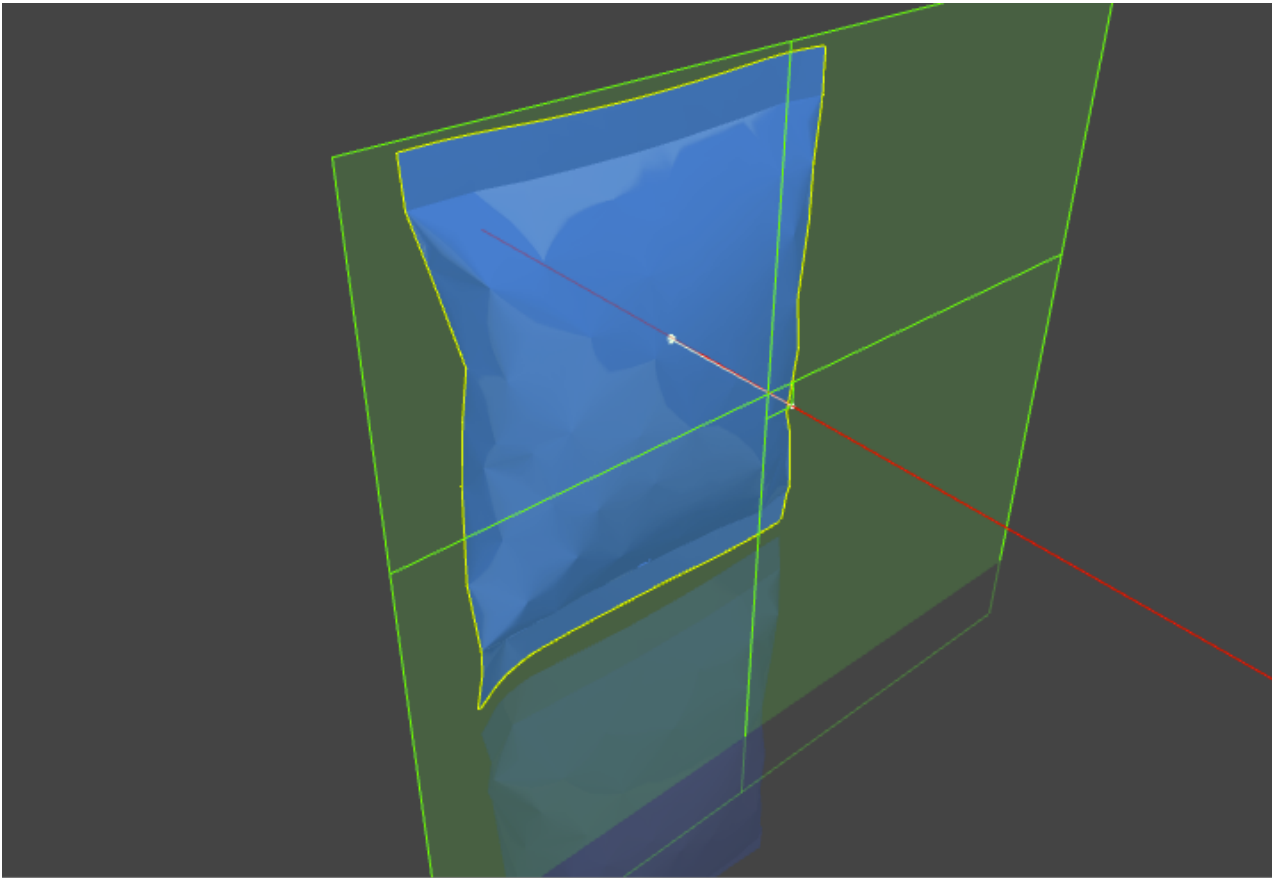
1. Select the bag whose shape you want to change, in 3D view.
2. Click **Live Shaping**, and select the **Pull tool**  or use the **P** shortcut to select the **Pull Tool**



**Note:** Live Shaping is paused when you create pullers.

3. Click and hold the left mouse button at the point on the bag where you want to attach the puller.
4. Drag to place the puller's end point.

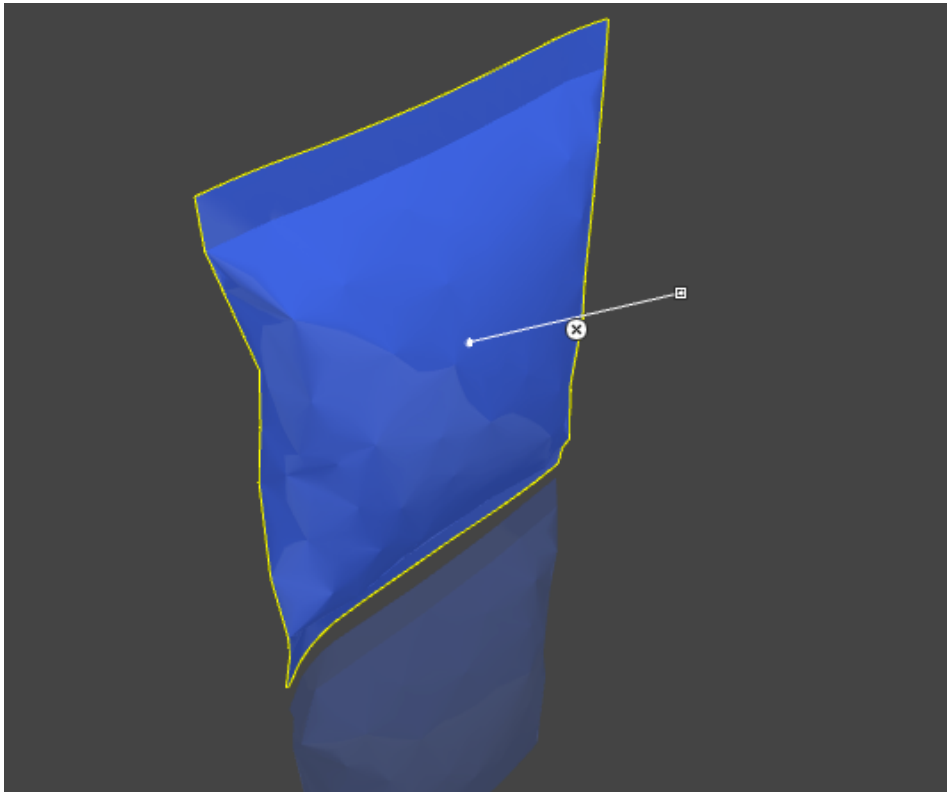
Studio Toolkit will display a green plane.



- By dragging the mouse you can place the puller's end point anywhere on that plane.
- By holding the **shift** key and dragging the mouse you can change the position of the plane itself.

Movements within the green plane determine 2 degrees of freedom of the target position of the puller (X- and Y-axis), whereas changing the position of the plane across the red line (Z-axis) determines another. Together they specify the 3D target position of the puller.

5. Once you release the mouse button, the puller is created.



**Note:** You can reposition existing pullers by clicking and dragging the end points to another place.

After creating a puller, convince yourself that it is oriented as you intended. Hold down the space bar, press the left mouse button and drag the mouse to inspect the pullers from different angles. If you are not happy with the result, you can either undo your change (Cmd +Z), reposition the existing puller, or delete it and start all over.

If you are happy with the position of the pullers, then restart Live Shaping to see their effect. You will notice that the rest of the bag, when not pinned down by other pullers, will also move slightly towards the target position of the puller. It is as if you would pull a certain point of the bag with your fingers.



**Note:** Changes caused by pullers will affect Live Shaping. The changes are not instant and have to be calculated.

### Deleting Pullers

The puller will always be accompanied with small delete buttons. You can click these to delete the puller.



You can click the **Delete all pullers** button to remove all pullers from the bag.


## Working with Fold Lines

Another powerful way to interact with the shape is using fold lines. Fold lines are displayed as white lines on the bag. In 2D view they are always straight. You can use fold lines to add folds or creases to a design. You can also use them to straighten a part of the bag.

### Fixed Fold Lines

When creating a new bag, you will automatically get a set of fixed fold lines, depending on the packaging type that you selected. These fixed fold lines cannot be deleted, although they can be changed from hard to soft.

To see the fixed fold lines:


1. Select the bag in 3D view, or select the 2D tab for the bag.
2. Click **Live Shaping**
3. Select the **Fold Line**  or use the shortcut **L**



**Note:** It can be easier to pause the Live Shaping when using the Fold Line tool.

### Creating Custom Fold Lines

Apart from the fixed fold lines, you can also create your own, custom fold lines. To create a fold line:

1. Select the bag, in 3D view, or select the 2D tab for the bag.
2. Click **Live Shaping**
3. Select the **Fold Line**  button or use the shortcut **L**



**Note:** It can be easier to pause the Live Shaping when using the Fold Line tool.

4. Click and drag on the bag to create a fold line.

Custom fold lines will snap to the start and end point of fold and cut lines. The cursor will change when it is getting close to such a point.



**Note:** Fold lines cannot cross fixed fold lines. If you try to do so, an error dialog will pop up.

### Deleting Custom Fold Lines

If the **Fold Line** tool is active, custom fold lines will be accompanied with a small delete button. You can click these to delete a fold line.




You can click the **Delete all fold lines** button to remove all fold lines from the bag.



**Note:** You cannot delete fixed fold lines


### Hard and Soft Fold Lines

Each fold line can be set either hard or soft. To switch between hard and soft fold lines:

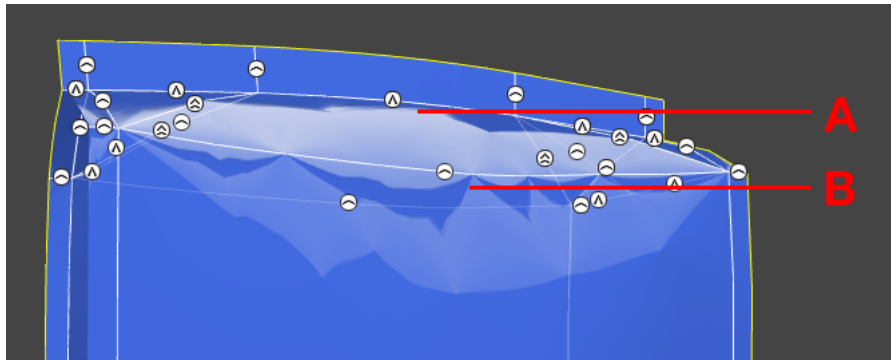
1. Activate the **Fold Line**  tool or use the shortcut **L** during Live Shaping.
2. Hold the **option** key.

You will now see small type indicators next to each fold line showing whether the line is soft or hard:

- A hard fold line: 

- A soft fold line: 

3. Click the fold type indicator to change the type.



Hard fold lines (A) look like a crease. These fold lines are also immune to the material stiffness. In other words, Live Shaping will not try to straighten the fold angle of a hard fold line.

Soft fold lines (B) look like a smooth bend. Like other parts of the bag, the stiffness will try to straighten the bend angle during Live Shaping.

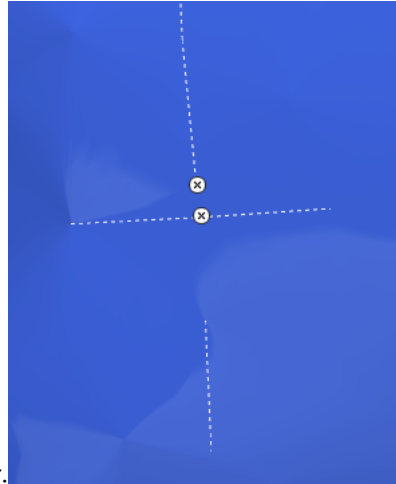
Hard and soft fold lines will both influence the appearance, so it will affect Live Shaping due to the extra calculation time that is needed. Fold lines are also linked to the stiffness of the bag, meaning that a stiffer bag will display hard fold lines sharper than a more flexible bag.



**Tip:** To create two fold lines for the back panels, use the SHIFT key to generate a straight line up to the fixed fold line, just not touching. Touching or crossing the fixed fold lines will trigger a message saying you cannot cross them. As a consequence they will not be created.

### Limitations

- You cannot draw fold lines that cross a fixed fold line. An error message will be shown.
- It's not possible to draw folding lines on e.g. a seal.
- When drawing a fold line that crosses another custom fold line (hard or soft), that other fold line will



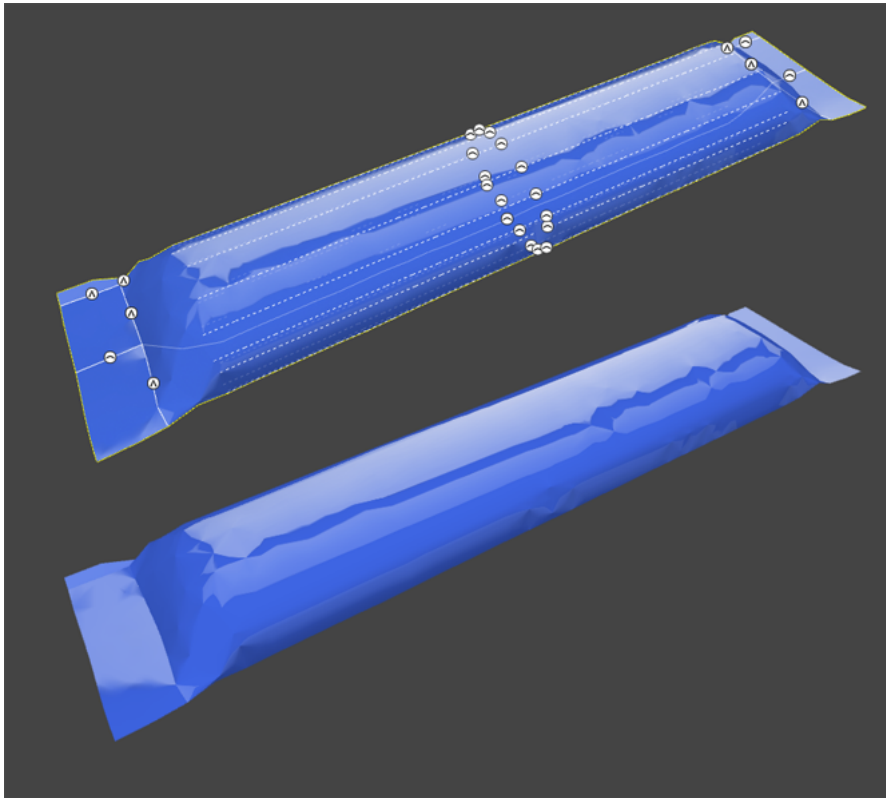
split into two parts and/or partially disappear.

- Drawing fold lines on top of each other can result in the loss of these fold lines and will also make it impossible to create another fold line on that exact place. You can always undo this.

### Using parallel Fold Lines to make a smooth bend

For certain bag types, such as a chocolate bar wrapper which contains an object that is round at the top, it could be a good idea to create some parallel fold lines to make a smooth transition around the rounded content.






### Working with the Polygon Mesh

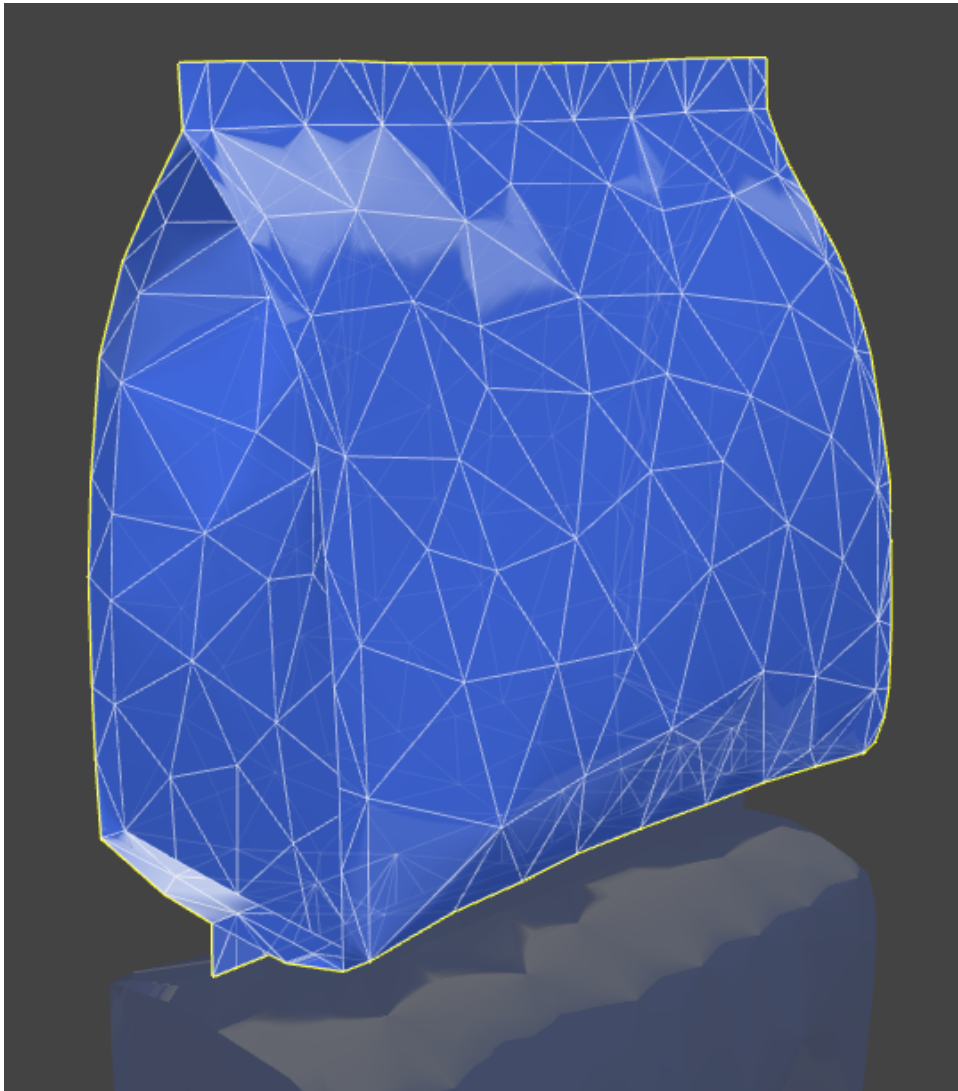
Behind every bag in Studio Toolkit for Flexibles, there is a polygon mesh. This mesh is like a skeleton of randomly shaped triangles that define how the bag can move and fold. A bag will only crease along the lines of the polygon mesh.

To obtain the best visual result, it can be very interesting to change the coarseness of the mesh. A coarse mesh (default) has a typical appearance and is also faster in Live Shaping. A fine mesh is slower in Live Shaping.

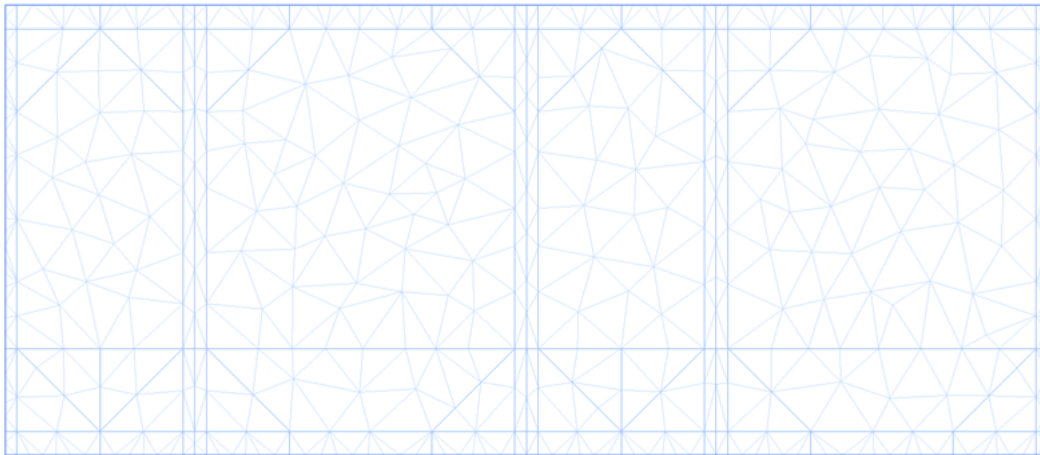
The appearance of a fine mesh can range from very smooth to very wrinkly depending on how Live Shaping makes the polygons line up. In turn, this appearance is influenced by the **Stiffness** setting in the settings bar.

To alter the polygon mesh of a bag, select it and click 'Live Shaping' in the settings panel.

During Live Shaping, click the Mesh Tool in the settings bar  or use the shortcut key M.



You can see the mesh overlaid in white on top of the bag when the **Mesh** tool is active. When switching from the 3D to the 2D, the polygon mesh is also visible.



You can change the mesh

- manually, using the **Mesh** tool. See [Using the Mesh tool](#) on page 155
- automatically, using the **Reset Mesh** function. See [Reset the Mesh](#) on page 155

### Using the Mesh tool

The length of the Polygon Mesh edges can also be interactively altered using the **Mesh** tool

1. Select the bag whose shape you want to change, in 3D view.
2. Click **Live Shaping**
- 3.

Select the **Mesh tool** 

The **Mesh Tool** works like a brush. You can


- Click or drag, to add new mesh points on the bag
- Hold down the ALT key, and click or drag to remove mesh points

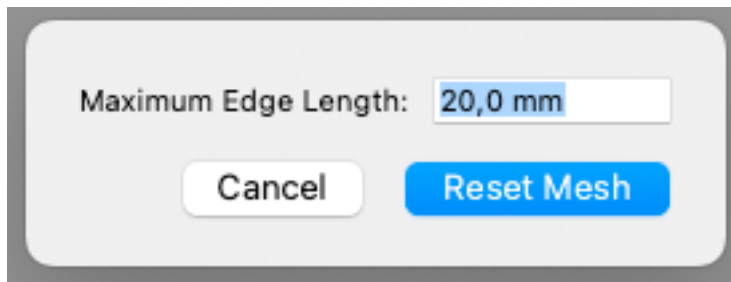
### Reset the Mesh

Using the **Reset Mesh** function, you can reset the Mesh, removing any manual changes, and recalculating the mesh using a **Maximum Edge Length**

Changing the Mesh can be very useful when trying to get the flexible material fit better around the content shape or when you want to obtain more detailed effects/changes on your bag, e.g. smaller dents, ...

To reset the Mesh and/or change the mesh size:

1. Select the bag whose shape you want to change, in 3D view.
2. Click **Live Shaping**
3. Select the **Mesh tool** 
4. Click the **Reset Mesh** button
5. Set the **Maximum Edge Length** and click **Reset Mesh**



Changing the **Maximum Edge Length** of the triangles (polygons) from e.g. 20mm to 10mm will result in a 4 times finer mesh than before, making the package look much smoother or much more wrinkly, depending on the **stiffness** setting.

As a consequence Live Shaping will also be about 4 times slower.



**Note:** Changing the Polygon Mesh size will not result in a loss of your custom fold lines, pullers, etc.

### Working with the Freeze tool

The **Freeze Tool** offers you the possibility to freeze certain or all parts of the package so that other user actions and Live Shaping do no longer influence it. The parts that have been frozen will remain in the same shape even when the package is being modified in other areas.

1. Select the bag whose shape you want to change.

2. Click **Live Shaping**

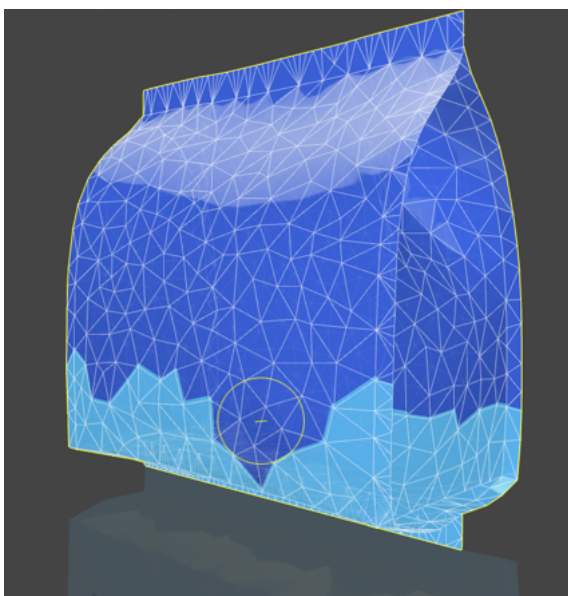
3.



Select the **Freeze tool** in the settings bar, or use the shortcut key **F**

The **Freeze Tool** works like a brush. You can

- Click and drag, to freeze areas on the bag
- Hold down the ALT key, and click and drag to unfreeze parts
- Click **Defrost all** to unfreeze all frozen parts at once.



The bottom part of this bag has been frozen to protect it against accidental changes and unwanted interactions due to Live Shaping on other parts of the bag.

### 3.5.4. Tips&Tricks: fine-tuning the appearance of a bag

There are different ways to fine-tune the appearance of a bag. In general terms, you could split them up in two parts

#### Finetune the 3D structure

In Studio Toolkit, you can tweak and finetune a flexible bag.

- You can add contents to your bag, either by putting an object inside the Packaged, or by adding air & liquid content. See [Put an Object inside the Package](#) on page 138 and [Air and Liquid Content](#) on page 145
- During **Live Shaping** you can influence the shape of the bag by adding Pullers, Fold Lines, Freeze parts, etc. See [Live Shaping](#) on page 144.
- During Live Shaping, you can use the **Floor** as a shaping tool, e.g. to create a block bottom. See [Use the floor as a shaping tool to create a block bottom](#) on page 157

#### Finetune the 3D representation in Studio

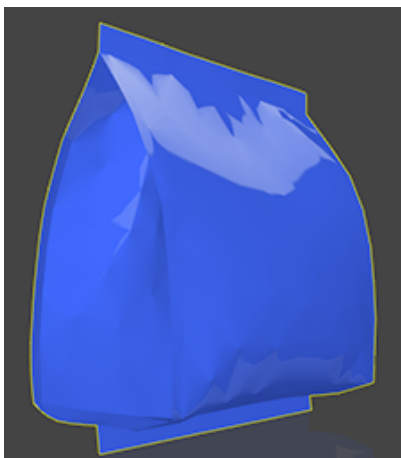
After applying the artwork in Adobe Illustrator, you can use different Finishing Operations to finetune the 3D representation.

- You can use a **Die Cut Operation** to create tear notches, rounded corners, zig-zag cuts, etc. See [Tear notches, rounded corners and zigzag cuts](#) on page 158
- Using finishing operations, you can mimic ziplocks and seal crimping. See [Mimic Ziplocks and Seal Crimping](#) on page 160

#### Use the floor as a shaping tool to create a block bottom

During Live Shaping, you can use the floor to influence the shape of your bag. This can be used to create a block bottom or flat bottom. Below is a very simplified example. For a more accurate result, you can use fold lines, pullers, etc.

1. Create the flexible bag.



2. Start and pause **Live Shaping**
3. Using the **Transform** tool, move the bag a distance **below** the floor, e.g. "-20mm"
4. Start **Live Shaping** again, and stop it as soon as you get an acceptable result.



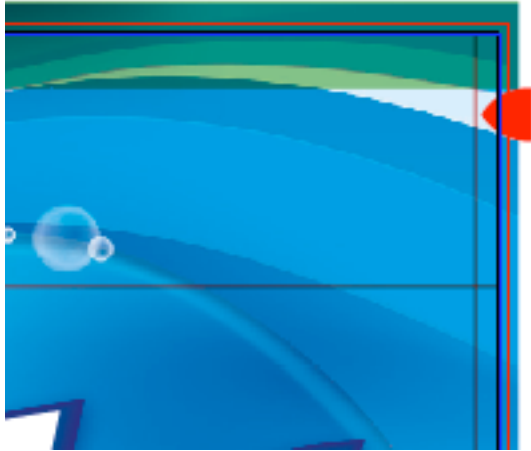
### Tear notches, rounded corners and zigzag cuts

Using a Die Cut Operation, you can cut away parts of your flexible bag, e.g. to generate tear notches, rounded corners or zig-zag cuts. See also [Tips&Tricks: Using a Diecut operation](#) on page 240

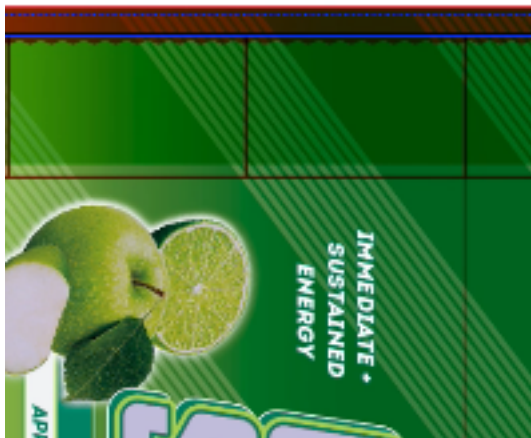


**Note:** You can also use a die cut path. See [Using a Path as a Die Cut](#) on page 142. The main difference is that when using a die cut path, the cut away parts become part of the structural design file, while when using a finishing operation, the cut away parts are defined in the design file.

1. Create a new Finishing Operation, using a **swatch**. See [Add a new Finishing Operation](#) on page 232  
If you select **Die Cut Operation**, the objects using the Die Cut swatch will define the areas that are **cut away**. If however you use a **Die Cut Operation (Inverted)**, the objects using the swatch will define the areas that are **kept**.
2. Create the shapes you need to cut away parts of the bag:
  - a) tear notches



b) zig-zag cuts



c) Holes and rounded corners



**Note:** Make sure you create the shapes at exact the same position on both sides of the bag.

## Mimic Ziplocks and Seal Crimping

Using Finishing Operations, you can mimic ziplocks and Seal Crimping

1. To mimic a ziplock:
  - a) Create a new "Emboss" **Finishing Operation**, using a swatch
  - b) Create two parallel rectangles where you want the ziplock
  - c) Use the "Emboss" swatch, and enable **Overprint Fill** in the **Attributes** panel

The two parallel embossed lines result in a visual "ziplock" effect.

2. To generate Seal Crimping:
  - a) Create a new "Seal Crimping" **Finishing Operation**, either vertical or horizontal, using a swatch
  - b) Create a rectangle at the sides of your bag where seal crimping will occur
  - c) Use the "Seal Crimping" swatch, and enable **Overprint Fill** in the **Attributes** panel

The Finishing Operation will generate the typical vertical or horizontal lines that occur when sealing a bag.





## 3.6. Working with Shrink Sleeves

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The Shrink Sleeves tools in Studio Advanced consists of two parts:

- The Shrink Sleeve functionality in the **Studio Toolkit** application. **Studio Toolkit** contains functionality to easily and with precision wrap a shrink sleeve around one or more 3D objects.
- The Shrink Sleeves tools, part of Studio Advanced in Adobe Illustrator. Using these Illustrator tools you can predistort artwork, to compensate for the deformation that will occur during the shrink process.

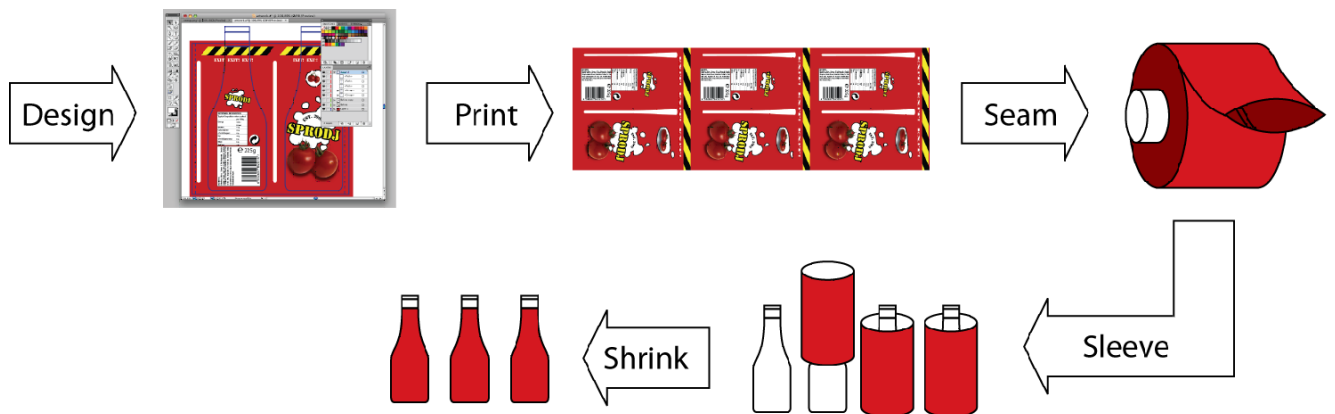
### 3.6.1. About Shrink Sleeves and Multipacks

Examples of shrink sleeves:



### Shrink Sleeves

Shrink sleeve labels are amongst the most advanced and versatile form of labeling the world over.



First of all, the shrink sleeve labels will be flat printed. Then the labels will be wrapped (seamed) onto the tube form and heated to adapt to the shape. This last step will distort the artwork that was printed on the label.

Shrink sleeves are usable for all kinds of packing. They can enhance the appearance and increase the value of the packed products, and can also resist dampness, dust and can even be used to prevent tampering and counterfeiting. It is insured that this shrink sleeve labels are perfect to protect the quality of the products packed with it. Attractively decorated shrink labels can be applied to a wide variety of container shapes and substrates, including Glass, PET, Plastic Bottles, Composite cans, Tin cans etc.

## Application examples of Shrink Sleeves

### Labels

- Food Products: Mineral Water, Soft Drinks, Beverages, Liquors, Pickles, Jams, Jellies, Fruit Juices, Tea, Coffee, Spices, Ghee, Edible Oils, etc. in bottle/can/jars
- Cosmetics: Powder, Perfumes, Hair Oils, Shampoos etc. bottles.
- Pharmaceuticals: Liquid Bottles

On the market there are also roll-on-shrink-on sleeves (also known as ROSO-labels). These are different from shrink sleeve labels in the way that they are seamed and placed around the object. But these differences are not relevant for Studio Toolkit for Shrink Sleeves, so it works just as well for ROSO labels.

### Multipacks

A multipack is a repetition of products wrapped with a sleeve label, for protection and of course visual effects. You can easily add your artwork to the shrink sleeved material around the multipack. With Esko's Shrink Sleeve software you can make your multipack and add your artwork to your 3D file.

below is an example of a Shrink Sleeve multipack:



## Distortion and pre-distortion

When a flat printed label is heated to fit to the shape of the container, the artwork printed on the label will be distorted.

Often this distortion is an unwanted effect. Because of this, certain artwork elements might be moved to other parts of the sleeve. It is possible to compensate the artwork for the distortion. This is called pre-distortion.

When pre-distorting artwork, you often have to make compromises:

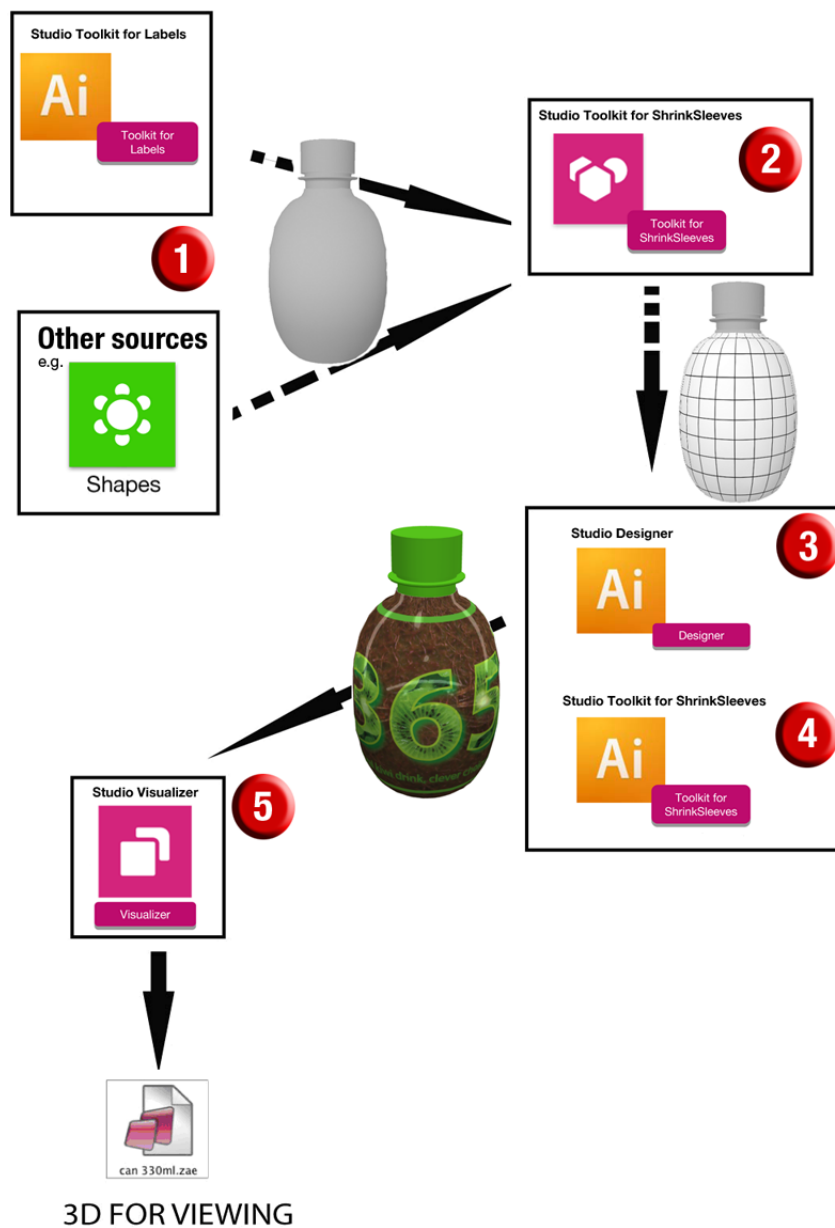
- Artwork just looks different on a curved surface. The appearance can also depend on the viewing angle.

- Due to the shrinking the area of the sleeve is reduced. So there is less room for artwork. It is possible that the original artwork design didn't take this into account.

With Studio Toolkit for Shrink Sleeves you can adjust selected objects in your artwork with a single click. In some cases, some compromises and decisions have to be made. It is good practice to divide your artwork into separate parts and predistort these one by one.

How to apply predistortion is explained in [Artwork Predistortion for Shrink Sleeves](#) on page 204

### 3.6.2. 3D workflow for Shrink Sleeve Package



The illustration above shows the Shrink Sleeve workflow:

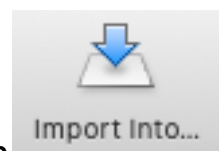
1. First you need to set up the 3D shape of the object(s) that will be shrink wrapped. See [Set up the shape to be wrapped](#) on page 165
2. Next you create a 3D file that represents your shrink sleeve (at this stage without the artwork) in the Studio Toolkit application. See [Create a Shrink Sleeve Structure](#) on page 166
3. You bring the file into Illustrator to create artwork, or adapt existing artwork to it, just as you do for any other Structural Design file. See [Step 2: Applying and adjusting artwork](#) on page 172
4. If needed, pre-distort artwork to compensate for the distortion on the 3D shape. See [Artwork Predistortion for Shrink Sleeves](#) on page 204
5. If necessary, you can add **Finishing Operations** to obtain a realistic 3D preview of your design. See [Finishing Operations](#) on page 228
6. At any stage, you can output 3D visuals to communicate with your client. See [Step 4: Share](#) on page 242



## Set up the shape to be wrapped

The purpose of this step is to set up the object(s) that will be wrapped in the **Studio Toolkit** application. See also [Using the Studio Toolkit application](#)

•



You can import an existing 3D file, using the **Import Into** button. See [Importing Shapes, Images or Paths](#) on page 52



**Note:** If you select the imported shape, you can see its dimensions in the topright corner of the Studio Toolkit window. You can scale it using the Transform tools. See [Transform the selected 3D shape\(s\)](#) on page 59

- You can import different 3D files and combine them, using the **Move and Rotate** tool. See [Transform the selected 3D shape\(s\)](#) on page 59



**Note:** You can also use the **Move and Rotate** tool to correct the shape if the imported object is not correctly oriented.

- You can repeat a 3D object, using the **Repeat** tool, e.g. to create a multipack sleeve. See [Repeat](#) on page 65

The shape to be wrapped can be one single object you import, or it can be a complex combination of shapes. For example, you can import the 3D file of a bottle, create a shrink sleeve around it, repeat the bottle and its sleeve 3 by 4 times, import a tray and put all bottles in the tray, and then create a sleeve around the tray and the bottles.

## Create a Shrink Sleeve Structure

The purpose of this step is to make a 3D file of the object(s) with a sleeve wrapped around them, so you can apply your graphics onto the sleeve. This 3D file can be repurposed for various artwork designs, as long as the internal shape and the sleeve parameters stay the same.

As input of this step, you need a 3D file of the object to be shrink wrapped. As output, you will have another 3D file (Collada file), with a printable part (the sleeve).

Collada files with a printable part can be used by Studio in the same fashion as an ArtiosCAD file.

The steps to create the Shrink Sleeve structure in **Studio Toolkit** are:

- [Add a sleeve](#) on page 166
- [Adjust the sleeve](#) on page 167
- [Simulate the Shrink Process](#) on page 170
- Save the Sleeve as a Collada file.



**Note:** If provided, you can already place graphics on your shrink sleeve in Studio Toolkit, e.g. to check the position of your seams. See [Preview Artwork in Toolkit](#) on page 54 and [Using graphic files](#) on page 53

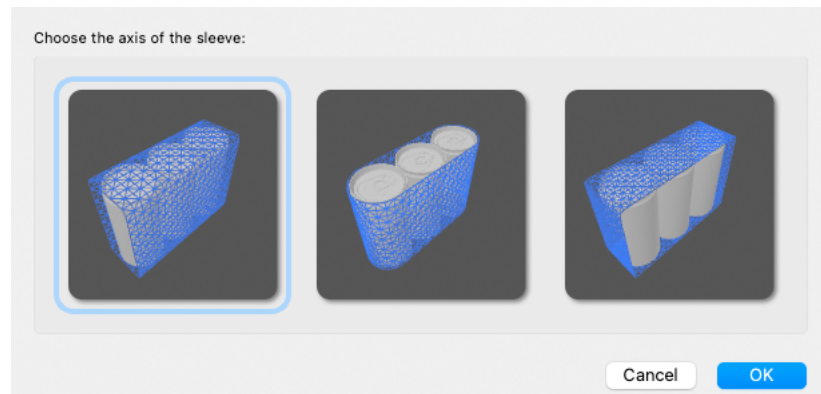
## Add a sleeve

- Make sure the object(s) you want to create a sleeve on, is selected.
- 



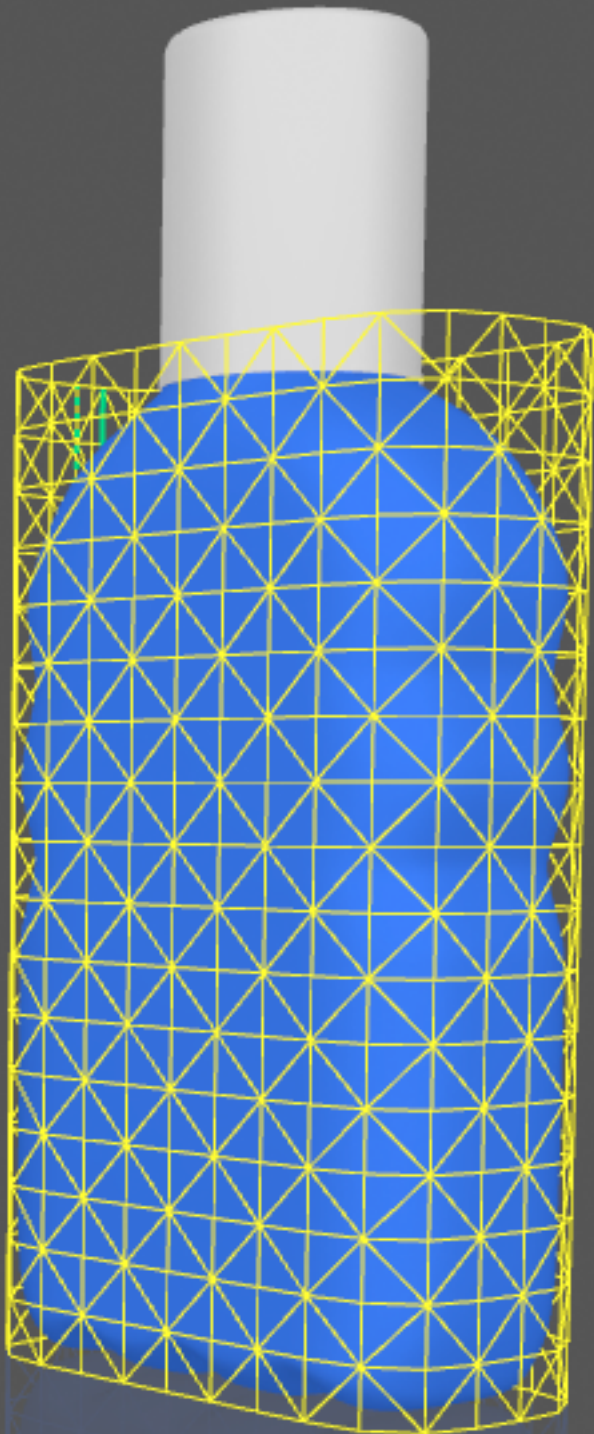
Click the **Add Sleeve** button

- Choose the orientation of the sleeve (X, Y or Z axis)



Most one-up shrink sleeves are vertical (the middle option), most multipack sleeves are horizontal. In the Sleeve view, you can see a 2D drawing of the sleeve. In the 3D View, you can see an unshrunk sleeve over the object(s). This sleeve can be adjusted in the next step, [Adjust the sleeve](#) on page 167

### Adjust the sleeve



**Sleeve**

226,3 × 139,0 mm

**Sheet Size**

Circumference

Cut length:

**Positioning**

Align ends

Shift:

**Seam**

Left over right

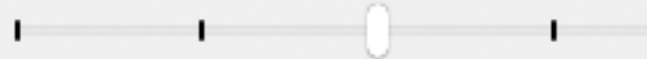
Position:

**Material Shrinkage**



Stretch Resistance:

**Simulation**



Accurate

Friction ( $\mu$ ):

**Preview**

Wireframe

**Technical Drawing**

Include a print area

Shrink



In the panel on the right side, you can change the dimensions of the sleeve. The descriptions below assume a vertical sleeve.

- The **Sheet size** can be set using the Circumference, Layflat width or Slit width
  - The **Circumference** is the measured circumference of the tube after sealing. It does not include the overlap
  - The **Layflat width** is the measured width of the shrink film when it is sealed and folded flat. This is half the Circumference.
  - The **Slit width** is the total width of the shrink film, including the overlap

By default, the Circumference is set to the size of the object.

- The **Cut Length** is the height of the shrink sleeve.

The default value is the total height for vertical sleeves, or the total width for horizontal sleeves.

- The **Positioning** can be set by aligning the ends of both the sleeve and the rigid shape / object, or by centering the sleeve on the object. The **Shift** allows to enter an offset.

Typically, a sleeve is placed all the way down, since sleeve and object are both standing on a conveyer belt.

- The **Seam** allows to define the overlap size and direction. The seam is shown in the 3D view with a solid line and a dashed line.



**Note:** If you have the values for Slit width and Layflat width (e.g. from a technical drawing), you can calculate the seam:  $\text{Seam} = \text{Slit width} - (2 \times \text{Layflat width})$

- The **Position** of the seam can be set by entering a value, or by clicking and dragging the overlap in the 3D view.



**Note:**

For objects that are not round, it is important that you position the seam correctly on the object, the same as it will be in the actual production process, to get the correct Structural Design that would fit the graphics.

- Set the **Material** shrink characteristics.
  - The first two values represent the maximum unconstrained shrink in machine direction and transverse direction. By entering a negative value, you can set the material to stretch instead of shrink for the given direction.
  - The **Stretch Resistance** controls how much the sleeve can stretch (locally) beyond its initial length. The higher the value, the less stretching will occur. A value of 1 gives the same behavior as in Studio Toolkit 16.1 and lower.
  - The **Simulation** slider allows to choose between more accurate or faster simulation.
  - The **Friction** is the ratio of the force of friction and the force pressing the sleeve onto the surface. The higher the value of the friction coefficient the more difficult it will be for the sleeve to slide over the surface of the package in areas where there is tight contact.

Typical PET shrink film has a low shrink value in the machine direction, and a high value in transverse direction. This is represented in the default values (10% and 70%).

- Set the **Preview**
  - a) Enable **Wireframe** to show the shrink sleeve as a frame of wires

- b) Disable **Wireframe** to show it as a **Solid Colored** sleeve or to show a preview of the graphics.  
See [Using graphic files](#) on page 53.
- Include a **Print Area** to indicate to the artwork operator how close to the edges the print can go.
  - a) Enable **Include a print area**
  - b) Set the marges for top, bottom, left and right.

The Print area will be visible in the 2D representation of the sleeve.



**Note:** You can create for example a tamper evident seal at the top of a bottle by decreasing the circumference and cut length, and setting the positioning offset to the top.



**Note:** To create a stretch sleeve, decrease circumference according to your specifications and set both shrinkage values to 0% and ignore the warning that the sleeve doesn't fit.

### Simulate the Shrink Process

If the sleeve has the right size, position and material settings, you can start the shrink simulation.

1. Click the **Shrink** button

The application will start simulating the shrinking of the sleeve.

At any time you can move and rotate the object by dragging it.

2. When you're satisfied with the result, click the **Done** button



**Attention:**

The simulation does not stop by itself. Shrinking will continue until you click the Done button

The speed depends on the size and complexity of the enclosed object(s). For complex multipacks, the simulation can take up to an hour.



**Note:** After shrinking, you can no longer change the properties of the sleeve. You can however click the **Restore Sleeve** button (which will undo the shrinking), change the sleeve's properties, and redo the shrinking.

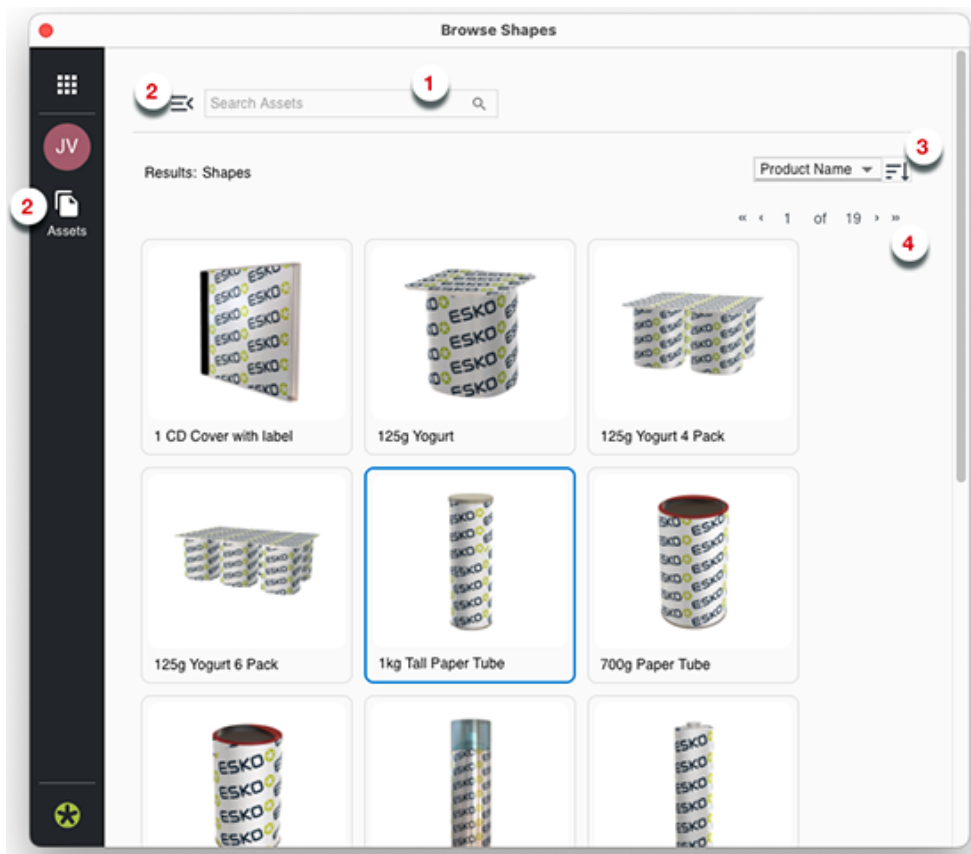
## 3.7. Browse Shapes

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The **Shapes** Store is a constantly growing online collection of quality 3D models in Collada file format. If you have a license for Studio, you can download all available models.

To open the **Shapes** Store, select **File > Structural Design > Browse Shapes...**

After entering your Esko ID, the Shapes Browser will open.



There are different tools to find the shape you want:

1. You can enter a name or a part of a name in the search bar
2. You can open the **Assets** bar by clicking the Assets button, either in the side bar or next to the search bar. In the **Assets** bar you can filter the shapes based on their type: Metal containers, paper & board, etc.
3. You can sort the results based on their Product name or their modification date, descending or ascending
4. You can browse through the different pages using the arrows.

Once you have found the shape you need, select it to see its details, and click the **Download** button.

Select the folder where the Shapes file should be downloaded.

After download, you can choose how to handle the newly downloaded file:

1. Place the shape in the current document.
2. Open in a new document: a new document is opened, and the shape is placed. The new document will have the size of the Printable Part of the shape.
3. Just save the document.

## 4. Step 2: Applying and adjusting artwork

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To bring the Structural Design and the graphic design together, a Structural Design file can be placed or opened. You can place Structural Design files in Illustrator with the **Esko Data Exchange** plug-in, which can be downloaded for free from the Esko website and which is also installed when installing Studio Advanced.

With the Esko Data Exchange plug-in the 2D lines (such as cut and crease lines) can be aligned with the graphics. You can find the Esko Data Exchange documentation at <https://www.esko.com/en/Support/Product?id=Esko%20Data%20Exchange%20for%20Adobe%20Illustrator> or open it from within Illustrator, by choosing **Help > Esko > User Guides > Esko Data Exchange**.



**Note:**

You can also load a Structural Design file as an extra scene in the Studio window. Each part of the scene can get its graphics from another Illustrator document. See [Scenes and Multiple Documents](#) on page 219

Once your 3D shape is placed in your Adobe Illustrator document, you can see a 3D preview in the Studio window, and see the 2D version in your Adobe Illustrator document.

Applying artwork is as simple as placing the artwork at the correct location in your Adobe Illustrator document.

However, Studio Advanced offers functionality that makes it easier to position and prepare artwork:

- You can select and zoom in on panels or printable parts. See [Working with Parts and Panels](#) on page 182
- You can put 3D guides that are visible in both the Adobe Illustrator file and the 3D preview. See [3D Guides](#) on page 200
- You can apply a conical warp to artwork, to place it on conical labels. See [Conical Warp](#) on page 203
- You can apply predistortion for artwork to be placed on shrink sleeves. See [Artwork Predistortion for Shrink Sleeves](#) on page 204

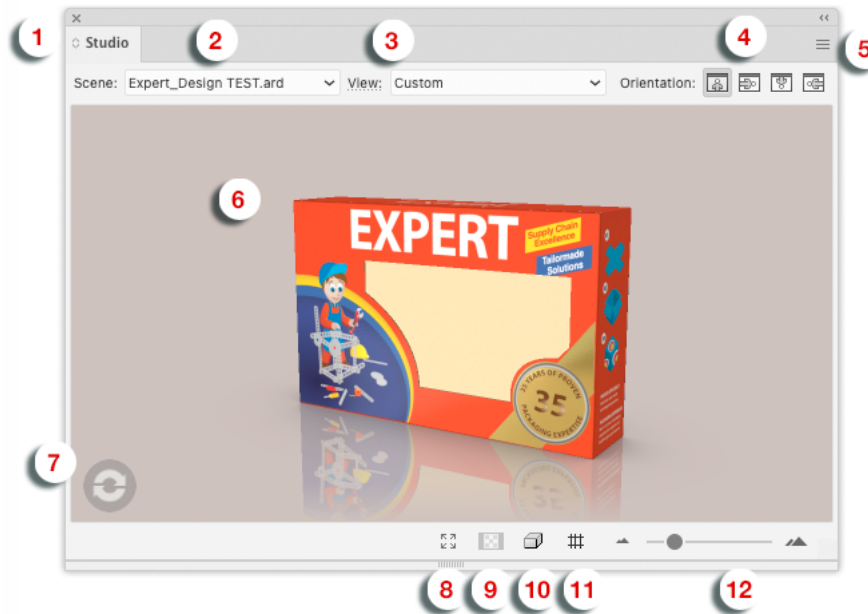
### 4.1. The Studio Window



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The Studio window is the heart of Studio Advanced in Adobe Illustrator.

It is a floating palette where you can see the three-dimensional shape of the package.

To view the Studio window, choose **Window > Esko Studio > Studio Window** or use the shortcut **Cmd +Alt+4** (Mac) or **Ctrl+Alt+4** (Windows).



1. . The Maximize button . Click it to make the Studio window options panel visible. See [The Studio Window options panel](#) on page 176
2. The **Scene**. This can be the Structural Design file used in the current document, or a scene combining multiple documents. See [Scenes and Multiple Documents](#) on page 219
3. The **View** dropdown. You can select a View preset from the dropdown, or click **View** to open the View settings. See [View](#) on page 217
4. The **Orientation**. See [Changing the Document Orientation](#) on page 174
5. The Fly-out button, opening the fly-out menu.
6. The 3D preview of the current document or scene.
7. The **Refresh** button. If no Refresh is needed, the button will not be shown. See [Refreshing](#) on page 173
8. The **Full Screen Preview** button. This will open the Studio Window in full screen preview, until you hit the **esc** key. See [Full Screen Mode](#) on page 175
9. **Show/Hide transparent panels**. See [Working with Parts and Panels](#) on page 182
10. The **Show/Hide Outlines** button adds the outlines of the Structural Design to the 3D preview.
11. The **Show/Hide 3D Guides** button. See [3D Guides](#) on page 200
12. The **Zoom Slider**. See [Changing the view in the 3D preview](#) on page 175

### 4.1.1. Refreshing

By **Refreshing**, the graphics will be (re)drawn on the box. Every time the graphics change, the Studio Window will only update if you click the Refresh button.


**Note:**

There are different ways to refresh:

- By clicking the **Refresh** button in the bottom left corner of the Studio Window
- By choosing **Window > Esko Studio > Refresh Studio**
- By using the shortcut **Cmd+Alt+6** (Mac) or **Ctrl+Alt+6**.
- 

## 4.1.2. Designer, Visualizer and Ray Tracing quality

By default, Studio shows a 3D preview in Studio Designer quality. This is the fastest and most basic 3D representation. Since it is the fastest, it is advised to use Designer quality while applying and adjusting the artwork on your 3D shape.

Once you get to the next step, you can switch to a higher quality. See [Step 3: Presenting](#) on page 211

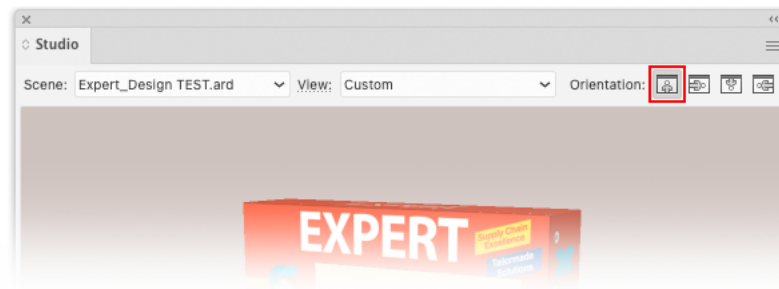
**Visualizer** quality gives a more realistic preview, and shows special effects such as transparency (of e.g. a glass bottle), the reflection on gold foil, etc. It takes more time than **Designer** quality, yet is fast enough to show the result in the Studio window. See [Visualizer Quality](#) on page 211

**Ray Tracing** quality offers photorealistic 3D previews, yet is time consuming to compute. The Studio window will show a low resolution preview, but the full quality of **Ray Tracing** quality can only be seen when exporting an image or image sequence. See [Ray Tracing Quality](#) on page 213

You can switch between the different qualities by selecting **Designer Quality**, **Visualizer Quality** or **Ray Tracing Quality** in the fly-out menu of the Studio palette, or by selecting the quality in the Studio Window settings panel, if no part is selected.

## 4.1.3. Changing the Document Orientation

Use the **Orientation** buttons at the top of the Studio Window to quickly rotate the complete document window. This can make it easier to edit graphics on a panel that is upside down in the file. By clicking the left-most orientation button, the document returns to its original orientation.


**Note:**

We strongly advise not to save the document while it is still rotated. Before saving the document, you should restore the original orientation. A message will pop up if you forgot to do this.

#### 4.1.4. Changing the view in the 3D preview

In the Studio Window, you can look at the package from different angles.

- You can click and drag to rotate the 3D object.
- You can hold the shift key and click and drag to move the 3D object left, right, up or down (Panning).
- By moving the slider in the bottom-right corner you can look at the box from a closer or further distance. Another way to do this zooming, is by using the mouse wheel.
- You can reset the camera position by double-clicking while holding the shift key.
- When in Visualizer or Ray Tracing Quality, you can click and drag with the right mouse button, or hold the Control key and click and drag to rotate the **Environment**. When in Ray Tracing Quality, you can only rotate the Environment horizontally. Double-click with the right mouse button or double-click while holding the Control key to reset the environment orientation. See also [Environment](#) on page 216


To indicate that the package is not floating in mid-air, the **floor** concept was introduced. A package in the Studio Window is always positioned relative to the floor, giving the package a top and bottom definition. If the package (currently only boxes) is showing the wrong panel as top panel, then you can use the **Turn Box** option. See [Turn Box](#) on page 185


**Note:**

When your box is facing the wrong way and when you have difficulty to turn your box upright, try using Turn Box... The turning around functionality has been designed in such a way that it works fine if you have selected the right bottom panel.

#### 4.1.5. Full Screen Mode

There are different ways to switch your Studio window to full screen mode:

- By clicking the "Full Screen Mode" button  at the bottom of the Studio window
- By choosing **Enter Full Screen** from the Studio Window fly-out menu

- By choosing **Window > Esko Studio > Enter Full Screen**
- By using the shortcut **F11** on Windows or **Cmd+Alt+-** (minus) on Mac

When full screen mode is activated, you can only change the camera rotation, panning and environment rotation. You can get out of full screen mode by pressing the **esc** key.

## 4.1.6. The Studio Window options panel



By clicking the Maximize button in the top left corner of the Studio window, you can open the Studio window options panel at the top of the Studio Window.

This panel contains different pages:

- The **No Selection** page, shown if nothing is selected. See [No Selection options panel](#) on page 176
- A page for every **Printable part** in the scene. See [Printable Part options panel](#) on page 176
- A page for every **Non Printable part** in the scene. See [Non Printable Part options panel](#) on page 177

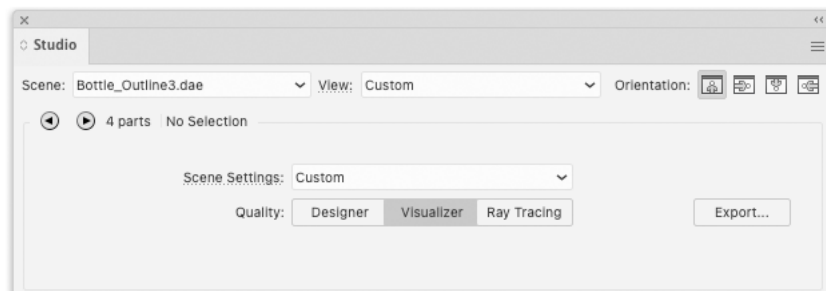
What page is shown, is connected to the current selection. Changing the selection will change the page, and changing the page (using the arrow buttons) will change the selection.

The options panel will always show the amount of parts in the scene.

For more information on navigating and selecting panels or printable parts, see [Selecting Parts and Panels](#) on page 182

### No Selection options panel

If no part is selected, the Settings panel shows a number of options:

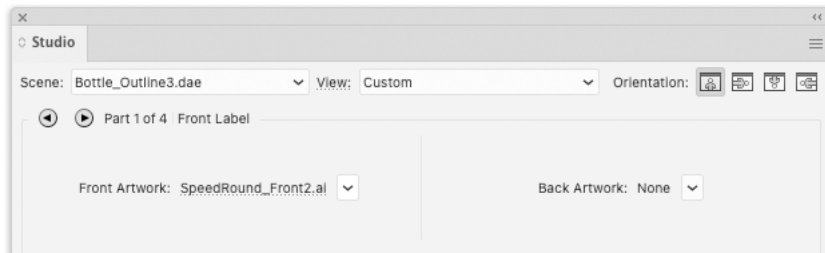


- A dropdown to select predefined **Scene Settings**, and a direct link to open the **Scene Settings** dialog. See [Scene Settings](#) on page 216
- The choice between **Designer** quality, **Visualizer** quality and **Ray Tracing** quality. See [Designer, Visualizer and Ray Tracing quality](#) on page 174
- The **Export** button. See [Step 4: Share](#) on page 242

### Printable Part options panel

If a Printable Part is selected, the settings panel will show the name of the part next to the parts browser.





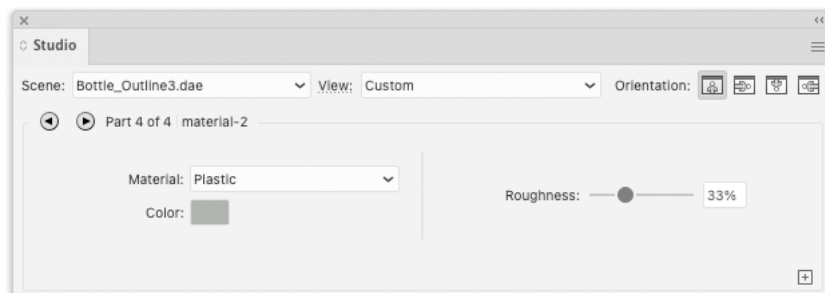
If the printable part has artwork, a link to the corresponding Adobe Illustrator file is shown. Clicking it will give the same result as double-clicking the printable part: the corresponding Adobe Illustrator file will become active and visible.

If the artwork document is missing, "None" appears instead of its name. You can choose to create a new document for this artwork, or place it in the current document. You have the same options when you double-click the printable part in the Studio window.

If the printable part has a back, two links are shown, one for the front and one for the back artwork.

## Non Printable Part options panel

If a Non Printable Part is selected, the settings panel will show the name of the part next to the parts browser.



For each of the non printable parts, you can set the material to use for the selected non printable part.

In the dropdown, you can choose:

- Any of the **Materials**, such as glass, plastic, .... See [The Materials](#) on page 178
- **Legacy Plastic**. See [Legacy Plastic](#) on page 178
- **Revert to Structural Design**, to reset the color to the original values of the material as defined in the structural design file
- **Material Presets** to open the Material Presets palette, that contains predefined presets as well as Material Presets you store yourself. See [Working with Material Presets](#) on page 179

By clicking the **+** button in the bottom right corner of the Non Printable Part option panel, you can store the current material (e.g. Cloudy Plastic) with its parameters (e.g. color, roughness, ...) in the **Material Presets**. This allows you to store and later reuse the combination of a material and its parameters. See [Working with Material Presets](#) on page 179



**Note:** You can't save a preset based on legacy plastic.

## The Materials

The available materials correspond to real materials (plastic, glass, metal, etc...) and their properties. These materials automatically adjust to the capabilities of the chosen quality (Designer, Visualizer, Ray Tracing). For example: Designer won't show transparency.

Clear Plastic, Cloudy Plastic, Glass, Liquid and Cloudy Liquid describe transparent materials and should be used on closed shapes, especially in Ray Tracing quality. (see [Create a profile path for liquids](#) on page 101 for an example)



**Note:** The **Roughness** range of Glass, Clear Plastic and Cloudy Plastic is more limited than for opaque materials such as Plastic and Metal. Due to technical limitations, roughness values outside this limit would result in physically implausible images.

When using Ray Tracing quality, you can set the **At thickness:** With clear plastic, colored glass or liquids, the density of the color changes with the thickness of the material. The **At thickness:** defines the required thickness for the material to reach its color against a white background.

For cloudy liquids, the **color** is an approximation of how a very thick slab of this material would look like.



**Note:** When other geometry intersects with a Cloudy Plastic shape, artifacts (dark spots) might appear within the Cloudy Plastic.

## Textures

If the **Material** is set to **Plastic**, you can assign a **texture** to the plastic.

1. Click the **Color** patch
2. Select the **Texture** tab
3. Click **Choose Texture** and select the texture file to use.
4. Click **OK**

The repetition of the texture is based on its physical size.

You can switch back to a solid color by selecting the **Solid Color** tab.



**Note:**

To render textures correctly, an object needs **texture coordinates**.

- For revolved objects texture coordinates are generated when they are revolved in Toolkit 23.03 or higher.
- Revolved objects created in older Toolkit versions can be resaved to get texture coordinates.
- Revolved objects made in the Studio Toolkit for Labels plugin for Illustrator do not have texture coordinates.
- Other third party objects can have texture coordinates if the 3D artist provides them.

## Legacy Plastic

The Legacy Plastic material is built around the capabilities of Visualizer quality. For Ray Tracing quality this material is insufficient and will fall back on an opaque plastic appearance. Use this material type if

you do not plan to render your scene in Ray Tracing quality and if you want full control over all rendering parameters.

Otherwise we recommend that you use the other materials. They are easier to configure and can be used across Designer, Visualizer and Ray Tracing quality.

For Legacy Plastic, you can set the following properties:

1. the **Color** (the diffuse component);
2. the **Transparency** (the alpha channel of the diffuse component, only available in Visualizer quality),
3. the **Highlight Color** (the specular/reflection component, only available in Visualizer quality),
4. the **Intensity** of the reflection (the value of the specular component, only available in Designer and Visualizer quality)
5. the **Sharpness of reflection** (shininess)

### **Working with Material Presets**

Using the **Material Presets**, you can store and reuse the combination of a material (e.g. Cloudy Plastic) and its parameters (e.g. Color, Roughness, ...) used for non-printable parts.

After installing Studio and launching Adobe Illustrator, the Material Presets will contain a list of predefined presets. These can be handled as regular presets, and give an example on how material parameters can be used to get a specific appearance.

- You can open the **Material Presets** dialog by choosing **Window > Esko Studio > Material Presets** or by using its shortcut **Cmd+Alt+=** (Mac) or **Ctrl+Alt+=** (Windows)



**Note:** In the **Fly-out** menu, you can set the view mode: choose between **Small List View**, **Large List View** or **Grid View**

- Add a Material Preset by clicking the + button in the Non-Printable Part panel in the **Studio window**. The Material Preset will use the current settings of the Non-Printable Part. See [Non Printable Part options panel](#) on page 177
- Apply a Material Preset to the currently selected Non-Printable Part by clicking the Material Preset in the list
- Rename a Material Preset by double-clicking it in the list
- Remove a Material Preset by selecting it and clicking the **Delete** button or choosing **Delete Material Preset** from the fly-out menu.



**Note:** If you rename or delete a predefined preset, it will not be reinstalled automatically. You can however edit the "PresetsConfig.txt" file. See below.

The Material Presets are stored as separate files that can be found here:

- On Macintosh: Macintosh/Users/user/Library/Application Support/Esko/Studio/Material Presets/
- On Windows: C:\Users\user\AppData\Roaming\Esko\Studio\Material Presets\

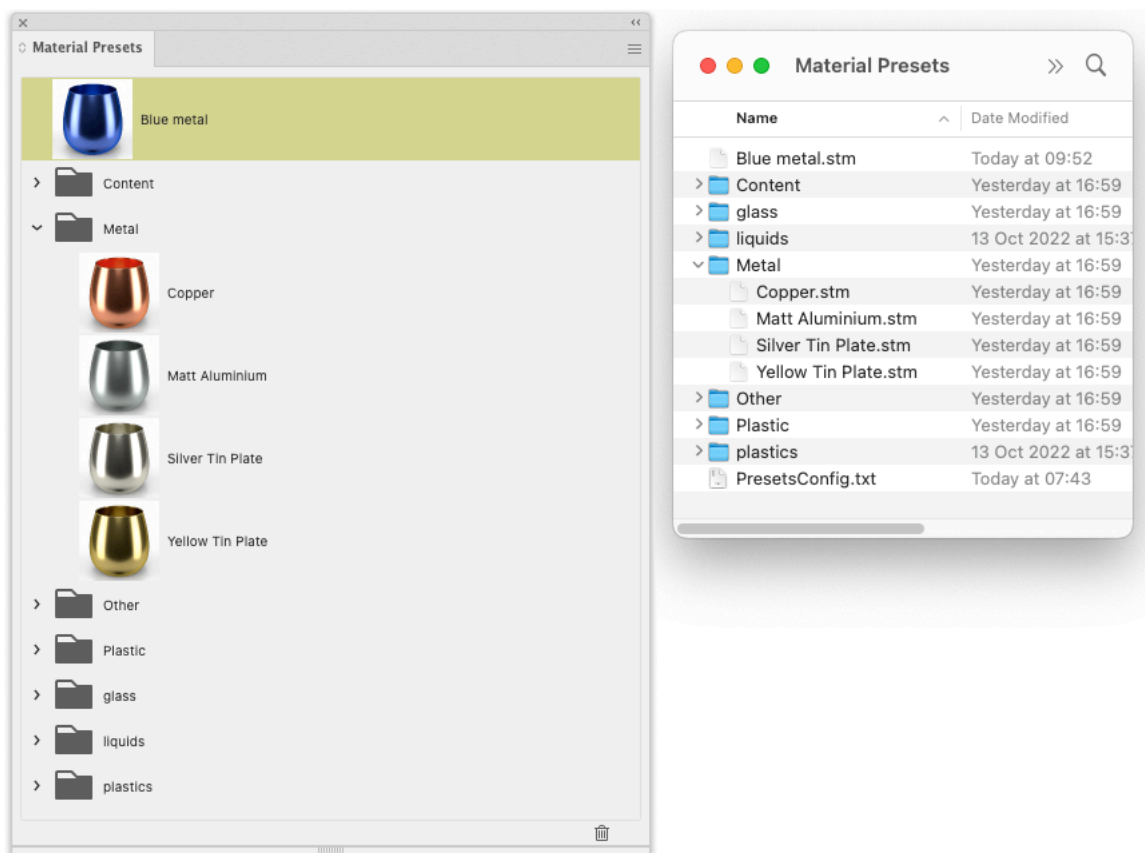


**Tip:** You can easily reach that folder by selecting **Show in Finder** (Mac) or **Show in Explorer** (Windows) in the fly-out menu of the Material Presets palette

You can exchange the Presets between different operators by copying the files to another computer.

The Material Presets palette represents the content of the Preset location. This means that you can use Finder / Explorer to rename, duplicate or remove Presets.

By creating subfolders, you can create groups in the **Material Presets** list.



The **PresetsConfig.txt** file contains a list of all predefined presets that were already installed. This means that if you remove an entry from the list, it will be reinstalled when relaunching Adobe Illustrator. This can be used to reinstall predefined presets that were deleted or renamed.



**Note:**

**Editing** a Material Preset is not supported. What you can do is:

1. Apply the Preset to a Non-Printable Part
2. Change its parameters
3. Save it as a new Preset.



**Note:** These presets are shared with the Studio Toolkit Application, so you can use the same Presets on your system in both Adobe Illustrator as in the Studio Toolkit Application. Managing and creating presets is only possible in Adobe Illustrator.

### Send Non-Printable Materials to Toolkit

Using **Send Non-Printable Materials to Toolkit** you can store the material settings you defined in Adobe Illustrator into the structural design file.

1. Set the non-printable materials in the Non Printable Part options panel. See [Non Printable Part options panel](#) on page 177
2. In the fly-out menu of the Studio window, choose **Send Non-Printable Materials to Toolkit**



**Note:** When the non-printable parts have the same material assigned as defined in the structural design file, the option will be disabled.

The structural design file will be opened in Studio Toolkit, and the new materials are shown for the object.

3. In Studio Toolkit, save the structural design as a Collada File.

This new Collada file will contain the new materials. When this file is placed in Adobe Illustrator or imported in Studio Toolkit, it will have the new materials assigned.

## 4.2. Working with Parts and Panels

A box design and a bag design consist of a set of **panels** which are folded relative to each other.

Some of the Studio Toolkits can produce Collada files with more than one **Printable Part**.

While **panels** of the same side are in one single Adobe Illustrator file, you can have a separate file for the Front and the Back side. Also, every **Printable Part** will have its own Adobe Illustrator document. For more information on working with multiple documents, see [Scenes and Multiple Documents](#) on page 219

### 4.2.1. Selecting Parts and Panels

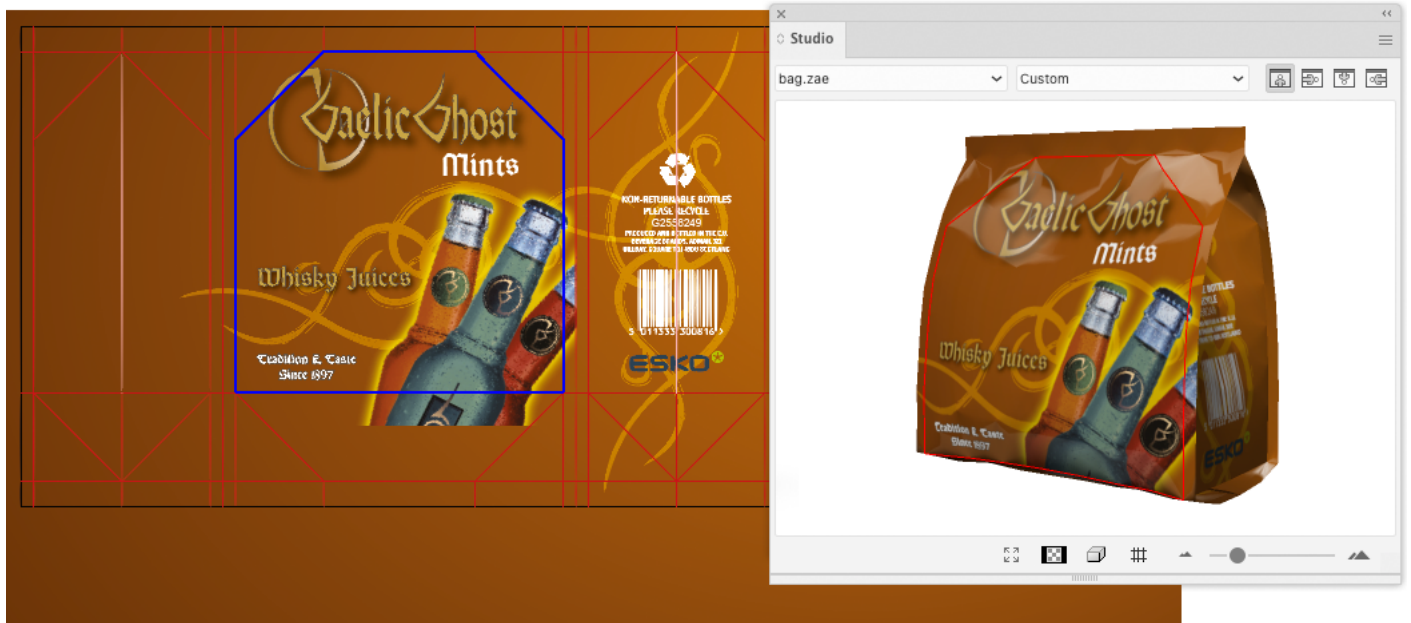
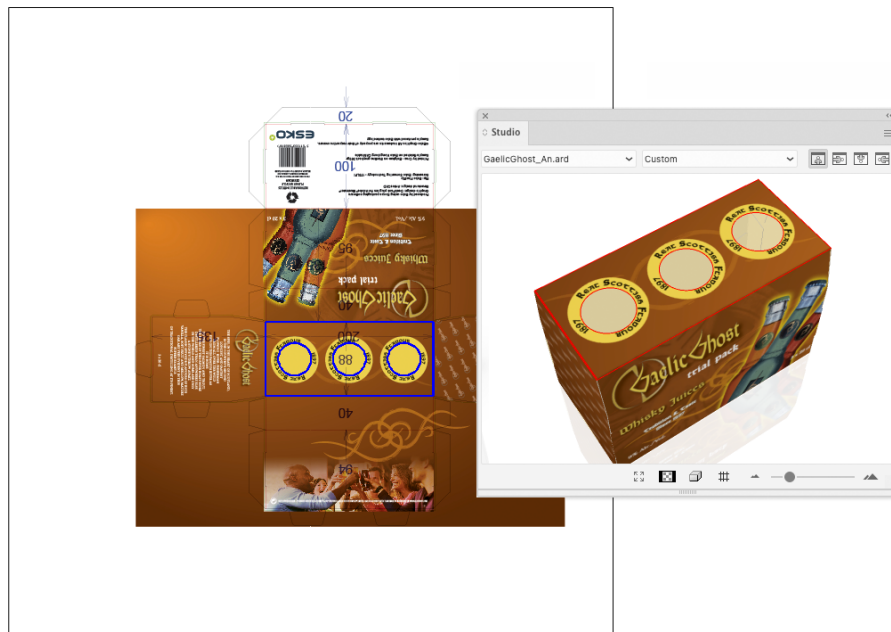
You can select parts and panels by clicking on them in the Studio window. The selected panel is used by certain Studio features and does not affect the selected artwork.

- A Printable part or panel will be selected in red. When selecting a non printable part, all non printable parts sharing the same material will be highlighted in orange. For multiple instances (e.g. multiple cans on a tray), only the printable parts of the original instance will be highlighted.
- If the selected part or panel is in your current Adobe Illustrator document, **Show Face Outline** (in the fly-out menu) ensures that the selected panel is also shown in your document as a blue solid line.
- By holding the option (Mac) or alt (Windows) key and clicking a panel or part one or several times, you can select a panel or part that is behind another one.

See also:

- [Zooming in on Panels in the document window](#) on page 184
- [About Hidden Panels](#) on page 184

- [Scenes and Multiple Documents](#) on page 219




**Note:**

Sometimes a dotted line appears next to the solid one. This is the case when you select a panel that is also part of a **composed face**.

## 4.2.2. About Hidden Panels

Some panels cannot be seen in the Studio Window because they are covered by another panel no matter which angle you are viewing the package from. To see those panels, you can choose **Show Transparent Panels**, which is available at the bottom and from the Studio Window fly-out menu. In this mode the package is drawn in a semi transparent way, allowing you to see covered panels. This will help you to understand how the package's 2D unfolded view and the 3D view relate to each other.



By holding the option (Mac) or alt (Windows) key and clicking a panel one or several times, you can select a panel that is behind another panel.

## 4.2.3. Zooming in on Panels in the document window

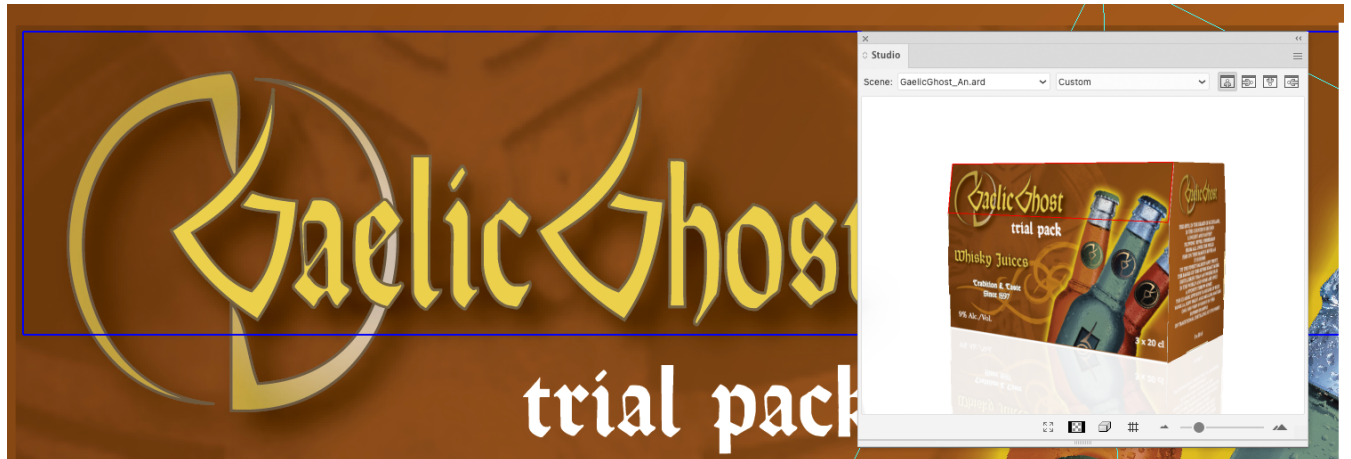
If you double-click a panel (or if you select **Fit Panel in Document Window** from the Studio Window's fly-out menu), the document window will zoom in on the corresponding part of the graphics.

If your graphics are in another document, then this document will become active. See [Scenes and Multiple Documents](#) on page 219

Furthermore, the orientation of the document window will change to match the orientation in the Studio Window as closely as possible.

You can also zoom in by holding down the Cmd (Mac) or Ctrl (Windows) key and dragging a rectangle around the area you want to zoom in on.





By spinning the package and double-clicking the different panels, the Studio Window can be used to navigate through the document.

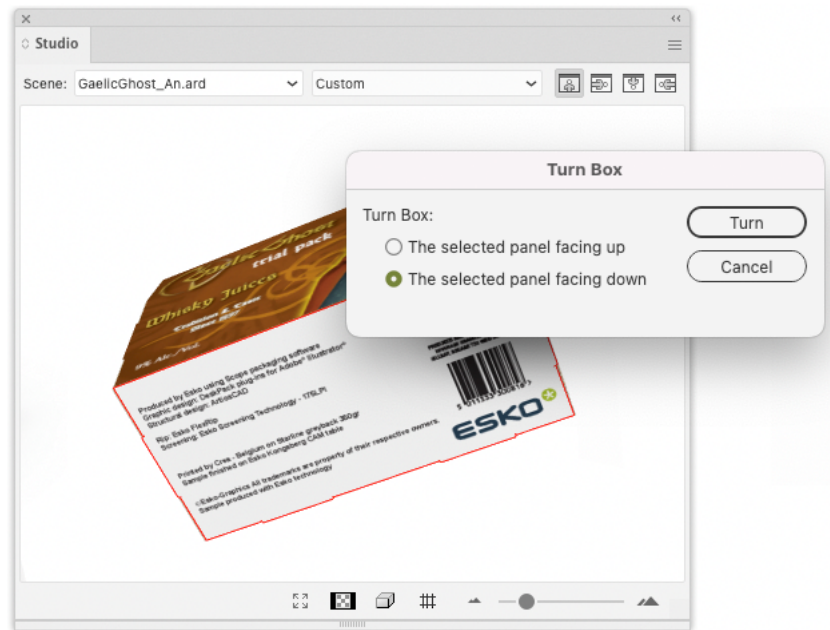
#### 4.2.4. Turn Box

When working with designs for folding carton or corrugated boxes, you might not be able to position the box in the desired viewing angle in the Studio Window. This happens when the package has the wrong panel(s) facing up. You can change this e.g. in the structural design file (by selecting another Base Panel in ArtiosCAD), but you can also turn the box in the Studio Window. Just select a panel that should be facing up or down and select **Turn Box** from the Studio fly-out menu. The Turn Box functionality is linked with the Floor concept, so e.g. **The selected panel facing up** means that the selected panel will become the top panel relative to the floor.



**Note:**

The Turn Box option is only available for boxes (ARD files)



#### 4.2.5. Bring Panel Forward and Send Panel Backward

This functionality is only available for ARD and ACD shapes. It can only be used on boxes and composed faces of which the panels are all in the same plane. Overlapping panels in the same plane can occur in any file. Sometimes the order of these overlapping panels is incorrect. Most of the time, this will happen when the panels have been folded 90 degrees on top of each other. With **Bring Panel Forward** and **Send Panel Backward**, you can correct this order.

If you wish to view another panel on top, you can select the panel, select **Bring Panel Forward** from the Studio fly-out window and bring it forward.



**Note:**

When opening an Illustrator file saved in an earlier version of Studio Designer (without "Board Thickness"), the Bring Panel Forward and Send Panel Backward information from this file will be lost.

#### 4.2.6. Creating Copies with the Distribute command

Most of the faces of a package consist of a single panel. So there is just one rectangular area in the document that will make up this face. However, sometimes a face is made of several panels. The panels of such a "composed face" are spread across the document. They can even have a different orientation. So for composed faces it is very difficult to create graphics that run continuous from one panel into the other. Studio can help you in this process with a feature called **Distribute**.



**Note:**

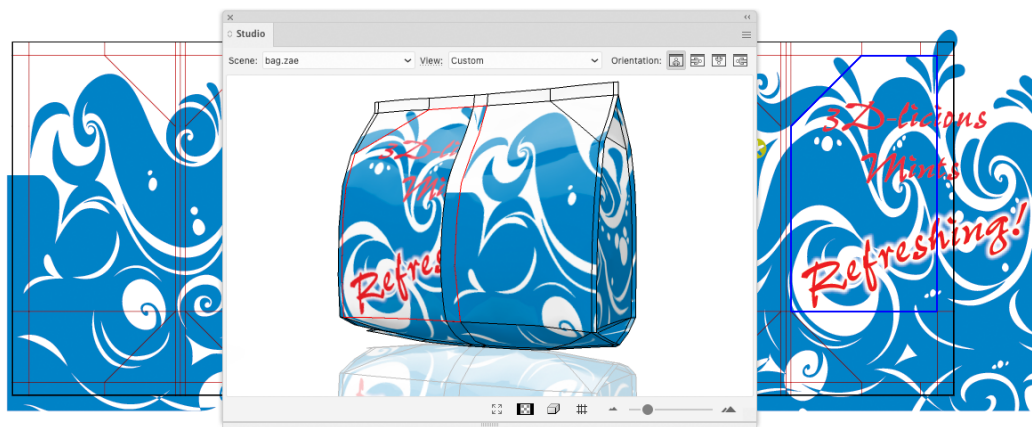
You can use Distribute on .ard and .acd files but not on Collada files.

## Composed Faces

This is an example of a box with composed faces.-



This is an example of a bag.



## Viewing the Composed Face

If you select **Show Face Outlines** in the Studio fly-out menu and you click one panel that is part of a composed face, 'ghost' outlines will be drawn of the other panels of that face. These ghost outlines can give you a good impression of the size and shape of the composed face.



## Distribute

If you draw some art within the boundaries of such a composed face, it will only appear on one panel, since the other panels are actually somewhere else in the Illustrator document. However, with **Distribute**, you can create copies of the art over several panels that are perfectly aligned to make it look continuous on the folded composed face.

This is how the folded package will look without applying Distribute.



**Distribute** is available from Studio's fly-out menu. First you need to select art in the document and you need to select the corresponding panel in the Studio Window. The selected art is supposed to be positioned correctly on the selected panel. If you choose **Distribute**, copies will be made of the

selected art for the other panels (of the same composed face). After refreshing the Studio Window you can see how the graphics are running seamless from one panel into another.

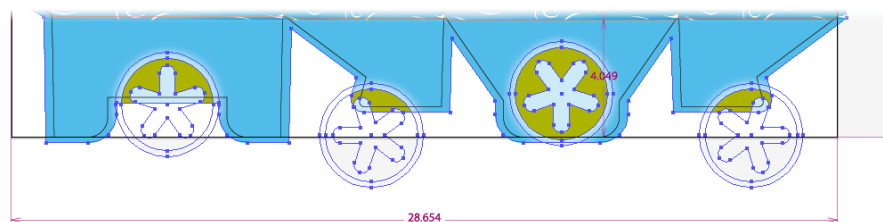
Normally, distribute will make a copy of the selected objects for every panel in the composed face (unless there is no overlap). If you do not need all these copies, you can simply delete the ones you do not need.

This is how the folded package will look when having applied Distribute.



## Making Clipping Masks

It is very likely that one or more of the copies lay partially outside of the panel they were created for. Sometimes this is a desired effect (having the graphics run continuously over a folding line). Sometimes this is not a desired effect and you will have to create a clipping mask to contain the copy within its panel.



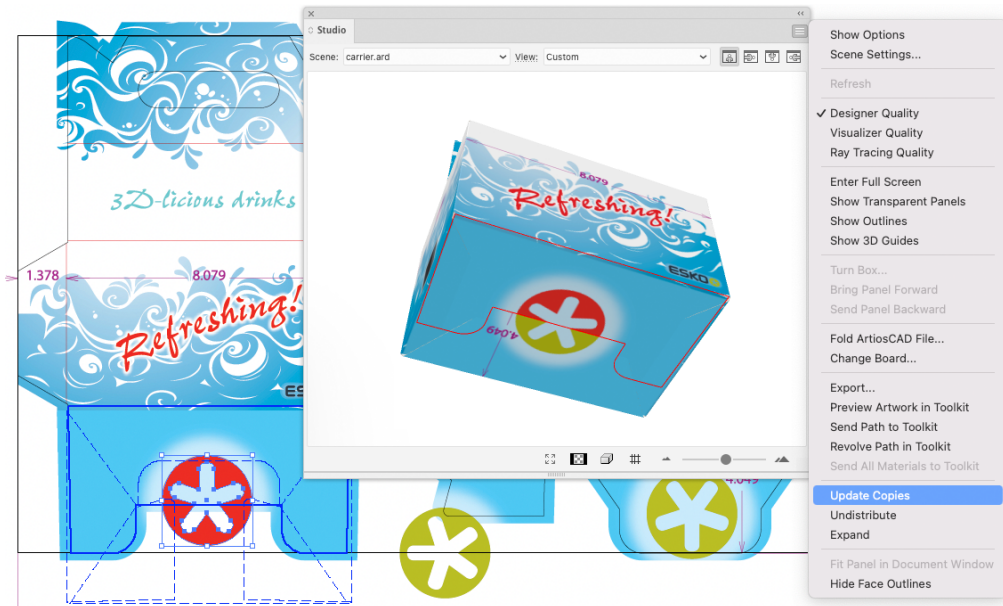
## Working With Distributed Art

You can update the copied distributed art, for example after you have edited the original art; or you can undistribute and expand distributed art if you want to delete the copies.

### Update Copies

After a 'distribute', you will have the same art appearing several times in your document. If you change one of them, the others will not be updated automatically. To have them updated, select **Update Copies** from Studio's fly-out menu. When updating copies, the selected one is used to recreate all the other copies.

This is how the package looks before updating.



This is how the package will look after updating.



## Undistribute and Expand

The options **Undistribute** and **Expand**, which can be found in Studio's fly-out menu also apply to distributed art. If you select distributed art and you **Undistribute**, all other (non-selected) copies are deleted. If you have distributed art selected and you **Expand**, nothing will change visually yet the selected art will lose its 'intelligence' and become regular artwork, insensitive to actions like **Update Copies** or **Undistribute**.

You will need to use **Expand** if you start copying and pasting distributed art. The copy will still be considered as part of a distribution, by expanding it, it will no longer be seen as a distribution, but as an ordinary object.



### Note:

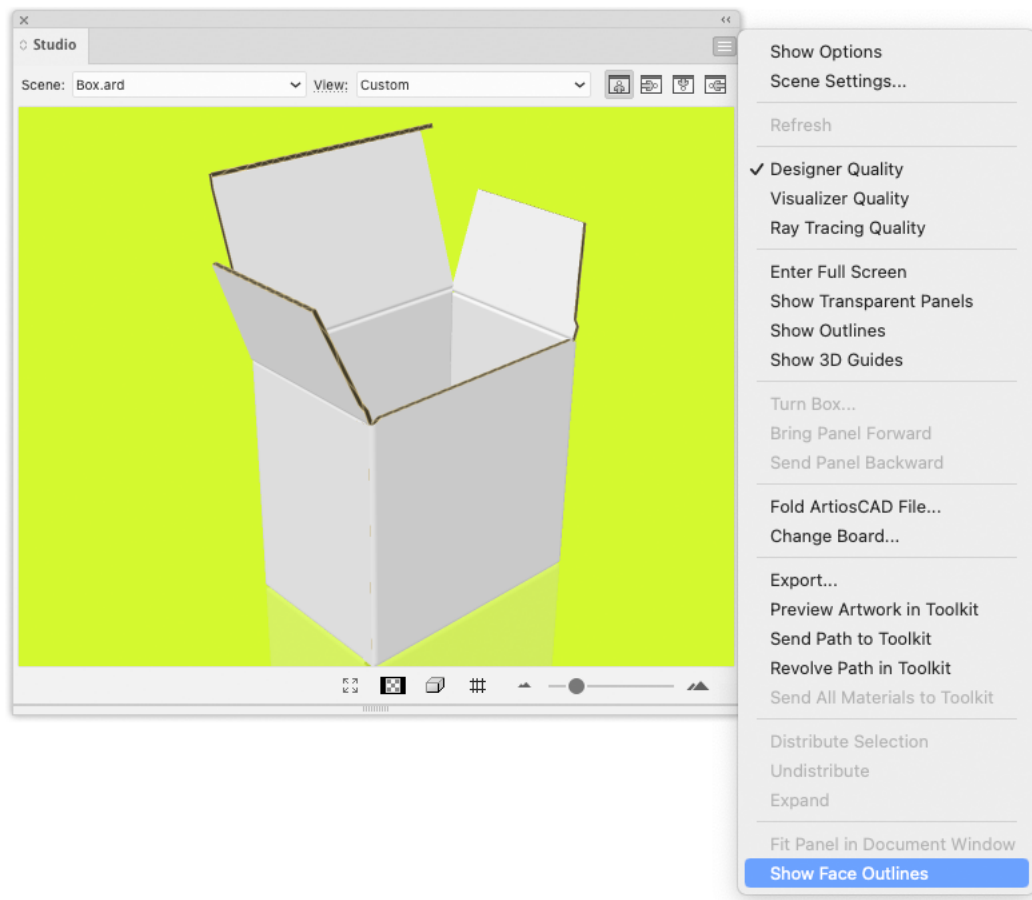
When the distributed art is a group, ungrouping it is equivalent to applying **Expand**. The art does not longer know that it was distributed, even if you group it again.

## There is no overlap between the selected objects and the selected panel

I try to distribute a logo, and I am getting the error message `There is no overlap between the selected objects and the selected panel. Please select a panel that overlaps with the selected objects..`

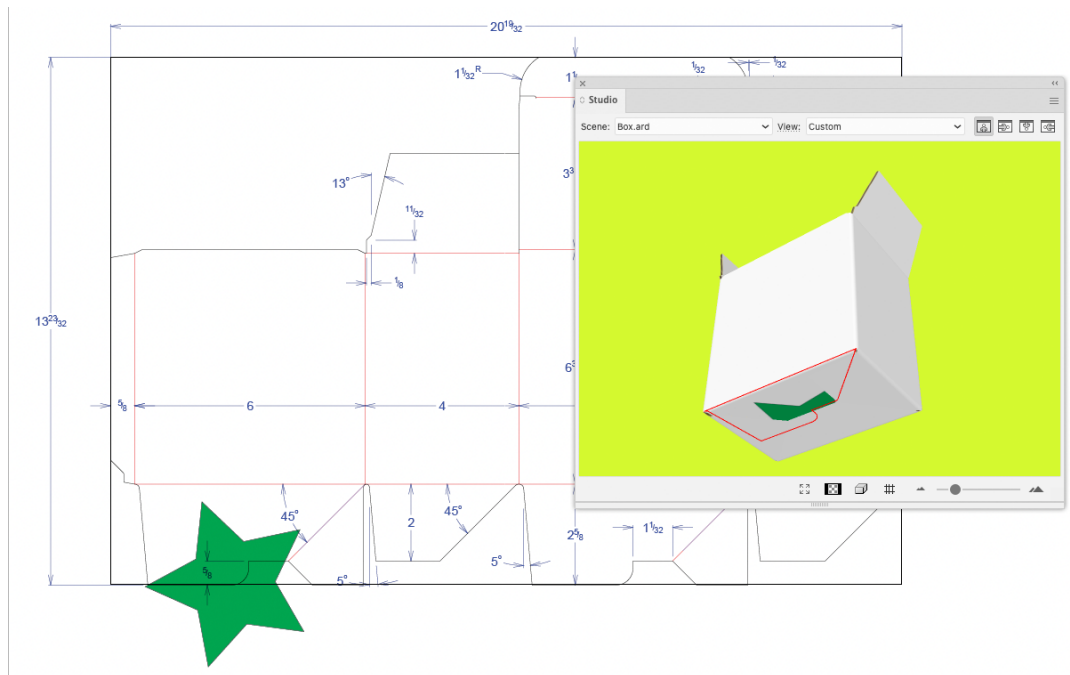
Whenever distributing for the first time, you will need to select two things: the graphics that you want to distribute in the 2D view AND the source panel in the Studio window. The 'no overlap' error message indicates that you did select a panel in the Studio window, but in 2D there is no overlap between the selected panel and the selected art.

It is a good idea to switch on **Show Face Outlines** in Studio's fly-out menu.

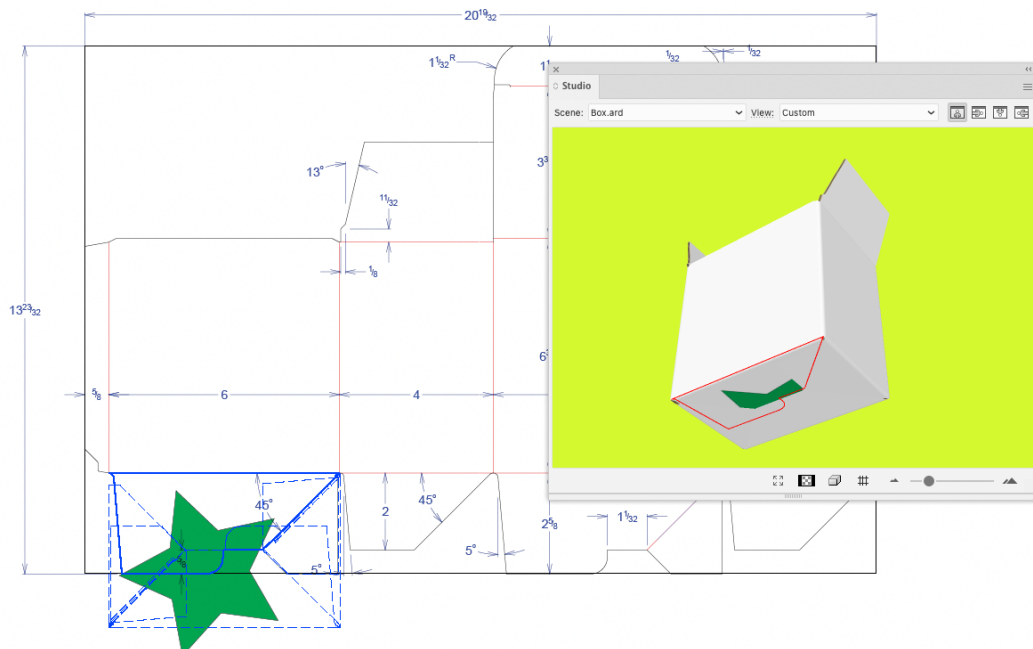


When **Show Face Outlines** is switched on, the selected panel in the Studio window will be shown in the 2D View:

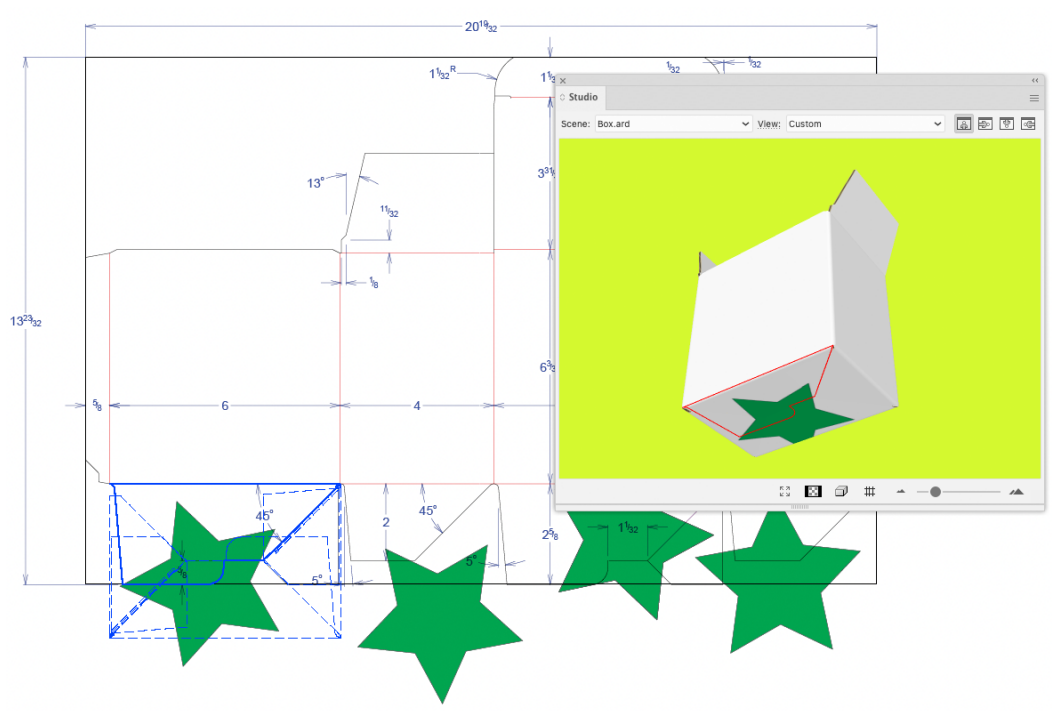




You will immediately see that there is no overlap between the selected panel (the blue rectangle) and the selected art (the star), so you basically selected the wrong panel. You need to select a panel that has an overlap with the selected art:



Now you see that there definitely is an overlap between the blue rectangle and the star. You will notice that **Distribute Selection** will work, which will give you the following result:



Please note that you never had to specify to which ‘target panel’ you had to distribute, so how can you know which target panels will be taken?

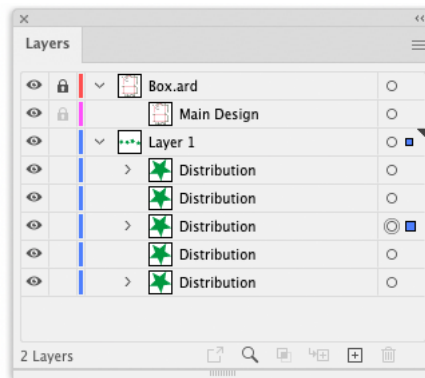
In this version of Studio, the distribute functionality only works on coplanar panels. The bottom face consists of four panels coming together: two glue panels and two larger panels. The selected panel is drawn with a solid blue line in the 2D View, the other panels that are coplanar with it are drawn with dashed lines. Distribution happens from the panel drawn with a solid blue line to the panels drawn in dashed blue lines.

That is why **Show Face Outlines** is so interesting, as it immediately gives you an indication whether or not distributing is at all possible and to which panels the distribution will happen.

If we move one of the stars and do an update, you will notice that the three other stars need to move as well. It is now enough to select the moved star and click **Update Copies**. You will notice that **Distribute Selection** is now called **Update Copies**. There is no need anymore to select a panel in the Studio window.

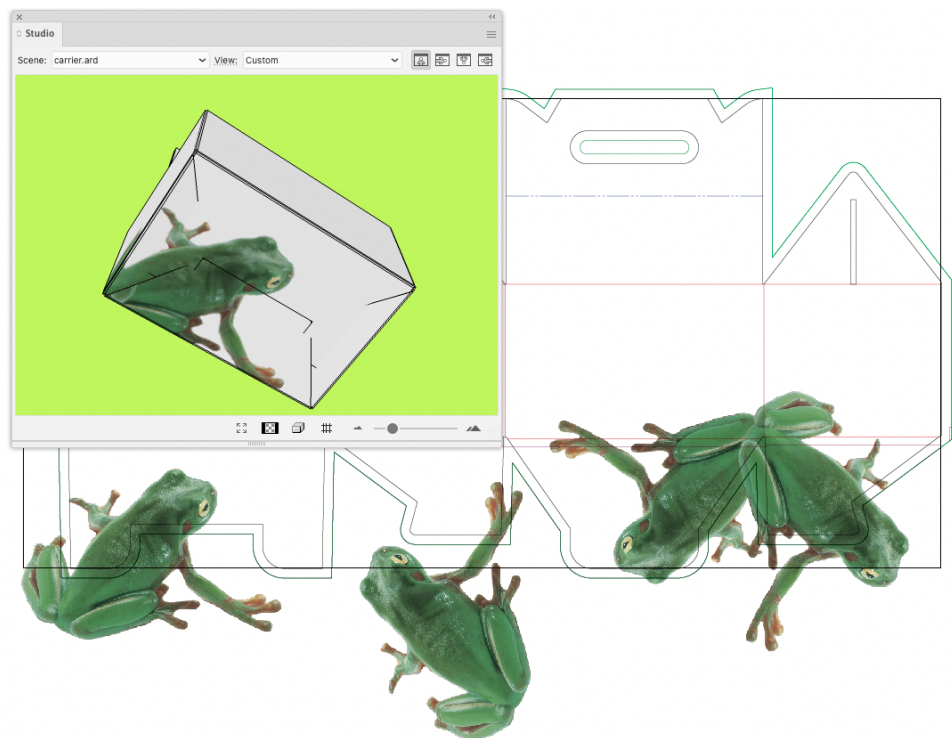
The selected art knows that it has been distributed before. This piece of distributed art has become a smart object that knows to which panel it belongs and which other art belongs to the same distribution. When clicking **Update Copies**, the other art that belongs to the same distribution (in our example, the other stars) will be replaced with a new updated copy of the selected distributed art.

In the layer browser, you have an indication which art is “distributed art” and hence smart. The name of distributed art is always “Distribution”.



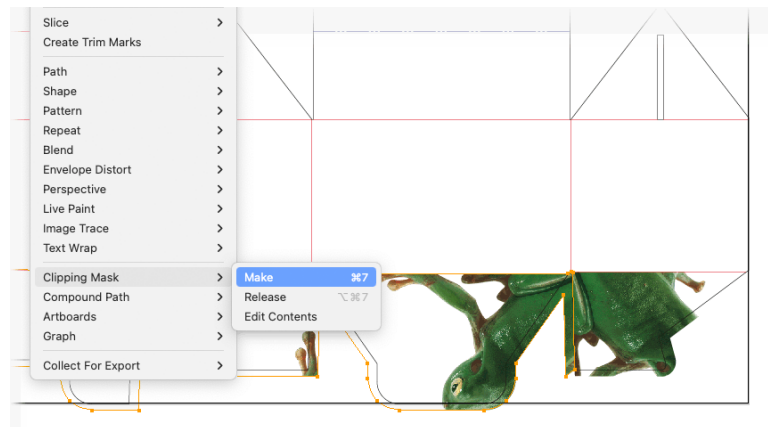
### What can I do if the distribution looks wrong?

The graphics have been distributed to the correct coplanar panels, but the result of the distribution in the Studio window is still not correct.



In this case it is not that the distribution has positioned the copies in the wrong place, but that in the 2D document window, the different copies are overlapping one another. This can happen whenever the graphic that you want to distribute is rather large. We will need to make clipping masks in this case, using the standard tools.

In the picture below, we are zooming in on one of the distributed copies, made a clipping mask with the appropriate tool, selected both the graphics and the clipping mask and clicked **Clipping MaskMake**.



If we do this for every distributed copies and then refresh the Studio window, we will get the correct result:

You only need to make the clipping masks once. Assume you would like to move the frog a little, then simply move one copy and click **Update Copies**. The other copies will also be updated and they will keep their position under their clipping masks.



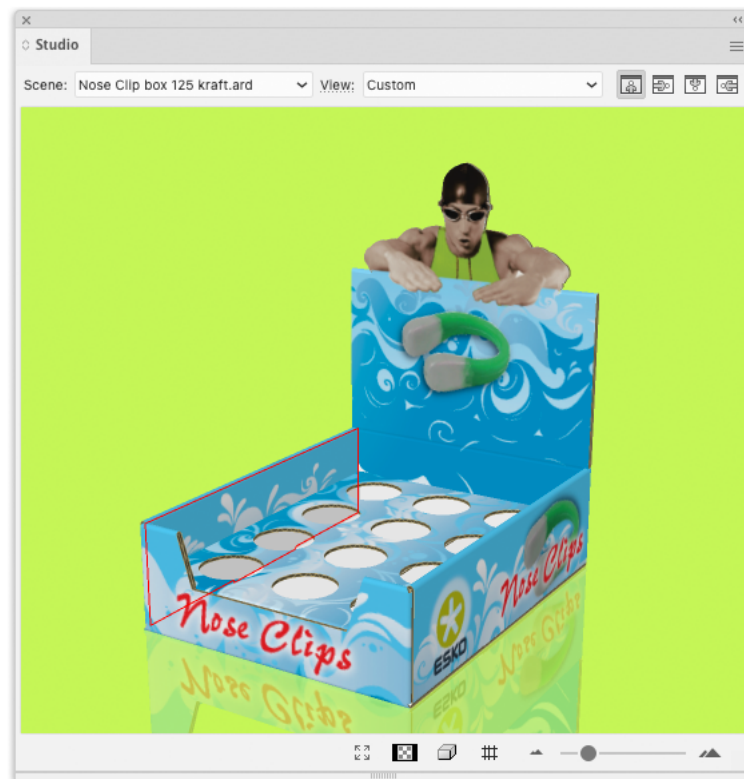
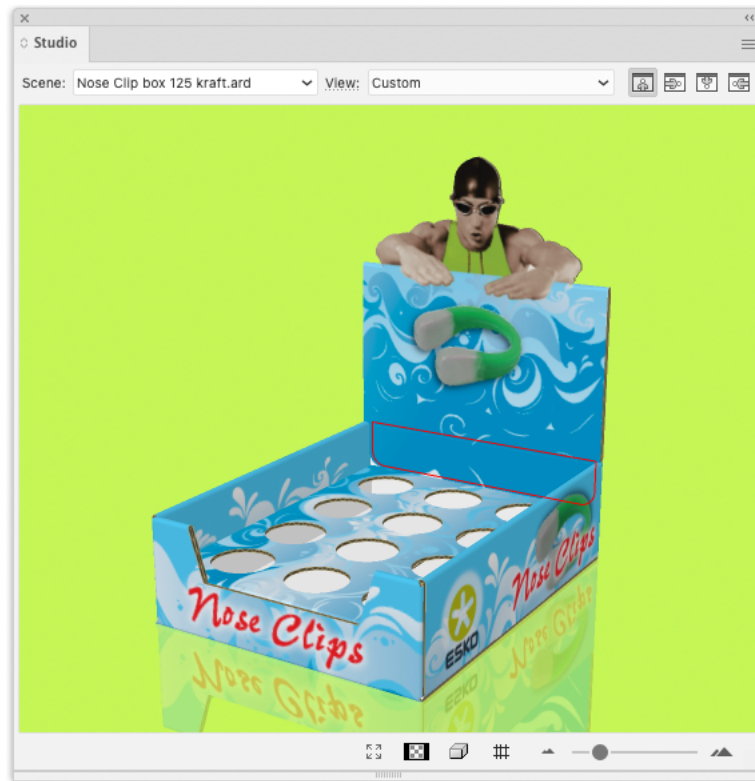
**Note:**

When using ard files there is an easy way to create a clipping path to clip objects on the e.g. Bleed Outline. Use **Expand Structural Design Layer** functionality to e.g. expand the bleed outline to use that path as a clipping path. See the Esko Data Exchange documentation for more information.

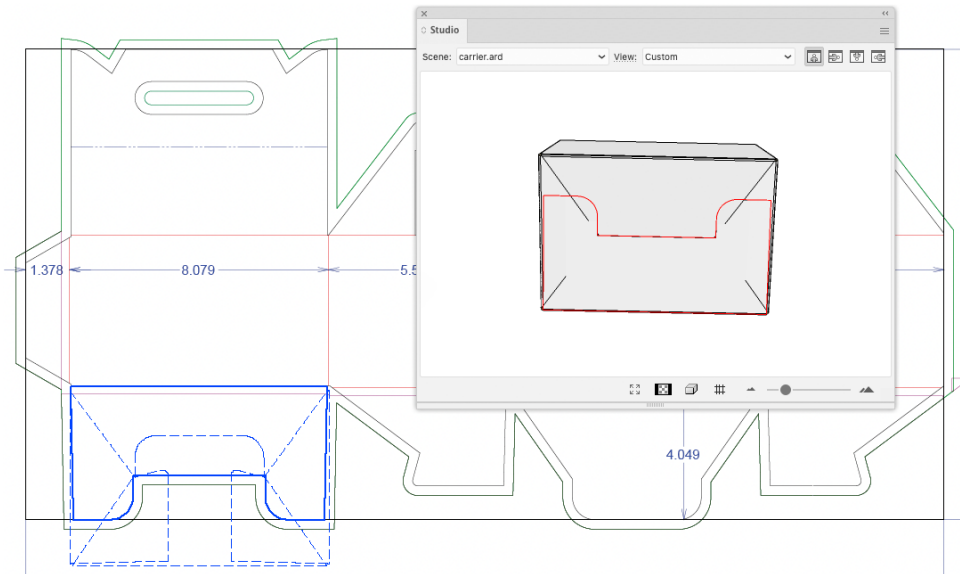
**How can I distribute around a corner?**

Distributing is only possible to other coplanar panels. Sometimes a distribution appears to go around the corner, but this only works if a panel that is attached to the panel around the corner is coplanar with the selected panel.

This is not the case with the box in the next example.



In this version of the software, we are not capable of doing this with the automatic distribute. We have limited the distribution functionality to panels that are coplanar. A face in the Studio window can be made up of different panels coming together. A beautiful example is the bottom of the box in the picture below.



The bottom of this box consists of four panels coming together. If you select **Show Face Outlines** in the Studio's fly-out menu, you will see blue lines showing up in your 2D Document Window. The solid blue line is a reflection of the selected red panel in the Studio Window. The other panels that are coplanar with the selected panel and that together form the bottom face, are drawn on top of that in dashed lines. If you were to draw some graphics and click **Distribute Selection** then the graphics would be copied and pasted to the three other panels that are coplanar with the selected one. Those three panels are shown with dashed blue lines in the 2D Document Window.

In the following example, we would like a distribute from one panel to another that is adjacent to the first in the Studio Window, but they are not at all coplanar. On the contrary, the angle between the two panels is 90 degrees. As automatically distributing will be impossible in this case we will have to do the copying, rotating and pasting of the graphics ourselves. The **Create 3D Guide** option can be a solution.

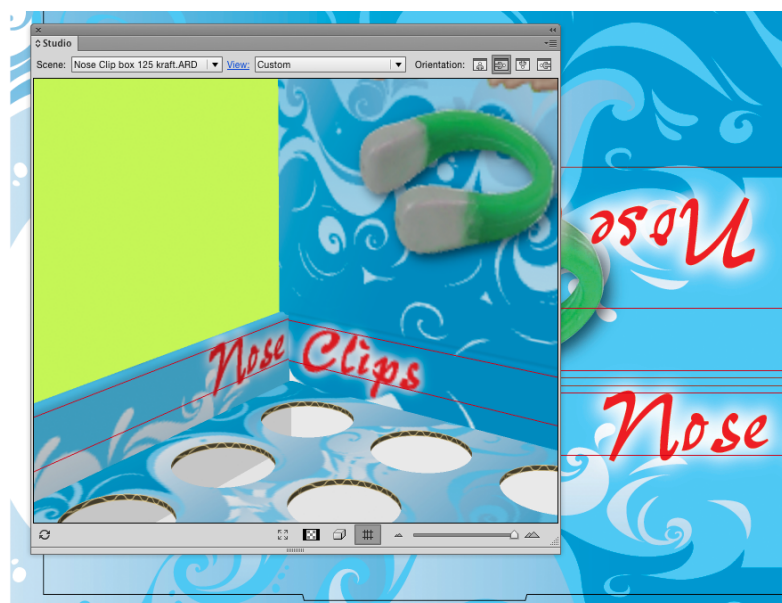
You could create a 3D Guide in the back inner panel and that is immediately going to create extra guides in the other panels that the guide plane intersects with.

You could now design your graphics in the back inner panel. You do not need to do this upside down as double-clicking on the panel in the Studio Window will rotate the whole job. You can also rotate your job manually using the orientation buttons in the right top of the Studio Window.

We will add some text to this panel that also needs to extend into the other panel.



We will now copy the text, double-click the other panel in the Studio Window where you would like the text to be pasted, paste the text, rotate it and position it correctly on the guide:



Of course you will still need to refresh the Studio Window more than once, before you will have found the exact position of the text on the second panel.

## 4.3. 3D Guides


In Illustrator, PackEdge, ... you can create horizontal and vertical Guides to align art. Studio offers another type of guides: 3D Guides for boxes and Collada files.

3D guides appear both in the document window and in the Studio Window.



**Note:** 3D guides are temporary visual aids, and are NOT saved.

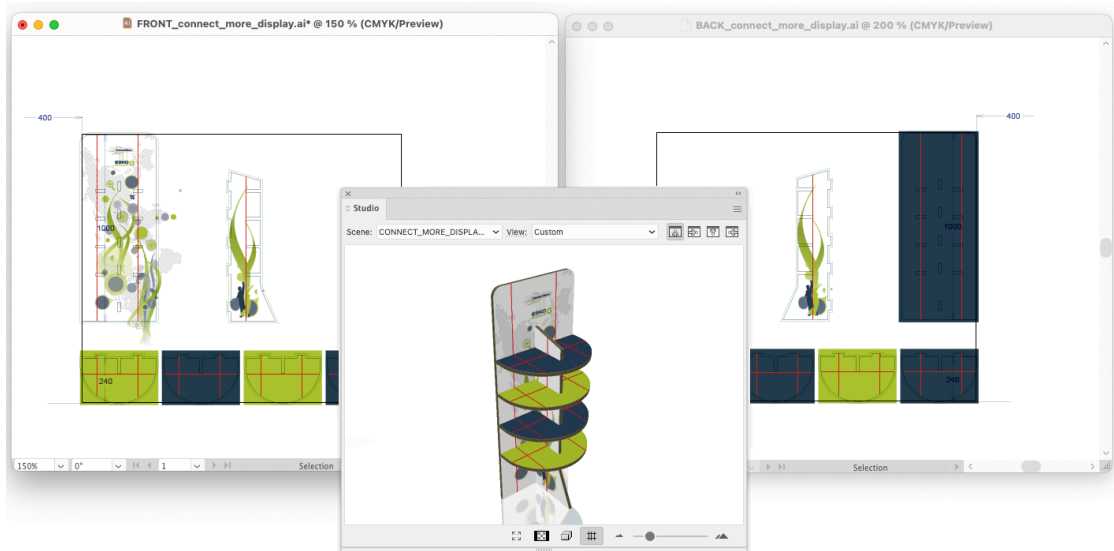
You can hide or show the 3D guides in the document window using the application's View settings, by selecting **View > Guides > Show Guides**.

Select **Show/Hide 3D Guides** from the Studio fly-out menu or click the button at the bottom  to hide or show the 3D guides in the Studio Window.

If you are looking at a multi-part shape in the Studio window, the 3D guides will intersect the different parts, and result in guides in multiple documents.

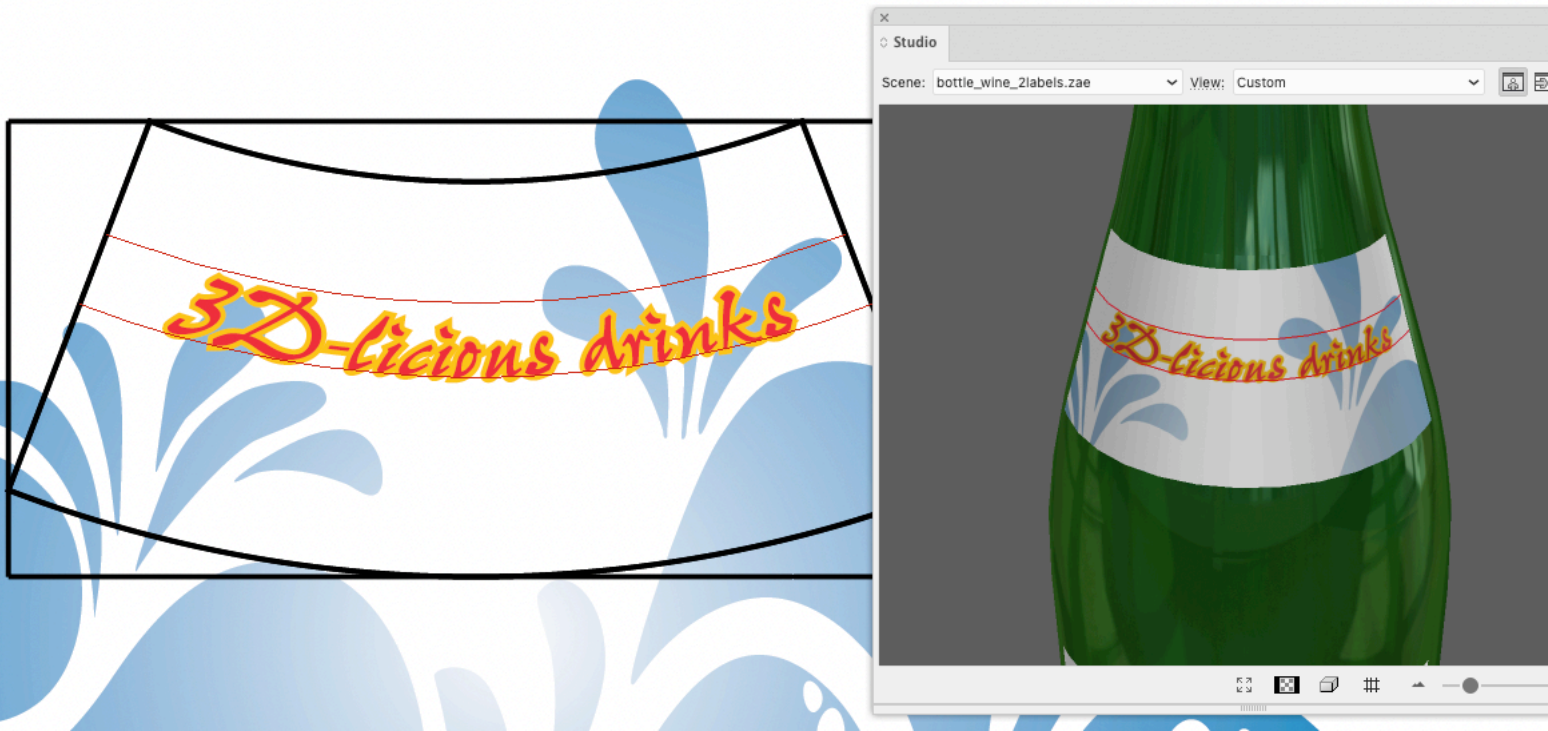
In the Studio Window, the 3D guides appear like a horizontal or vertical plane that is intersecting the shape. In the document, a 3D Guide appears like a set of horizontal, vertical or even slanted line segments clipped inside panel boundaries. These line segments show where the plane is intersecting with the panels. Graphics can snap to these segments just as with regular guides.

This is how the 3D guides are presented in the 2D and 3D view:



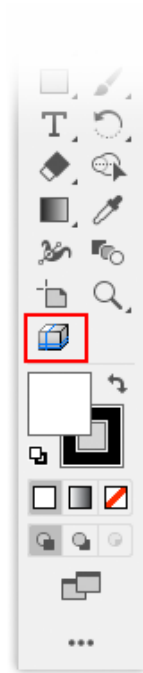
For Collada files made with Studio Toolkit For Labels, you can get curved 3D Guides in the document if your printable part is a conical label:





### 4.3.1. Creating and Editing 3D Guides

To create or move a 3D guide, use the **3D Guide** tool (in the applications toolbar). Click and drag somewhere in the shape in the document to create or move a guide. By holding the option (alt) key, you can switch between vertical and horizontal guides.


**Tip:**

If you are using Adobe Illustrator CC 2019, your Esko tools might not be visible in the toolbar. There are two ways to make your tools visible:

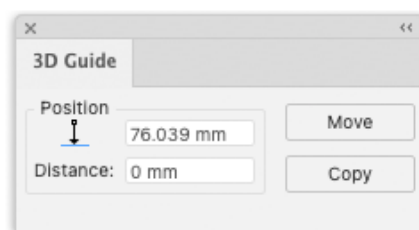
- Switch to the Advanced toolbar by selecting **Window > Toolbars > Advanced**
- Locate the tool you want (when invisible, you can find it by clicking "..." in the toolbar) and drag it to the desired location in the toolbar. For more information on customizing the toolbar, we refer to the Adobe Illustrator documentation.

To delete a 3D guide, use the 3D guide tool and simply drag it outside the shape in the Illustrator document.

To delete all 3D guides, you can delete the "3D Guides" layer that contains all 3D guides or use **View > Guides > Clear Guides**.

### 4.3.2. Numeric Positioning of 3D Guides

Double-click the **3D Guides** tool to show the **3D Guide** floating palette. You can use this to move or copy 3D guides numerically.



## 4.4. Conical Warp

Studio Advanced contains functionality to warp artwork based on conic labels you created in Adobe Illustrator based on a revolved shape. See [Creating a revolved shape with labels](#) on page 99.

This functionality contains:

- The **Conical Warp** function in **Window > Esko Studio**. See [To apply conical warping](#) on page 203
- The **Release Warp** function in **Window > Esko Studio > Studio Toolkit for Labels**. See [To reverse the conical warping](#) on page 204



**Note:** For labels created in Studio Toolkit, you can't use Conical Warp. If you have a Studio Toolkit for Shrink Sleeves license, you can however use **Predistort**. See [Artwork Predistortion for Shrink Sleeves](#) on page 204

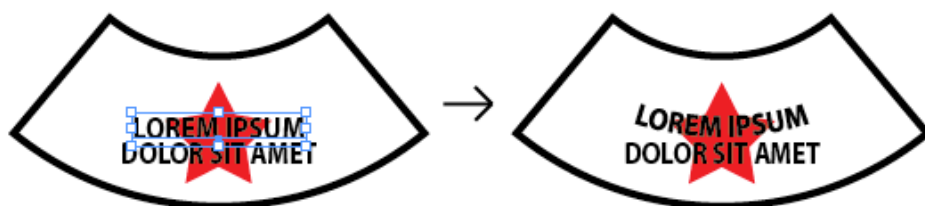
### 4.4.1. To apply conical warping

Using Studio Advanced, you can modify artwork to match the shape of a conic label.

Obviously, this can only be done after creating a shape and adding labels in the **Revolve and Add Labels** dialog. See [Creating a revolved shape with labels](#) on page 99

1. Select the objects you want to modify. Make sure this artwork overlaps with a conical printable part.
2. Select **Window > Esko Studio > Conical Warp**

This will instantly apply a warp on the selected objects. The warp is calculated around the center of the bounding box of the selected objects.



**Note:**

The warping is non-destructive, so you can still easily remove the distortion envelope, and text is still editable.


**Note:**

To apply the warping, Studio Advanced creates Illustrator Envelope Distort objects. Adobe Illustrator has some limitation on Envelope Distort objects: you can not distort linked images. For this, you need to embed the images first.

#### 4.4.2. To reverse the conical warping

1. Select objects that were warped using the **Conical Warp** function
2. Select **Window > Esko Studio > Release Warp**

The warping of these objects is reversed, restoring them in their original state.

### 4.5. Artwork Predistortion for Shrink Sleeves

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Studio Advanced in Adobe Illustrator offers a **predistort** tool to predistort objects or groups of objects to compensate for the distortion of the shrink sleeve on the 3D shape. Together with the 3D preview in Studio, the designers have a perfect 3D visual feedback to make sure the designs look good after shrinking as well.

See also [Distortion and predistortion](#) on page 163

#### 4.5.1. Predistort

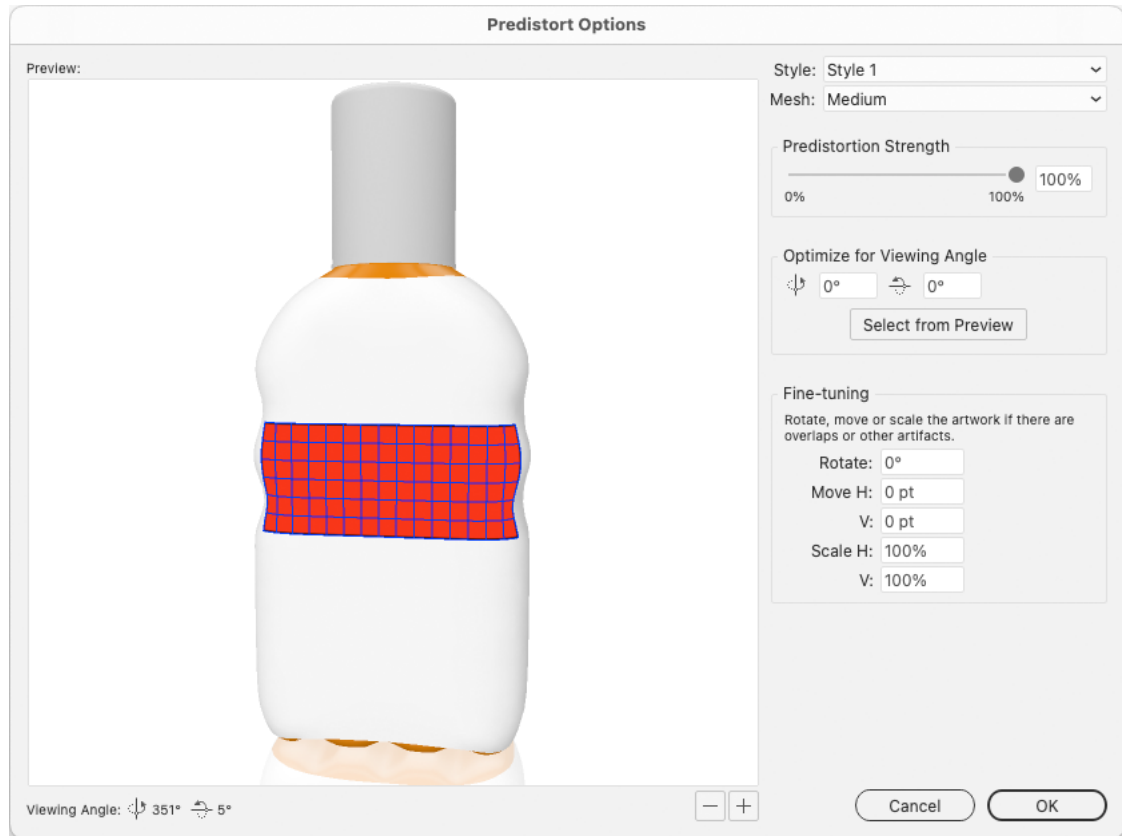
1. Before predistorting, you can preprocess your images to avoid artifacts after predistorting. See [Fix images to avoid predistort artifacts](#) on page 206
2. Choose **Window > Esko Studio > Show Predistortion Window** or use the shortcut **Alt+Cmd+9** to open the Predistort window
3. Select the artwork you want to distort.

The Predistort window will calculate the average horizontal, vertical and sheared distortion of the selected artwork. These are average values, so the actual distortion may vary across the artwork.



4. Click the **Predistort...** button to open the Predistort options.

The Predistort options offer functionality to create a predistortion envelope that fits your design.



**5. Choose the *Predistort Style***

Graphical designers want to map the 2D illustrator design onto a 3D curved surface, there is no single way to do this. Two different predistort methods (styles) are currently supported. See [Predistort Style 1](#) on page 206 and [Predistort Style 2](#) on page 207

**6. Set the Viewing and Transform options.** See [Viewing and Transform options](#) on page 208

**7. Choose your mesh and the strength of the predistortion.**

While viewing the 3D preview, you can check if the distortion is not too much. You can for example only apply 85% of the distortion if this gives you the result you are looking for. The predistortion can only be decreased, so either 100% predistortion or less.

**8. Click **OK****



**Note:**

The distortion is non-destructive, so you can still easily remove the distortion envelope, and text is still editable.



**Note:**

To apply the predistortion, Studio Toolkit for Shrink Sleeves creates Illustrator Envelope Distort objects. Adobe Illustrator has some limitation on Envelope Distort objects: you can not distort linked images. For this, you need to embed the images first.


**Note:**

You cannot create a sensible predistortion for all artwork in 1 go because the distortion values vary from spot to spot. It is best not to predistort the complete artwork, but work on selected objects or small groups of objects.

### Fix images to avoid predistort artifacts

When predistorting embedded images that don't have a clipping path, the predistorted result can have hairline artifacts: visible white hairlines on the edges of the image.

You can reduce these artifacts by applying the **Fix Images** function before predistorting.

1. Select the images you want to fix. If you want to fix all images in your document, you can simply select all objects
2. Choose **Window > Esko Studio > Fix Images...**

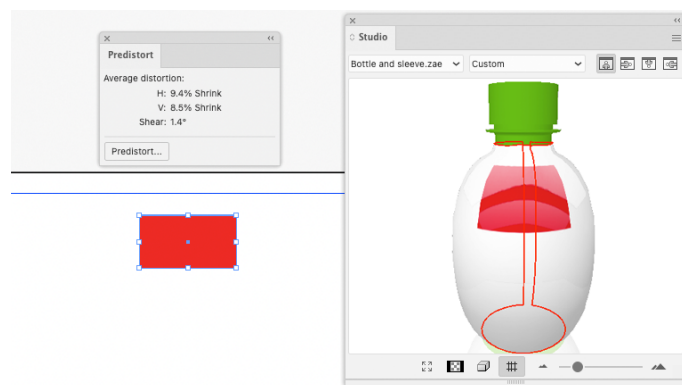
A dialog will inform you how many images will be fixed.

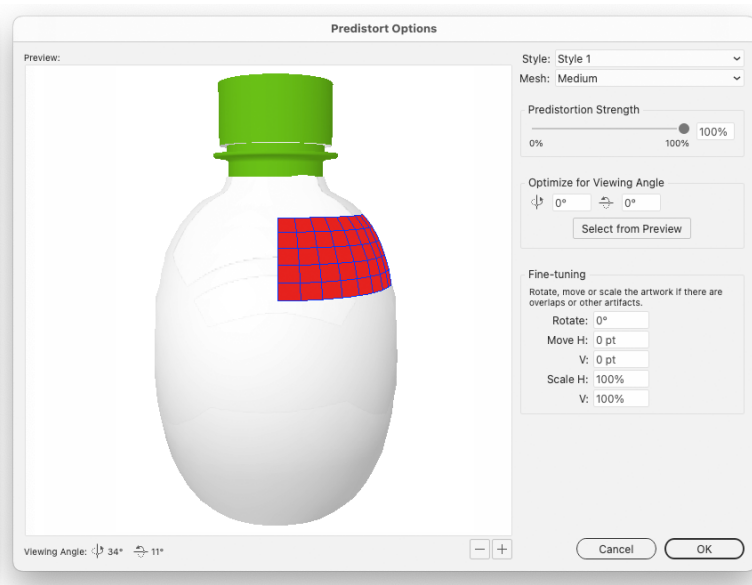
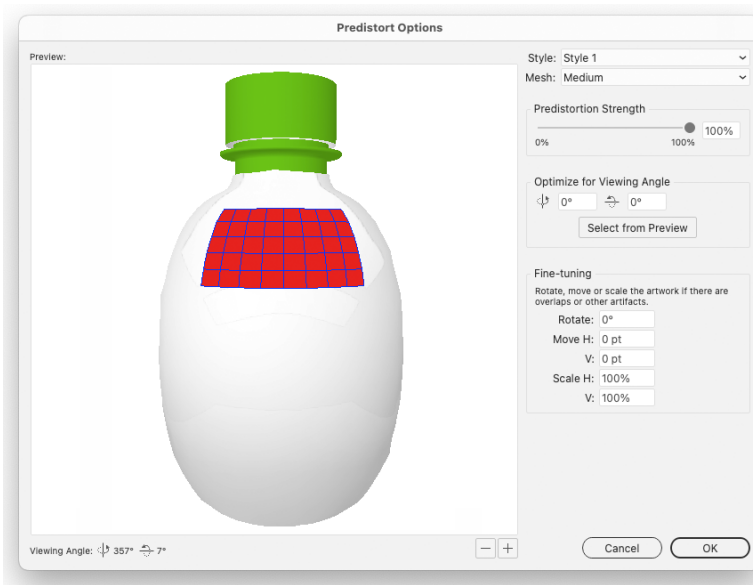
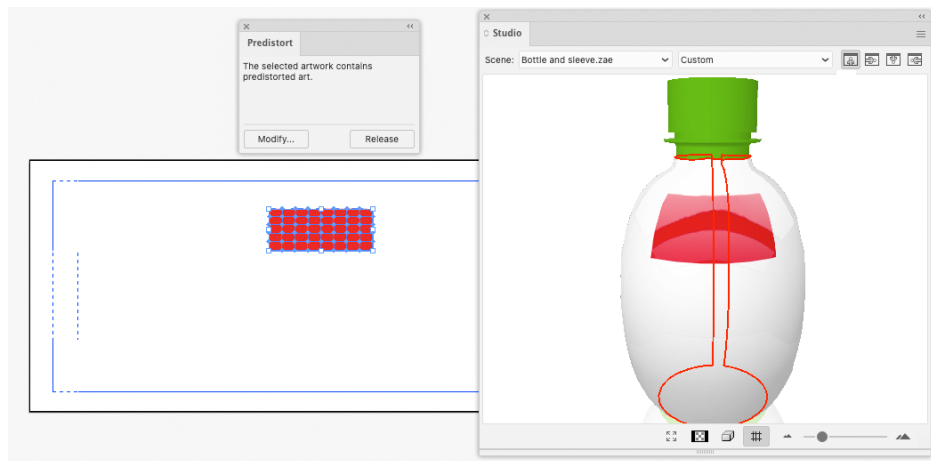
3. Click **Fix**

The selected images will be extended, and get a clipping path. This will reduce the hairline artifacts during predistortion.

### Predistort Style 1

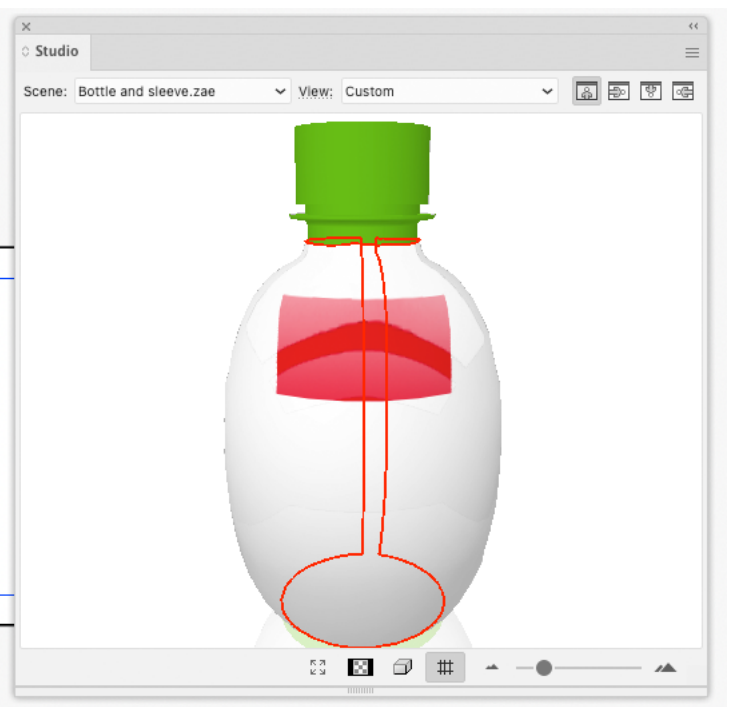
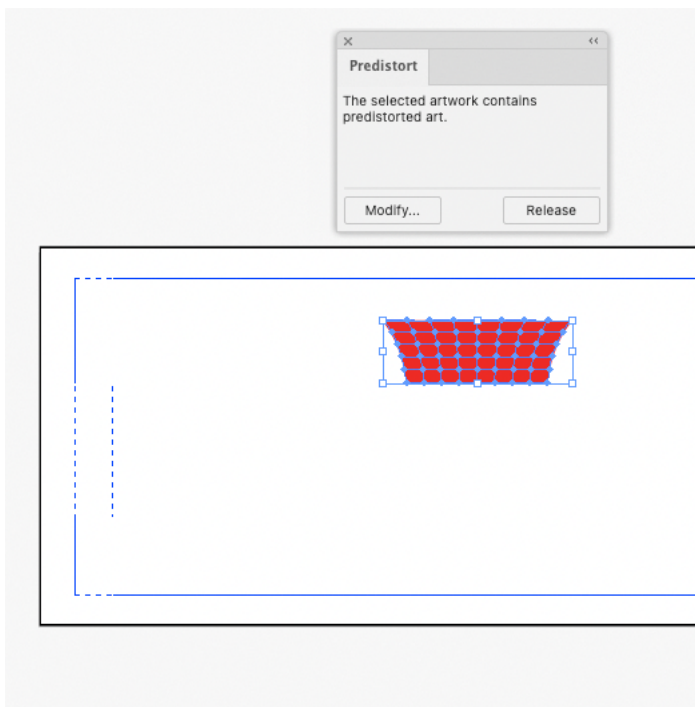
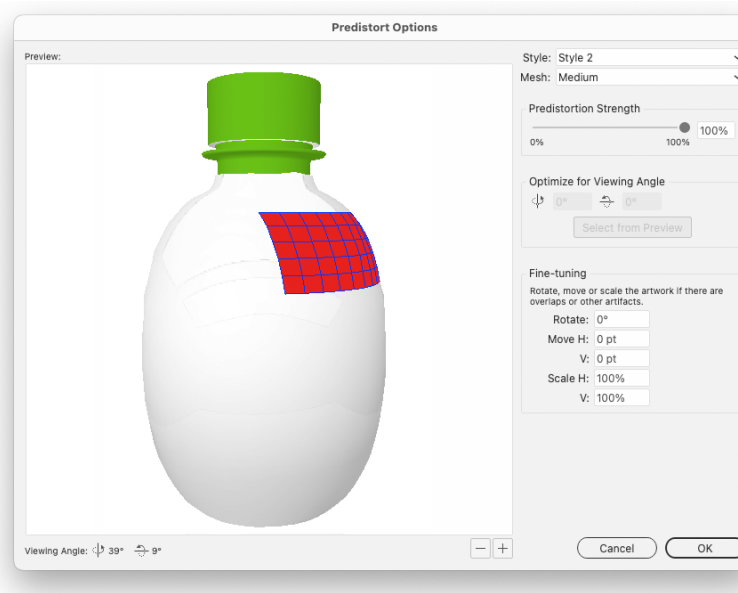
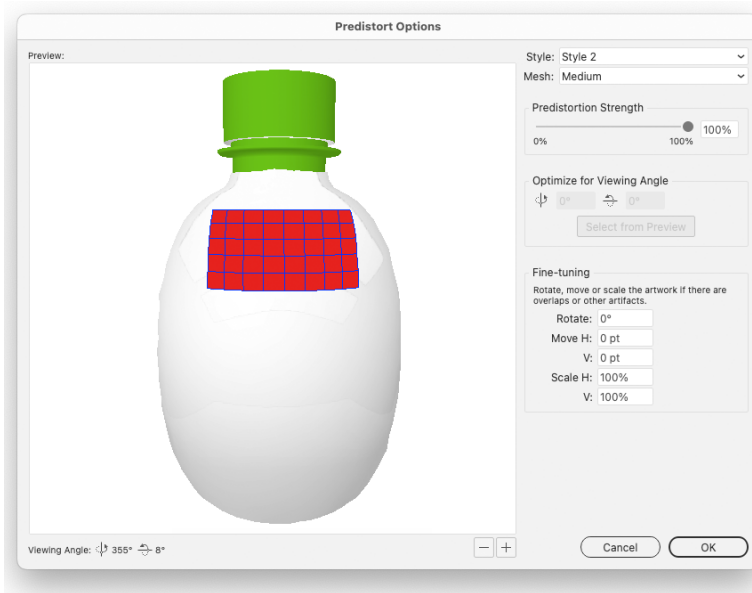
When using Style 1, vertical edges look bended in frontal view but appear straight when looking at the edges from the side.





## Prestort Style 2

When using Style 2, vertical edges look straight in frontal view but appear bended/skewed when looking at the edges from the side.



## Viewing and Transform options

The **Viewing options** can be used to optimize the viewing angle. This will re-render the predistortion to fit the optimal viewing angle, i.e. if you know that the objects will be looked at mostly from a 10 degree angle, the graphics should be predistorted to fit that angle.

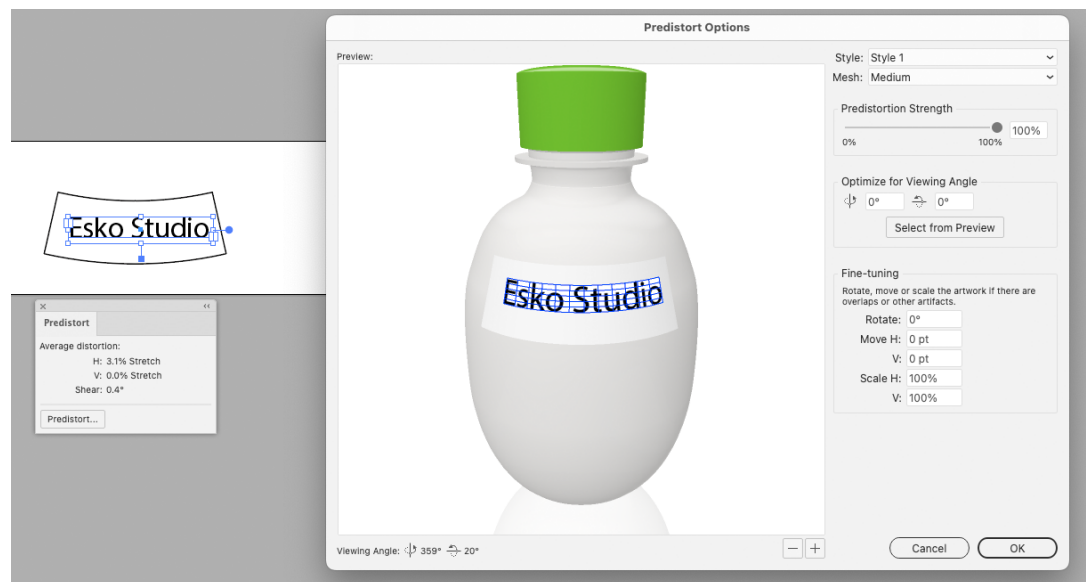
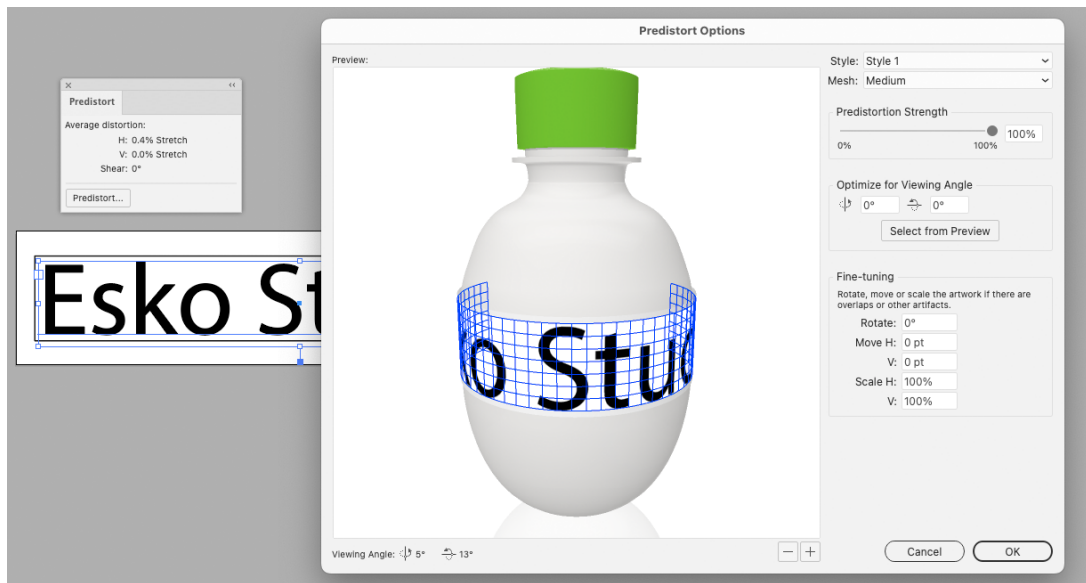




**Note:**

Optimize for Viewing Angle can only be used for Style 1 and not for Style 2.

The **Transform options** allow to tweak the design after predistortion. You can rotate or scale the selected object or group, or you can enter an offset, which will shift the object or group vertical or horizontal or both.



## 4.5.2. Working with predistorted art

- Select predistorted objects and click **Modify** in the Predistort window if you're not quite satisfied with the result, to tweak the predistortion.
- If you moved predistorted objects to a new location, it is advised to click **Modify** as well, to update the predistortion grid to the new location
- You can undo the predistortion by clicking the **Release** button.

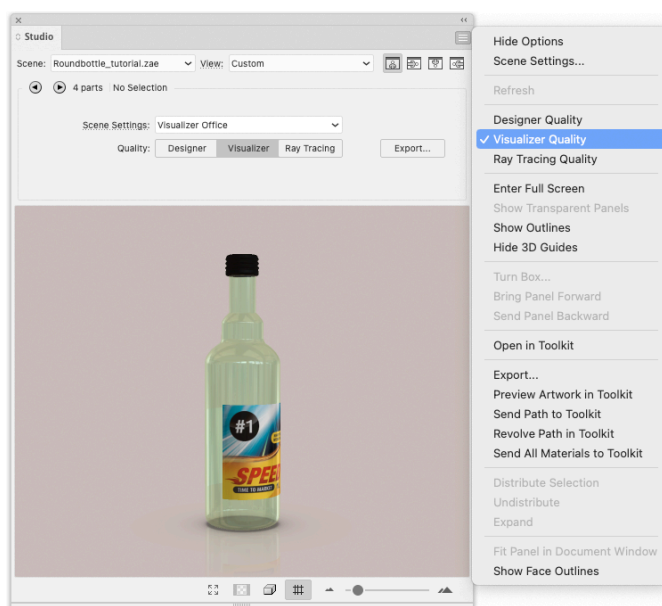
If you want to predistort the same object again, you will note that its previous predistort settings were preserved.

- If you open an Illustrator file or Normalized PDF file containing predistorted art, in a copy of Illustrator that doesn't have the Studio Advanced plugins, the predistorted art will be reinterpreted. The result is that the predistorted art remains visually unchanged, but you will no longer be able to modify the predistortion. A warning message will be shown.

## 5. Step 3: Presenting

### 5.1. Visualizer Quality

By default, Studio shows a preview in Studio Designer quality. You can switch to the enhanced Visualizer Quality preview, by selecting **Visualizer Quality** in the fly-out menu of the Studio palette, or by selecting **Visualizer** in the Studio Window settings panel, if no part is selected.



When switching to **Visualizer Quality** the artwork in the Studio window has to be regenerated. Depending on the job and the resolution chosen this can take some time.



#### Note:

**Visualizer Quality** uses a different background color than Designer Quality. Not only the default background color is different (gray instead of white), but changing the background color while in Visualizer Quality will not change the background color used for Designer Quality and vice versa. Changing the background images applies to both Designer and Visualizer Quality.

You can change the background color or select a background image from the **Scene Settings** dialog, which you can open by selecting **Scene Settings** from the fly-out menu of the Studio palette. See [Scene Settings](#) on page 216



**Note:** When in Visualizer Quality or Ray Tracing Quality, certain (technical) inks will be ignored by the 3D Print Modeling. They will not be visible in the Finishing Operations palette, and will not be visible in the 3D preview or Export. See [Inks ignored in the 3D view](#) on page 212

### 5.1.1. Refreshing

If you make changes to the artwork or to the Finishing Operations, these changes will only be visible in the Studio palette after you click the **Refresh** button. See also [Refreshing](#) on page 173

Since calculating the Visualizer Quality preview can be more time consuming, we advise to only switch to Visualizer Quality when the operations that simulate the printing processes are applied and ready. When you are still busy creating and adapting the artwork, using Designer Quality will update the 3D model much faster.

As long as your 3D design is up to date, **Refresh** is not available.



**Note:**

Refresh is also available via **Refresh Studio** in the **Studio Designer** menu, using **Refresh** from the fly-out menu of the Studio palette, or via the default shortcut **Cmd+Alt+6** (Mac) or **Ctrl+Alt+6** (Windows)

### 5.1.2. Inks ignored in the 3D view

When in Visualizer Quality or Ray Tracing Quality, certain (technical) inks will be ignored by the 3D Print Modeling. They will not be visible in the Finishing Operations palette, and will not be visible in the 3D preview or Export.

When working in **Normalized PDF Mode**, all technical inks will be ignored.

When working in **PDF+ Mode**, inks used in Processing Steps (so-called "colorants") will be ignored, except for inks used only in one of the following Processing Steps:

- Structural: Emboss, Deboss, Cold Foil Stamping or Foil Stamping
- White
- Varnish
- Braille



**Note:** When an ink is used in one of above mentioned Processing Steps along with one or more "Legend" Processing Steps, the ink will not be ignored.

For more information on Normalized PDF vs PDF+ Mode, we refer to the **Ink Manager** chapter in the [Esko Data Exchange documentation](#).

## 5.2. Ray Tracing Quality

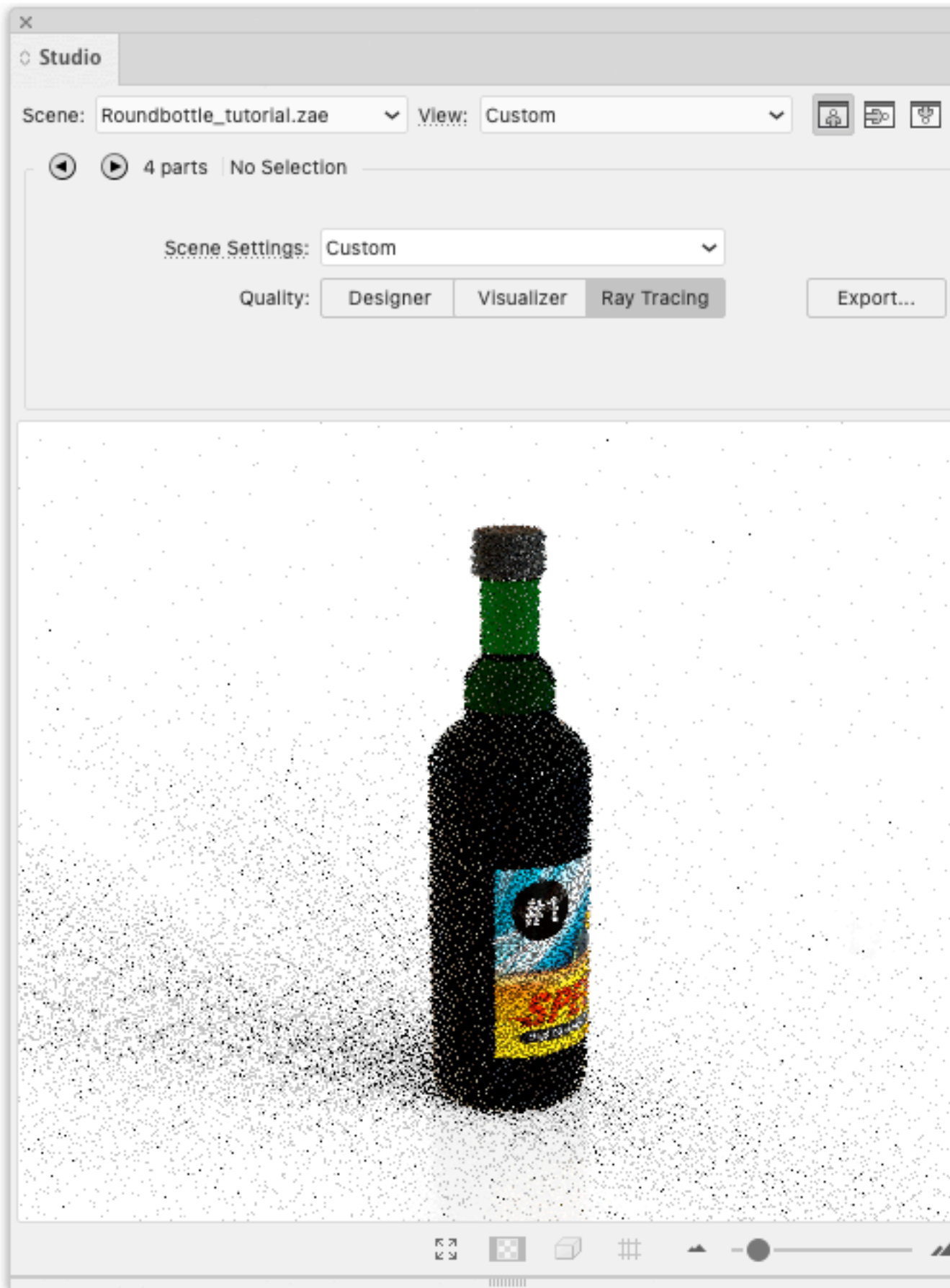
---

By default, Studio shows a preview in Studio Designer quality. You can switch to the Ray Tracing Quality preview, by selecting **Ray Tracing Quality** in the fly-out menu of the Studio palette, or by selecting **Ray Tracing** in the Studio Window settings panel, if no part is selected.

**Ray Tracing** is a rendering technique for generating a 3D image by tracing the path of light rays and simulating the effects of its encounters with virtual objects. The technique is capable of producing a high degree of visual realism, but at a greater computational cost.

Ray Tracing quality combines the modelling of print and finishing effects from Visualizer quality with physically based photorealistic rendering. This rendering mode focuses on realism of both printable parts and non-printable parts and is meant for exporting photorealistic images and image sequences. Because of the heavy calculation requirements it is not suitable for interactive 3D viewing.

When switching to **Ray Tracing Quality** or when changing the view, the Studio window will show a progressive preview of your scene: at first very noisy but progressively clearing up. This should help you to frame your shot and tweak materials and lighting.



Note that the preview in the Studio window will not achieve the full quality of the final exported pack shot.

Below two examples of pack shots with Ray Tracing quality.



**Note:** When in Visualizer Quality or Ray Tracing Quality, certain (technical) inks will be ignored by the 3D Print Modeling. They will not be visible in the Finishing Operations palette, and will not be visible in the 3D preview or Export. See [Inks ignored in the 3D view](#) on page 212

## 5.3. Scene Settings

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In the **Scene Settings** you can finetune the way your work looks in the Studio window.

You can open the Scene Settings dialog by choosing **Scene Settings** from the fly-out menu, or by clicking the **Scene Settings** link in the Studio Options.

If the **Preview** option is enabled, the Studio window will immediately reflect the changes you make in the Scene Settings.

All settings from the Scene Settings dialog are used in the Export dialog, except for:

- Floor Reflection and Background Image for PDF files with 3D design and U3D.
- Custom Lighting Environment for Collada export

### 5.3.1. Environment

In the **Environment** tab you can set different parameters.

#### Lighting Environment

The **Lighting Environment** is available if you are using Visualizer quality or Ray Tracing quality. See [Visualizer Quality](#) on page 211 and [Ray Tracing Quality](#) on page 213

You can select one of the predefined lighting environments. The regular **Environments** can be used in both Visualizer and Ray Tracing quality, while the **Legacy Environments** can only be used in Visualizer Quality.

You can also use a custom lighting environment by selecting **Load...** and open an OpenEXR high dynamic range panorama file (.exr). HDR files (.hdr) are not supported, but they can be converted to OpenEXR using third-party online tools, or in applications such as Adobe Photoshop. You can download a Studio Lighting Template [here](#)



**Note:** The Lighting Environment is embedded when saving a Scene Preset. See [Scene Presets](#) on page 218

When using a Lighting Environment in Visualizer quality or Ray Tracing quality, you can choose how the environment interacts with the scene **When changing the View**: either **orbit the camera** and keep the model at a fixed position in the lighting environment, or **spin the object** and keep the camera at a fixed position in the lighting environment. This second option mimics a photo studio setup.

When in Visualizer or Ray Tracing Quality, you can click and drag with the right mouse button to rotate the **Environment**. On Mac OS, you can also hold the Control key and click and drag. To only rotate the environment horizontally, you can hold the Shift key while rotating. Double-click with the right mouse button or double-click while holding the Control key to reset the environment orientation.

If you change from Visualizer to Ray Tracing Quality or vice versa, Studio will use the same Environment when possible.

- When the used environment is not available in the Quality you change to (e.g. you use a Legacy environment and change to Ray Tracing Quality), the default environment will be used instead.
- A Visualizer Quality scene preset created before version 22.03 containing a custom environment can't be used in Ray Tracing quality



- A Ray Tracing Quality scene preset created before version 22.03 containing a custom environment can be opened, but will take some time when switching to Visualiser Quality. For these presets, it can be more efficient to reload the .exr and save it as a new preset.

### Shadow Contrast

You can set the contrast in the shadows. By default, this is set to 50%.

In Ray Tracing quality this option is not available, since the depth of the shadows is determined by the lighting environment.

### Background

In all three qualities, you can set the background to a **color**. In Designer and Visualizer quality, you can also set the background to an **image**.



**Note:** The Background Image is embedded when saving a Scene Preset. See [Scene Presets](#) on page 218

## 5.3.2. Floor Effects

The second tab of the Scene Settings defines the **Floor Effects**: the **Floor Reflection** and the **Floor Shadow**

### Floor Reflection

In Designer and Visualizer quality, you can use the **Reflection Opacity** slider to determine how strong the reflection will be. 0% is no reflection at all.

In Visualizer quality, you can enable **Fade** to let the reflection fade out, based on the selected **Position in View** and **Size** sliders

In Ray Tracing quality, you can adjust the reflection using the **Floor Shininess** slider. It controls how rough or shiny the floor is. A more shiny floor results in more pronounced reflections, while a 0% shiny floor has no reflections at all.

### Floor Shadow

In Designer and Visualizer quality, you can use the **Shadow Intensity** slider to define how strong a shadow will be. At 0%, there is no shadow. The **Shadow Softness** slider allows to control how soft the shadow should be.

In Ray Tracing quality, you can enable or disable shadows using the **Enable Shadows** option. The environment will determine the shape and direction of the shadows in Ray Tracing quality.

## 5.3.3. View

In the **View** settings tab you can numerically set the view angles, pan and camera distance.

- Set the **Object Heading** and **Object Tilt** to define the position of the object
- Set the **Pan** and **Camera Distance** to define the position of the camera, or click **Fit in Window** to reset the pan to zero and automatically adjust the camera position so that the 3D view fits in the Studio Window.

- Set the **Perspective** by either defining the **Focal Length** (in mm) or **Field of view** (in degrees) of the camera.
- Enable **Keep vertical lines parallel** if you want to get the effect of a tilt shift lens. If enabled, the vertical lines in the pack shots remain vertical (without vantage point). You can use this to create images that are easier to combine afterwards in a 'line-up' image. If the tilt angle is very large it can lead to very unrealistic distorted perspective.

The **View Preset** dropdown allows to select one of the default settings, or any previously saved Preset.

You can save the current settings as a new preset by selecting **Save as** in the dropdown.

Select **Manage...** to open a separate dialog in which you can delete unnecessary presets.

The Scene Presets and View Presets folders can be found here:

- On Macintosh: `Macintosh/Users/user/Library/Application Support/Esko/Studio/`
- On Windows: `C:\Users\user\AppData\Roaming\Esko\Studio\`

You can exchange the Presets between different operators by copying the files to another computer. Since these Preset files embed the backdrop image and environment, there is no need to exchange any other files.

If you remove all Presets and restart Adobe Illustrator, the default Presets will be recreated.

If the WebCenter Connector plugin is installed, scene presets (.sts files) and View Presets (.stv files) can be saved to and loaded from WebCenter. When a preset is loaded, it is added to the "Recent from WebCenter" list. See also [Using Studio and WebCenter Connector](#) on page 258

### 5.3.4. Scene Presets

The **Scene Preset** dropdown allows to select one of the default settings, or any previously saved Preset.



**Note:** Scene Settings contain the Environment, Floor Reflection and View.

You can save the current settings as a new preset by selecting **Save as** in the dropdown.

Select **Manage...** to open a separate dialog in which you can delete unnecessary presets.

The Scene Presets and View Presets folders can be found here:

- On Macintosh: `Macintosh/Users/user/Library/Application Support/Esko/Studio/`
- On Windows: `C:\Users\user\AppData\Roaming\Esko\Studio\`

You can exchange the Presets between different operators by copying the files to another computer. Since these Preset files embed the backdrop image and environment, there is no need to exchange any other files.

If you remove all Presets and restart Adobe Illustrator, the default Presets will be recreated.

If the WebCenter Connector plugin is installed, scene presets (.sts files) and View Presets (.stv files) can be saved to and loaded from WebCenter. When a preset is loaded, it is added to the "Recent from WebCenter" list. See also [Using Studio and WebCenter Connector](#) on page 258

## 5.4. Scenes and Multiple Documents

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The 3D object that you see in the Studio window is typically the combination of two files: The artwork from the current Illustrator document and the shape from the Structural Design file that is placed in that document.

However, sometimes you would like to make combinations of more than one Illustrator document or more than one Structural Design file. Some examples are:

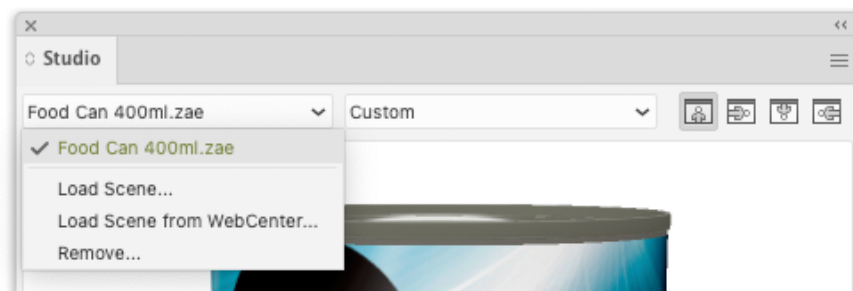
- A box with inside and outside artwork
- A bottle with more than one label
- A tray containing 6 cans
- A complicated multi-piece display
- ...

This chapter describes the different mechanisms behind these workflows.

### 5.4.1. Alternative scenes

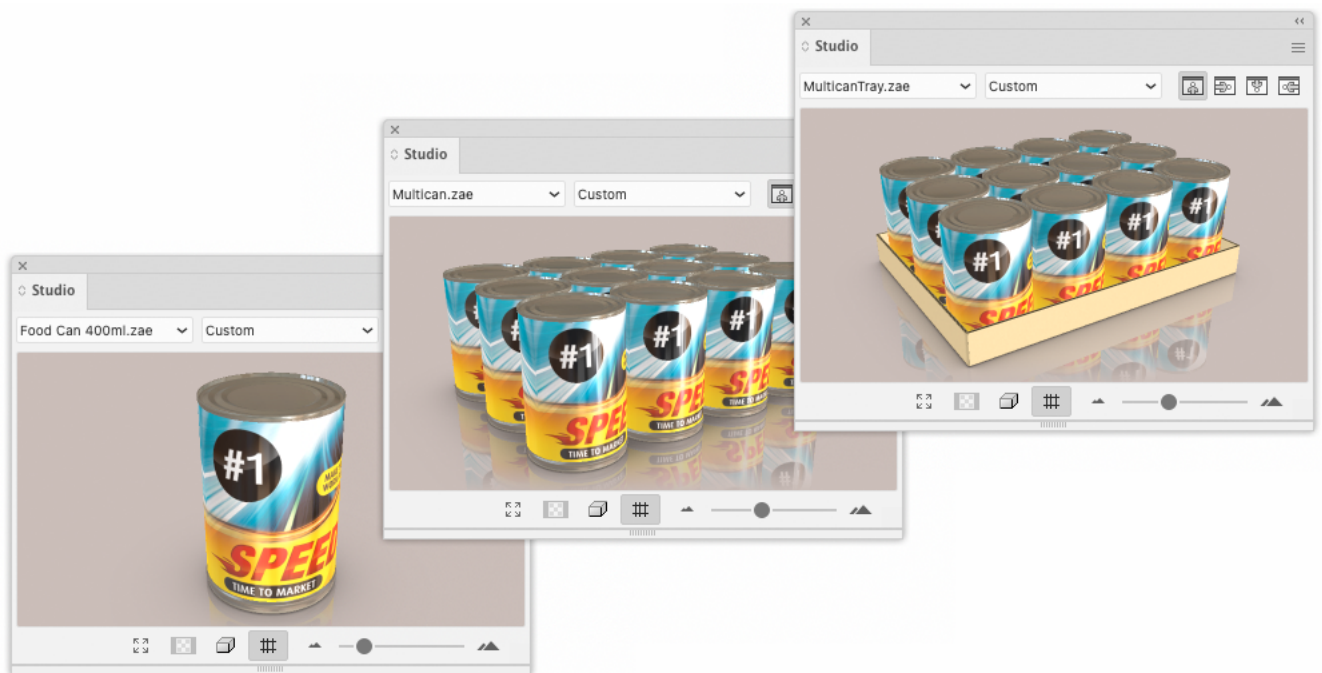
#### Load Scene

At the top of the Studio Window is the Scene dropdown box. Here you can see which Structural Design file is currently visible in the Studio Window. By default this is the same file that is placed in your document, but from this drop down you can load other Structural Design files.



Your artwork will appear automatically on the loaded scene if the following conditions are met:

- There is a Structural Design file placed in the Illustrator document
- The selected scene has a printable part
- The printable part has the same size as the placed Structural Design
- The side (front or back) that is placed in the Illustrator document matches with the side of the printable part in the 3D file



In this example, the placed Structural Design file is a Collada file of a single can. The two other loaded scenes are Collada files made in ArtiosCAD or Studio Toolkit, featuring that same can. You can switch quickly between the loaded scenes from the drop down list. This can help you to improve the artwork by seeing it in all of its different contexts.



**Note:** If you have the **WebCenter Connector** plug-in installed, you can use **Load Scene from WebCenter**. See [Using Studio and WebCenter Connector](#) on page 258

## Remove Scene

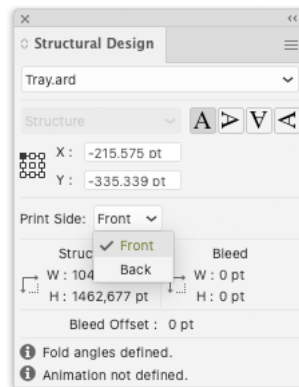
You can remove items from the list by selecting **Remove....** This will free up memory but will not delete the files. The files that are placed in an illustrator document cannot be removed, unless you close the document first.

### 5.4.2. Back side and Double-sided Artwork

When you place or open a Structural Design, it is loaded with the front side facing towards you (typically the outside of the box). The Studio window will show the artwork in this document on the front side of the board.

For ArtiosCAD Structural Design files you can also show artwork on the back side of the board (typically the inside of the box). Also for Collada files, if a printable part is double-sided, you can show artwork on the back side of the printable part.

Choose **Window > Esko > Structural Design > Structural Design Window**. The Structural Design window appears:

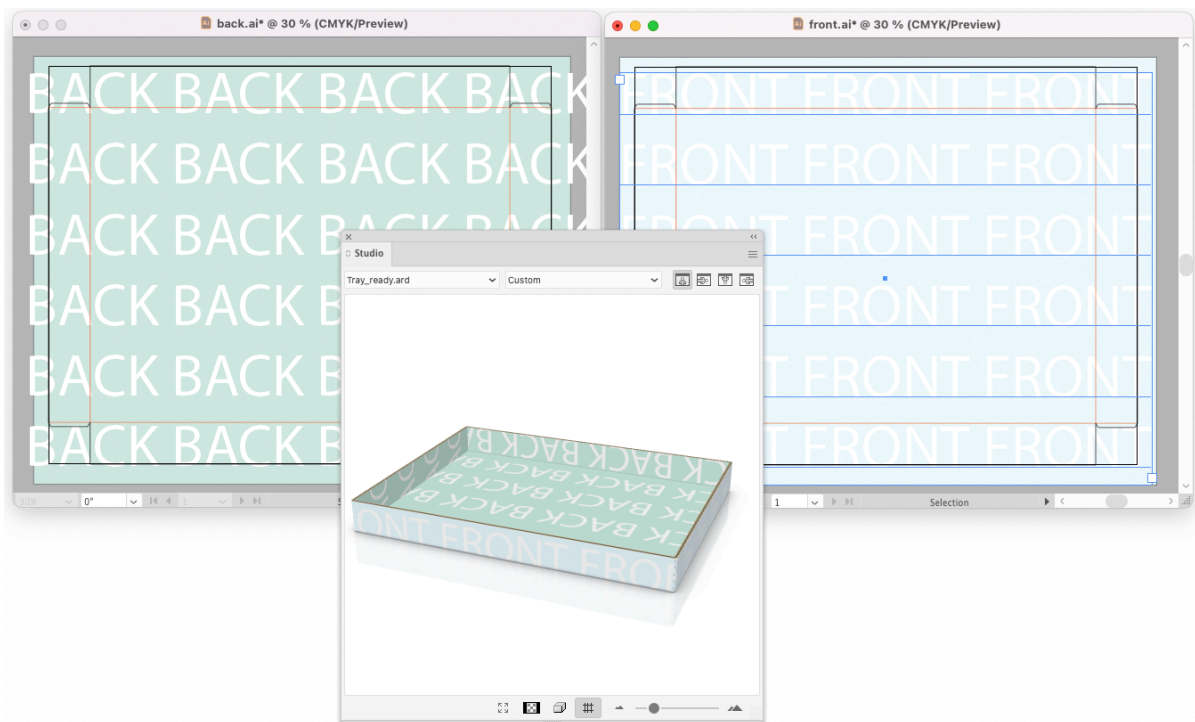


Choose **Back** in the drop down list of 'Print Side'. This will mirror the Structural Design layer and allow you to align your artwork to the back side. The Studio window will show the artwork on the back side of the board (typically the inside of the box).

The Studio Window can show artwork on both sides:

- The front and back artwork can be in two different documents or in the same document.
  - The document(s) must be open in Illustrator
1. Place and align a printable part of a Structural Design file with the front artwork.
  2. Place and align the same printable part (or a different printable part with the same size) with the back artwork, and set the Print Side to **Back**.

A fast and easy way to add graphics to the inside or back side, is to double-click the inside or back side panel in the Studio Window. You can choose to place the back side in the current document or in a new document.



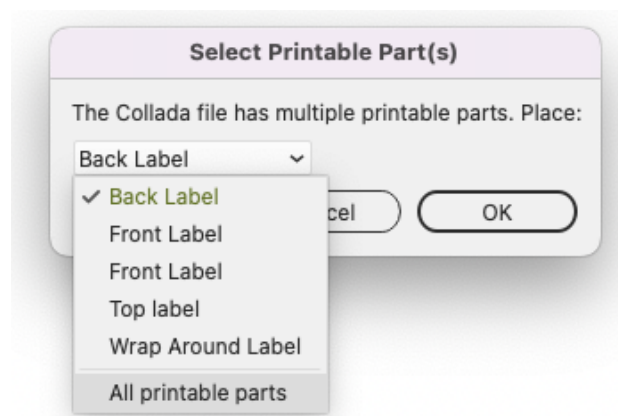
### 5.4.3. Collada files or ACD files with Multiple Printable Parts

Some of the Studio tools can produce Collada files with more than one printable part:

- A bottle with two labels, created by the Revolve and Add Labels tool. See [Revolve a profile and Add Labels in Adobe Illustrator](#) on page 102
- A combination of shapes in Studio Toolkit. See [Combining shapes in Studio Toolkit](#) on page 223
- ...

ArtiosCAD can also output structures with multiple printable parts. These are saved to an ACD file or a Collada file.

When you use a Collada file or an ACD file with multiple printable parts, you can choose to place one printable part, or to place all printable parts



To see the object in the Studio Window with artwork on all the printable parts, you can organize your artwork in a different document for each part. Use the same Structural Design file in every document and select the corresponding part.

Alternatively, you can combine some or all printable parts in the same document: you can place the Structural Design file and select "All Printable Parts", or place the Structural Design file once for every printable part you want to include.



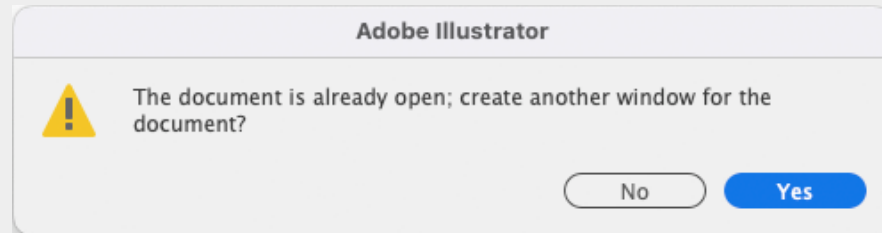
**Note:** If you have multiple printable parts in the same Illustrator document, all those printable parts will use the same finishing operations and substrate. See [Finishing Operations](#) on page 228

When all the documents are open, the Studio window will automatically show the different documents as artwork on the different parts.


**Tip:**

If you don't have any artwork yet, then you can double-click the different printable parts in the Studio window and select **New** to create a new document for that part, or you can select **Place** to add it to the current document.

Another option is to open (instead of place) the Structural Design file multiple times. However, make sure to save each document before opening the collada file a second time, or you might get this message:

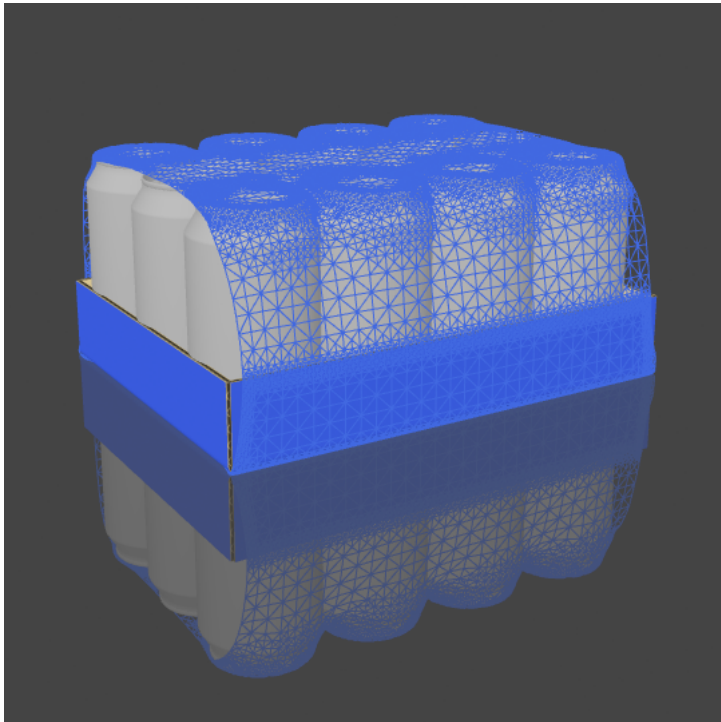


## Combining shapes in Studio Toolkit

You can combine different shapes in Studio Toolkit

- Using **Import Into** when you already have a shape in your Studio Toolkit job. See [Importing Shapes, Images or Paths](#) on page 52
- Using **Create Bag** when you already have a shape in your Studio Toolkit job. See [Creating a New Bag](#) on page 115
- By repeating a shape. See [Repeat](#) on page 65
- By adding a sleeve to a shape or composition of shapes. See [Working with Shrink Sleeves](#) on page 161

You can for example combine a tray and a repetition of a can and put a sleeve around it, resulting in a Collada file with multiple printable parts.



**Note:** If you use a shape for which you already created artwork in your composition, you can use **Preview Artwork in Toolkit** to apply a preview of the artwork from within Adobe Illustrator onto your 3D shape in Studio Toolkit. See [Preview Artwork in Toolkit](#) on page 54



**Note:** You can use different Preview Colors for the different imported ARD files, to get a clear visible distinction in Studio Toolkit. See [Preview Color](#) on page 55

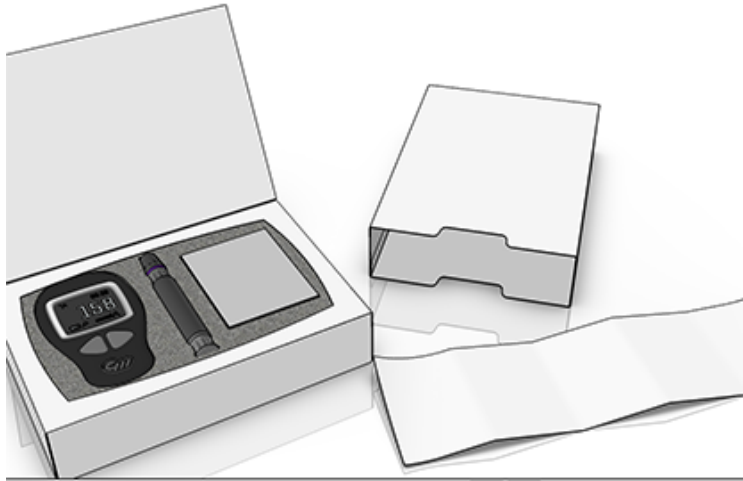
#### 5.4.4. Multi-part structures from ArtiosCAD: ACD or Collada files

In ArtiosCAD you can also build structures with more than one printable part, saved either as an ACD file or a Collada file.

When working on a multiple parts design in ArtiosCAD, the most straightforward and recommended approach is to save this multiple part design as an ACD file.

Be aware that if your design contains imported shapes, those imported shapes will not be included in the ACD file. For example in the picture below, the watch and pen will not be saved in the ACD file.





To include those shapes, you can use the Collada file creation tool from the 3D scene in ArtiosCAD instead.

### Reboard

Another reason to use Collada file instead of ACD, is to have a proper visualization of reboard. In the ACD file, a reboard looks like a corrugated carton.

In this case, use both the ACD and the Collada ZAE file in Studio Advanced:

1. Place the printable parts of the ACD file in one or more Illustrator documents. See [Collada files or ACD files with Multiple Printable Parts](#) on page 222
2. Apply graphics to all printable parts. Using the ACD file will enable you to use the Distribute function while designing the graphics. See [Creating Copies with the Distribute command](#) on page 186
3. To get the final result, load the Collada file as a scene. See [Load Scene](#) on page 219

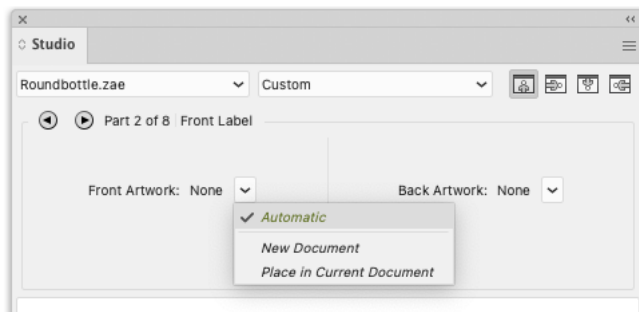
The graphics from the Illustrator document(s) containing the ACD file will be mapped onto the Collada ZAE scene.



### 5.4.5. Navigating between the different Illustrator documents

When multiple Illustrator documents supply artwork to the same scene, you can double click any of the parts in the Studio window to make the corresponding Illustrator document active. (See also [Zooming in on Panels in the document window](#) on page 184)

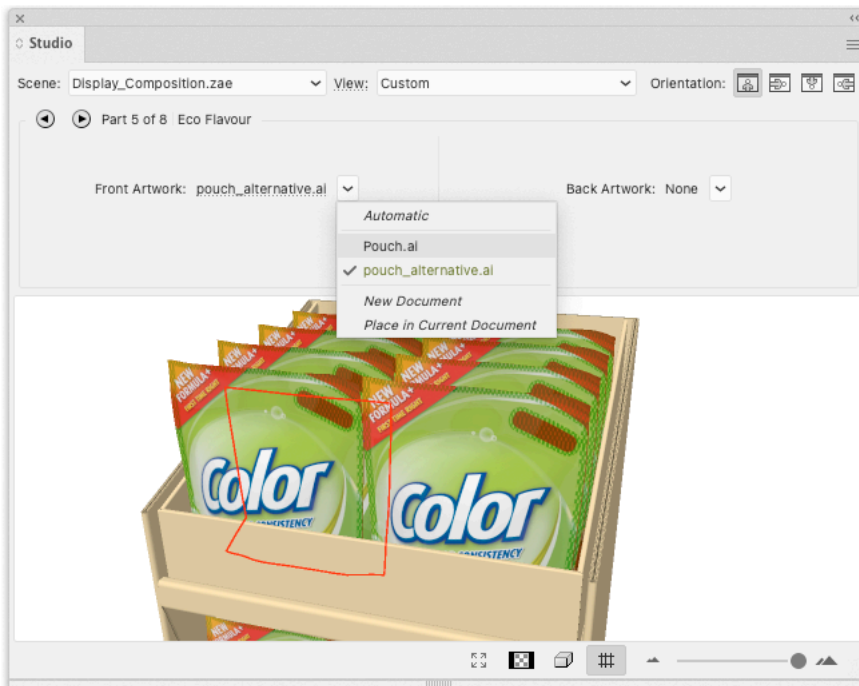
If you click on a printable part for which there is no Illustrator document open, you will be asked to either create a new document for that part or place that part in the current document. The same options are available in the options panel when the printable part is selected.



### 5.4.6. Different graphics on shapes of the same size

In some cases, especially when loading a scene, Studio will try to display the correct artwork on different printable parts or panels, preferably based on the name of the printable part, otherwise based on the size of the printable part. However, in some cases, you might want to manually change the graphics used for a specific printable part.

If you e.g. have two designs, using the same Structural Design file, loading a scene of a composition will place the same (active) Illustrator design on all instances in the composition.



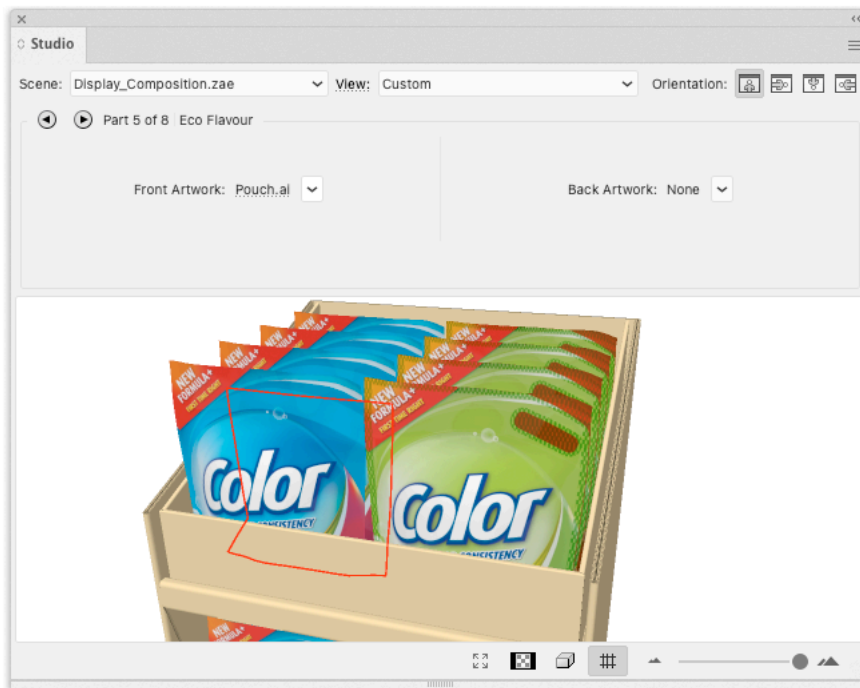
After selecting the printable part you want to change, you can click the dropdown menu for the Artwork in the options panel. The drop down list shows a list of all compatible open Illustrator documents. An Illustrator document is compatible if it has a placed printable part with the same size as the selected shape in the Studio window, and the side (back or front) placed in the Illustrator document is the same

as the selected side of the printable part. You can either select the Illustrator document you want to use, or create a new document.



**Note:** If a document contains more than one printable part that is compatible, the document will appear multiple times in the dropdown.

If your composition is made in Studio Toolkit, it is important to know that if you use the **Repeat** function, all instances will share the same printable part, and thus will share the same graphics. In the example underneath, the left side pouches use the same printable part, while the right side use another.



You have two options to create such a composition in Studio Toolkit:

- Import the single shape twice. Although they will have the same name (i.e. the name of the Structural Design file you imported), these shapes will have a different printable part, so you will be able to apply different artwork on them.
- Create copies of the single shape file, and import them both in your composition. This will have the advantage that the printable parts will have different names, based on the file name of the single shape you imported.

## 5.5. Finishing Operations

In combination with the Visualizer quality or Ray Tracing quality preview, the Finishing operations allow to get a realistic preview of special operations, such as varnishing, metal foils, special inks, etc.

For more information on Visualizer quality, see [Visualizer Quality](#) on page 211. For more information on Ray Tracing quality, see [Ray Tracing Quality](#) on page 213

Finishing operations can be applied to the complete design (full coverage), or applied locally, based on graphical art using a specific swatch. See [Finishing Operations and swatches](#) on page 229



**Note:** If you have multiple printable parts in the same Illustrator document, all those printable parts will use the same finishing operations and substrate. If you want to use a different set of finishing operations or substrate, you should place the printable parts (and corresponding artwork) in different Illustrator documents.



**Note:** Iridodin effects and Holographics are not supported in Ray Tracing quality.

## 5.5.1. Finishing Operations and swatches

Finishing operations can be applied locally, based on graphical art using a specific swatch. You can either convert an existing spot into a finishing operation, or you can create a new finishing operations, which will create a new swatch.

### Finishing Operations to swatches

When creating a new Finishing Operation, a spot color swatch will be generated.

If you change this swatch afterwards, the representation in Adobe Illustrator, and in the Studio palette using Designer quality will be changed accordingly. The preview in Studio using Visualizer quality or Ray Tracing quality will not change.

### Swatches or spot colors to Finishing Operations

When opening a file containing spot colors, or when creating a new swatch using the Adobe Illustrator tools, Visualizer will try to automatically recognize it, and map it onto a correct Finishing Operation, and put it in the most logical order.

For example:

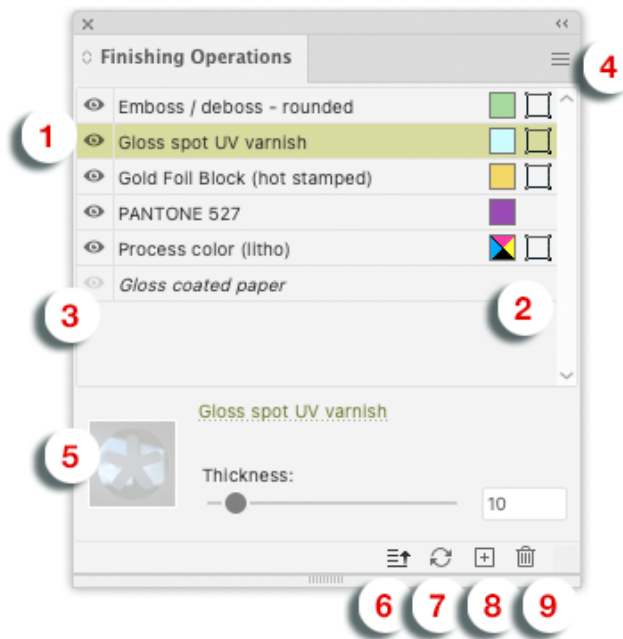
- A swatch "Gold Foil" will result in a Finishing Operation "Gold Cold Foil"
- A Pantone color will result in a corresponding Pantone Finishing Operation
- A custom spot color that doesn't match another Operation, will result in a Finishing Operation "Spot Color"



**Note:** When doing this automatic swatch recognition, Custom Operations will take priority over standard operations. See [My Operations](#) on page 237 for more information on Custom Operations.

## 5.5.2. The Finishing Operations palette

You can open the **Finishing Operations** palette by selecting **Window > Esko Studio > Finishing Operations**. This palette allows to make and change all finishing operations, substrate, etc.



1. The palette contains a list of all Finishing Operations set in the job (the "Operations Stack"), and the substrate. You can click and drag operations to change the order.
2. Next to the Finishing Operations, you can see the **Swatch button** (left) and the **Artwork Selection button** (right).
  - You can click the **Swatch button** to apply the swatch to the currently selected objects.
  - You can click the **Artwork Selection button** to select the artwork currently using the selected operation. If the operation is not used, the Artwork Selection button will not be available
  - There will be one Process Color Swatch if one of the process colors is used in the job.



**Note:** It is strongly advised NOT to replace the CMYK operation by another operation.

- If a Finishing Operation uses full coverage, none of these buttons is shown, and its name is italic.
3. The Operation Visibility toggle. After refreshing, the finishing effect that are set to invisible will be ignored in the 3D preview. Also when exporting, invisible finishing operations will be ignored. You can't change the visibility of the substrate operation.
  4. The fly-out menu
  5. You can change the **Detailed options** for the selected Finishing Operation. You can show or hide this options by selecting **Show / Hide Detailed options** from the fly-out menu.
  6. You can click the **Optimize Operation Order** button, or select the corresponding option in the fly-out menu, to rearrange the Finishing Operations in the most logical order.
  7. Click the **Update Operation List** button, or select the corresponding option in the fly-out menu, to update the Operation List after changing e.g. the swatch color in Adobe Illustrator.
  8. Click the **Add Operation** button, or select the corresponding option in the fly-out menu, to create a new Finishing Operation.
  9. Click the **Delete Operation** button, or select the corresponding option in the fly-out menu, to remove an operation from the list



**Note:** When in Visualizer Quality or Ray Tracing Quality, certain (technical) inks will be ignored by the 3D Print Modeling. They will not be visible in the Finishing Operations palette, and will not be visible in the 3D preview or Export. See [Inks ignored in the 3D view](#) on page 212


## The Operation Order

### Move an Operation Up or Down

The operations in the **Operation Stack** may be re-ordered if so desired. The changes in order will be reflected in the 3D view of your model. The higher the operation appears in the **Operation Stack**, the later it is applied in the virtual printing process.

1. Select the operation you want to move in the **Operation Stack**.
2. Drag the operation to the desired position

### Optimize Operation Order

The **Optimize Operation Order** function will reorder all operations in the most logical order. You can apply the function by clicking the **Optimize Operation Order** button  or by selecting **Optimize Operation Order** from the fly-out menu.

## 5.5.3. Set the Substrate Material

A substrate material is always the first operation for each model. It is represented by a specific substrate operation appearing at the bottom of the stack.

Substrates can be selected and changed in the **Change Substrate** dialog. This Operation Selector will only show materials or operations that can be used as a substrate.

1. Open the **Change Substrate** dialog by double-clicking a substrate operation, or selecting **Change Substrate...** from the fly-out menu.
2. Disable the option **Use the substrate from the structural design file**.

If the option **Use the substrate from the Structural Design file** is enabled, the substrate information from the Structural Design file will be used. If a Structural Design file is loaded, the substrate material is shown within parentheses. If there is no Structural Design file, a gloss coated paper will be used. If multiple printable parts are placed in a single Illustrator document, the substrate is taken from the first printable part that was placed in the document.



**Note:** You can always return to the substrate defined in the Structural Design file by enabling this option again.

3. Select the Substrate you want to use in the Operations tree on the left hand side.



**Note:** As an alternative to browsing through the Operations tree, you can type the first letter(s) of the operation you want to apply in the search field at the top of the dialog.


The **Change Substrate** dialog now displays the properties for the selected operation in the right panel:

- the **Color Picker** displays the substrate color,
  - any additional parameters (for example a slider controlling the texture depth of the paper)
  - a basic description of the substrate
4. Click OK to apply the substrate material to the model.

The model now has a substrate applied to it, and the **Studio** window displays the result when in Visualizer quality or Ray Tracing quality.

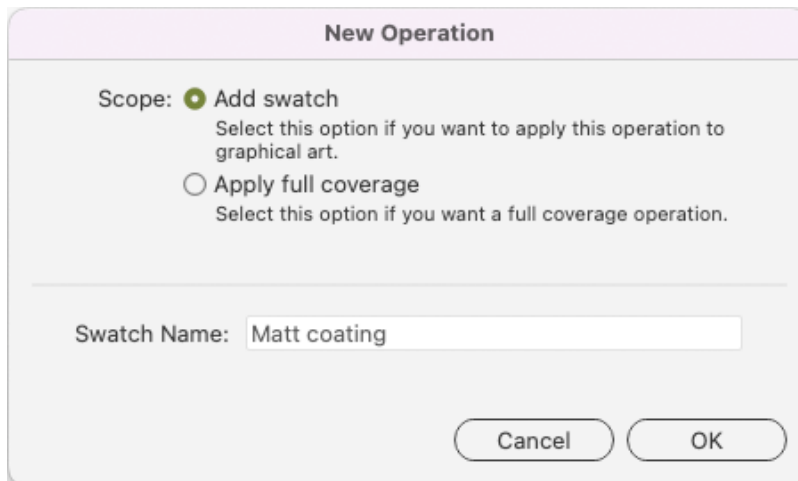
## 5.5.4. Add a new Finishing Operation

To add a Finishing Operation:

1. In the **Finishing Operations** palette, either click the **Add Operation** button  or select **Add Operation** from the fly-out menu

The **Operation Selector** dialog appears. See [The Operation Selector in Detail](#) on page 233

2. Browse to the operation you want to apply.
3. If applicable, set the available parameters, and click **OK**
4. Define the **Scope** for the operation:
  - Select **Add swatch** if you want to apply the operation locally, based on graphical art using a specific swatch
  - Select **Apply full coverage** if you want to apply the operation on the complete design




**Note:** Some operations, such as lamination, do not allow local application, so the **Add swatch** option is disabled.

The newly created Finishing Operation will appear in the Operations list, at the most logical position.

In case "Add Swatch" is selected, a swatch with the same name as the Operation will be added to the Adobe Illustrator Swatches. By applying this swatch to (new or existing) objects in your file, you can define the area(s) where the finishing operation needs to be applied.



## The Operation Selector in Detail

Operations are representations of the print effects and finishes that may be applied to your Studio models. The **Operation Selector** dialog, in combination with the **Artwork Selector** dialog, provide a means of choosing operations to apply to your model.

The **Operation Selector** is shown when you are adding a new operation to your model, or editing an operation that is already being used in your model.

### Components of the Operation Selector

#### Add Operation

**1**

- ns
- rd Library
- Materials
- Materials
- ers
- nd Spot Color
- ks
- s
- n
- ver Foil Block (hot stamped)
- ld Foil Block (hot stamped)
- ored Foil Block (hot stamp
- in Foil Block (hot stamped)
- ver Cold Foil
- ld Cold Foil
- ored Cold Foil
- ie-Cut and Seal Crimping
- plug-in
- ATCHING SYSTEM®
- in®
- atings
- metallic inks
- IC® - Special Effects for Pr
- ANNISON** Label and Pack
- X®
- LINE® Sampler
- ncements
- Special Paper for Packagir

System Picker

Stamping Pressure  50%

Found In Esko Standard Library > [Folks](#)

**6**

Colored Foil Block (hot stamped)  
hot stamped colored foil block

<http://www.esko.com/>

Cancel

1. *Operation finder tool*
2. *My Operations*
3. *Operations tree view*
4. *Color picker, Operations folder view, or Operation preview*
5. *Operation parameters area*
6. *Information area*
7. *Add to My Operations button*

The **Operation Selector** organizes all the operations available in to a hierarchy. On the left hand side of the **Operation Selector** dialog, the operations tree view presents this hierarchy in the form of a tree. Here you can expand folders and browse for an appropriate operation to apply to your model.

You can store frequently used operations with fixed settings in **My Operations**. See [My Operations](#) on page 237

Below the operations tree view, there is an **Information** area, which will often provide you with a brief explanation of the currently selected operation, as well as providing some appropriate clickable links through which you may find out more information about the operation at hand.

In the lower right-hand corner of the operation selector window there is an **Operation parameters** area. In here, any parameters pertinent to the currently selected operation are shown and may be modified by using the slider or the text-entry box.

The upper portion of the right hand side of the operation selector window displays context-dependent information and controls that are related to the currently selected entry in the operations tree view. There are three possible things that might appear in this area:

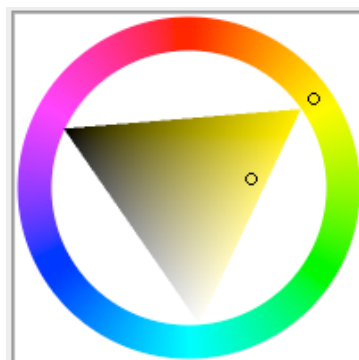
- The Color Picker;
- The operations folder view;
- An operation preview.

## The Color Picker

### Color wheel

The color picker appears in the right-hand side of the operation selector window when an operation is selected in the operations tree view that requires a color in order to fully define it.

The most striking feature of the color picker is the color wheel. To select a color, you may click anywhere in the color wheel's ring to choose your desired hue. The triangle will change accordingly to show the full range of saturation and value levels for that hue.




**Tip:**

Some tips for using the Color Picker:

- HSV, RGB and Lab are color spaces: different ways of representing a color using a combination of numerical values. You may change between HSV and RGB sliders by clicking on the tabs provided.
- RGB is a color space that you may be familiar with - it defines color as a combination of Red, Green and Blue values. HSV stands for Hue, Saturation, Value. If you are unfamiliar with the HSV and Lab color spaces, you can use the RGB sliders.
- Colors entered in the Lab tab represent CIE Lab values with a D50 white-point and 2 degree observer.



**Tip:** If you prefer, your operating system's native color picking tool may be used by clicking on the **System Picker** button.

On top of the window, there is a block of color. The top half of the block displays the color that was displayed when the color picker was first shown. The bottom half of the block displays the color that is currently selected. Double clicking on the top half of the color block will restore the color picker to the color that was originally shown.

These color blocks make it easy to see the effects of small changes made to a given color.

### Color palette

Below the color blocks is a color palette. The color palette may be employed to store colors that are used frequently throughout your project for easy access. To add a color to the palette, you may drag-and-drop colors from the color blocks in to the desired cell of the palette. Also, clicking on the lower color block adds the currently displayed color to the first non-white cell of the palette (or the first cell if there are no white cells available). Colors may be dragged between palette cells for further organization.

### The Operation Folder View

When an operations category is selected in the operations tree view (or when nothing at all is selected), the right hand side of the operation selector window will display the contents of the category in question. This may contain further operations sub-categories or actual operations.

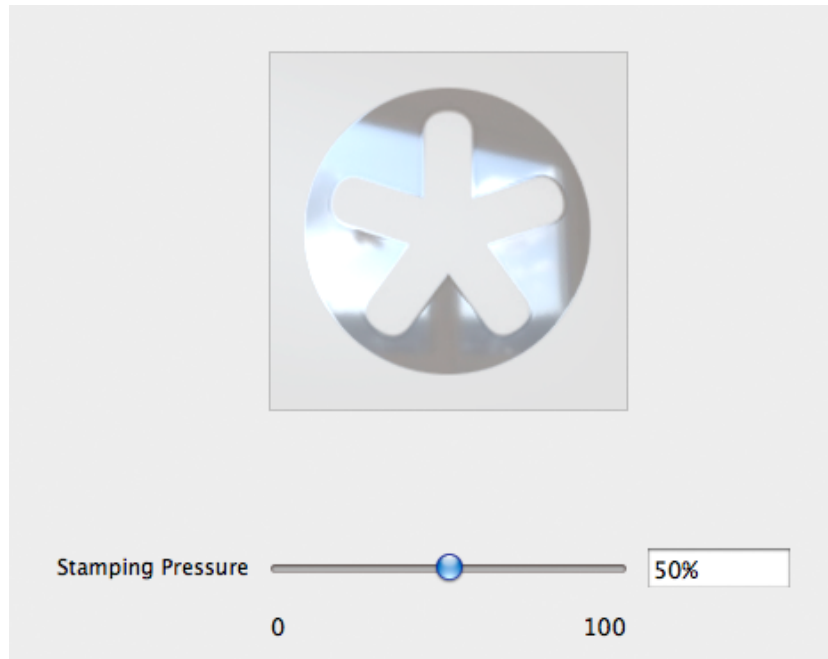
You can think of the operations tree view and operations folder view as a kind of file browser (as found on Microsoft Windows or Mac OS X); the operations tree view provides an overall picture of the layout and high-level navigation facilities, whereas the operations folder view provides a more up-close approach to navigation.

This browser analogy is furthered by the **Browse Back**, **Browse Forward** and **Browse Up** buttons.

Clicking on the icons within the operations folder view will navigate further down the operations hierarchy. If an operation is clicked, you will be presented with either the color picker (detailed above) if the operation requires a color or a preview image of the operation in question.

### Operation Preview

When an operation has been selected in either the operations folder view or operations tree view, you will be shown a preview image that visually describes the effect of the operation.



If an operation is selected that makes use of a color, the color picker will be shown instead of a preview.

## My Operations

The **My Operations** category, at the top of the operations tree view, contains **custom operations**.

A Custom Operation is a standard operation, stored with its specific parameters in the My Operations category.

Using Custom Operations can offer many benefits:

- You can make your most frequently used operations easy accessible, and reduce setup time
- You can make sure the same (correct) parameters are used every time. You can even share these amongst different users.
- Since Custom Operations take priority over standard operations during automatic swatch recognition (see [Finishing Operations and swatches](#) on page 229), you can use Custom Operations to fine-tune this process, making sure the correct parameters are used.
- To create a Custom Operation:
  - a) Select any standard operation, and set the parameters you want to use and store.
  - b) Click the **Add to My Operations** button in the bottom right corner
  - c) Add a name and (optionally) extra info about the operation.

The Operation, with all its settings and parameters, will now be available in the **My Operations** section

- To use a Custom Operation, select it from the My Operations category



**Note:** Since all parameters are stored in the Custom Operations, you will not be able to change any settings.

- To remove a Custom Operation from the My Operations category, select it and click the **Delete** button in the bottom right corner.

- To share Custom Operations, you can copy the "My Operations" folder from one computer to another.

The location of the My Operations folder:

- On Mac: `/Users/Shared/EskoArtwork/Visualizer/v1/ExternalResources/XMLOperations/`
- On Windows: `C:\Users\Public\Documents\EskoArtwork\Visualizer\v1\ExternalResources\xmloperations\`

### 5.5.5. Finishing Profiles

A **Finishing Profile** contains an **Operation Stack** (a set of Finishing Operations in a specific order).

A **Finishing Profile** can be useful if several artwork files require a similar Operation Stack to visualize the packaging artwork:

- the same substrate
- the same finishing effects, using consistent names for the swatches and spot colors
- the same order of finishing operations.

You can export a Finishing Profile based on the **Operation Stack**. See [Exporting a Finishing Profile](#) on page 238

You can then apply this Finishing Profile on a different artwork file in Adobe Illustrator (see [Importing a Finishing Profile](#) on page 239) or you can use the Finishing Profile in an automated workflow in WebCenter.

If the WebCenter Connector plugin is installed, Finishing Profiles can be exported to and imported from WebCenter. See also [Using Studio and WebCenter Connector](#) on page 258

#### Exporting a Finishing Profile

To export a **Finishing Profile**:

1. Open the **Finishing Operations** palette by choosing **Window > Esko Studio > Finishing Operations**
2. In the Fly-out menu of the palette, select **Export Finishing Profile...**

The Export Finishing palette will open.

**Export Finishing Profile**

Finishing Operation:	Maps to Document Separation:
<input checked="" type="checkbox"/> Emboss / deboss - rounded	Emboss / deboss - rounded
<input checked="" type="checkbox"/> Gloss spot UV varnish	Gloss spot UV varnish
<input checked="" type="checkbox"/> Gold Foil Block (hot stamped)	Gold Foil Block (hot stamped)
<input checked="" type="checkbox"/> PANTONE 527	PANTONE 527 1
<input type="checkbox"/> Process color (litho)	
<input type="checkbox"/> Gloss coated paper	

Not Visible:

Insert Other Separations on Top of: PANTONE 527 ▼

ⓘ Check the Finishing Operations you wish to include in the Finishing Profile.  
 Separate multiple names with comma (,). Wildcard (\*) allowed. Separation names are case insensitive.

Export to WebCenter...
Cancel
Export...

- Using the checkbox in front of the name, you can select or deselect Finishing Operations to decide if you want to include them in the Finishing Profile.



**Note:** The Process color operation, Substrate operation and "Not Visible" settings are always exported

- Set the separation names for each operation. You can enter multiple separation names separated with a comma. By using wildcards you can match multiple separation names to an operation.
- Set the **Not Visible** operations. Any separation that matches one of these rules will be set invisible in the Finishing Operations palette.
- Use the **Insert other spot colors on top of** dropdown to decide the position to put spot color separations that don't match any of the operations set in the Finishing Profile.
- Click **Export** to save the Finishing Profile as a .stf file.

## Importing a Finishing Profile

To import a Finishing Profile:

- Open the **Finishing Operations** palette by choosing **Window > Esko Studio > Finishing Operations**
- In the Fly-out menu of the palette, select **Import Finishing Profile...**
- Browse to the saved Finishing Profile and click **OK**

When you import a Finishing Profile:

- The Substrate is changed to the substrate defined in the Finishing Profile.
- If a spot color in your document matches any of the spot colors defined in the Finishing Profile, the spot color will be mapped onto the corresponding Finishing Operation.
- If a Finishing Operation in the Finishing Profile doesn't exist yet, it will be created and the corresponding swatch and spot color is added.
- The Finishing Operations are placed in the same order as in the Finishing Profile.
- Other spot colors that are used in the document are added above the Finishing Operation as defined in the Finishing Profile.

6. Finishing Operations matching the "Not Visible" list are set to invisible in the Finishing Operations panel.

## 5.6. Tips&Tricks: Using a Diecut operation

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A Diecut operation is an operation that cuts away everything that lies outside (or inside) a path. This can be very useful in a number of situations:

- A label created using **Revolve and Add Label** is always rectangular. Using the Die cut operation, you can apply a different shape of label. See [Tips&Tricks: Die cut operation on a label](#) on page 109
- When adding a Freeform label in Studio Toolkit, it's not always possible to draw the label the exact shape and size that you would like. You can use the Die cut operation to trim the label to the intended shape and size. See [Tips&Tricks: trim a Freeform label](#) on page 98
- If you want to create tear notches, rounded corners, zigzag cuts or hole in a flexible bag design, you can use the Die cut operation. See [Tear notches, rounded corners and zigzag cuts](#) on page 158

Adding a Die Cut operation works the same way as for any other finishing operation. See [Add a new Finishing Operation](#) on page 232

When creating the Die Cut Operation, make sure to select **Add swatch**.

If you select **Die Cut Operation**, the objects using the Die Cut swatch will define the areas that are **cut away**. If however you use a **Die Cut Operation (Inverted)**, the objects using the swatch will define the areas that are **kept**.

## 5.7. Tips & Tricks: Clear substrates and White Underprint

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When working with a clear substrate, such as plastic film, or with a metallic substrate, you may want to add an opaque white ink under certain printed areas. You can do this by adding **White Underprint**




**Note:** Transparent substrates only render correctly in **Visualizer Quality**. See [Visualizer Quality](#) on page 211

1. If not set correctly in the Structural Design File, you can modify the substrate to a clear substrate in the **Finishing Operations**. See [Set the Substrate Material](#) on page 231.
  - a) In the **Finishing Operations** panel, double-click the **Substrate** (the bottom line in the list).
  - b) Disable **Use the substrate from the Structural Design file**
  - c) Select the substrate you want to use, e.g. Transparent OPP Film, and



**Note:** You can change the transparency of non printable parts in the Studio Window. See [Non Printable Part options panel](#) on page 177

2. Create the **Opaque White Spot Color** operation. See [Add a new Finishing Operation](#) on page 232. Select **Add Swatch**
3. Use the **Optimize Operation Order** button  to position the Opaque White Spot Color operation between the substrate and the other colors.
4. Create the White Underprint objects on top of the other artwork. Make sure you enable **Overprint Fill** in the **Attributes** panel.





**Note:** When available, you can use Esko's White Underprint plugin to easily create the objects you need.

You can also use White Underprint when working on Metallic surfaces.

## 6. Step 4: Share

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Studio Advanced offers a variety of export options to a number of common formats.

- A static Pack Shot of the 3D view: See [Export Image](#) on page 242
- An animated sequence of TIFF images. See [Export Image Sequence](#) on page 245
- A Collada file, that can be used in another Studio application such as Studio Toolkit or Store Visualizer, or in a 3rd party 3D application, or in an Esko Viewer. See [Export Collada File](#) on page 248
- A KeyShot file (.bip), a common exchange format for 3D models. See [Export KeyShot](#) on page 249
- A dynamic 3D PDF or U3D file, allowing the viewer to freely rotate the 3D representation. See [Export a 3D PDF or U3D File](#) on page 250
- A binary glTF file. glTF is a standard file format for 3D scenes and modals, and can be used in various applications, e.g. Microsoft Office. See [Export a Binary glTF](#) on page 252

The background color and other settings defined in the Scene Settings will show up in your exported file.



**Note:**

If you have the **WebCenter Connector** plug-in installed, you can set **Save to:** to **WebCenter** to upload the exported file directly to WebCenter. See [Using Studio and WebCenter Connector](#) on page 258

When you're exporting a Collada file or an Image, you can set **Save to:** to **Share & Approve (Esko Cloud)** to upload the exported file directly to Esko Cloud. See [Using Studio and Esko Cloud Connector](#) on page 258



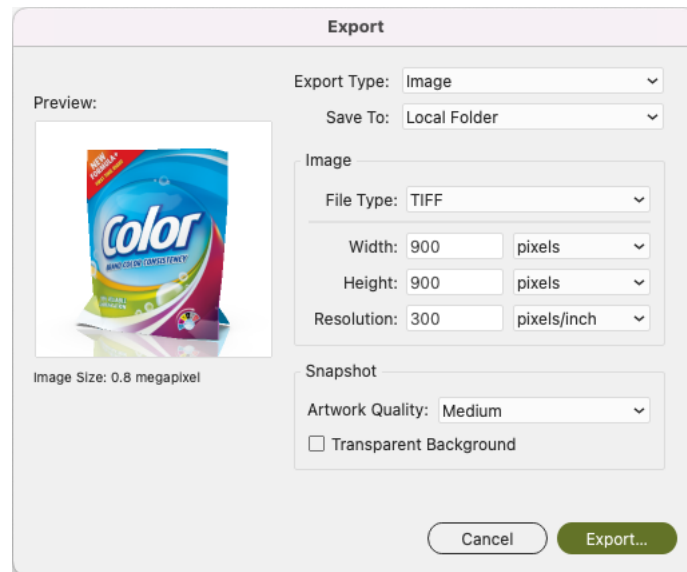
**Note:** When in Visualizer Quality or Ray Tracing Quality, certain (technical) inks will be ignored by the 3D Print Modeling. They will not be visible in the Finishing Operations palette, and will not be visible in the 3D preview or Export. See [Inks ignored in the 3D view](#) on page 212

### 6.1. Export Image

---

Studio can export the 3D design to an RGB JPEG, PNG or TIFF image with the graphics on top (much like the Studio window but at higher resolutions).

1. Choose **Export...** from Studio's fly-out menu. Choose **Image** as export type.



- When exporting an Image in Ray Tracing Quality, you can set the **Render On**: you can choose if the rendering should be done on your local computer or should be offloaded on Esko Cloud. See [Render Packshots on Esko Cloud](#) on page 259



**Note:** When in Ray Tracing quality, the preview image in the Export dialog will be in Visualizer quality

- Define where to save the result in the **Save To**: choose Local Folder, Esko Cloud or WebCenter. See [Using Studio and WebCenter Connector](#) on page 258 and [Using Studio and Esko Cloud Connector](#) on page 258
- Set the **File Type**: TIFF, JPEG or PNG.
- If File Type is set to JPEG, you can set the **Quality**: Low, Medium, High or Maximum. A higher quality will result in a larger file, while lower quality will allow more compression and thus a smaller file size.
- Define the **Width, Height** and **Resolution** for the image that you want to export.
- Define the **Artwork Quality**. Depending on what the image is needed for, you can choose between 4 presets for the level of detail. Choosing Low (fast) will export to an image fast but with less detail, while choosing Medium, High or Highest (slow) will produce greater detail but will take more time.

This is not available in Ray Tracing quality

- The **Transparent Background** option allows you to set the background transparent instead of the background (color or image) defined in the Scene Settings. This is only available when outputting a TIFF or PNG



**Note:** In Ray Tracing quality, there will be no floor reflections in the image if you choose to have a transparent background.

- Click **Export** to save the file.

If you export in **Ray Tracing** quality, a separate window will show the result as it builds up. See [Export Ray Tracing Quality Image](#) on page 244

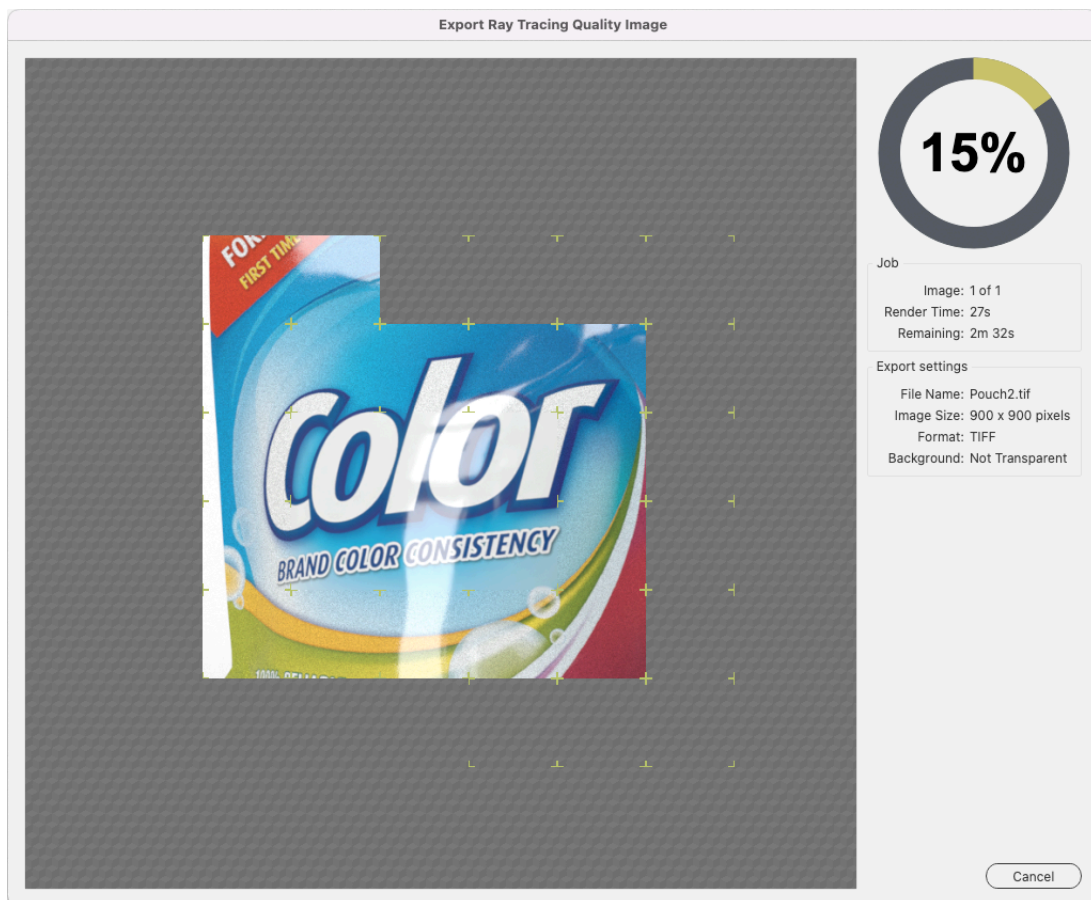
The **Scene Settings** are used in the exported image: Object heading and Tilt, Pan, Perspective, etc. See [Scene Settings](#) on page 216


**Tip:**

If you want to use Photoshop to add some more realism to the 3D renderings, you can output two TIFFs: one with only shading and one with only graphics (all other settings identical). You can then combine them as two layers in **Multiply** mode and fine-tune the shading layer.

### 6.1.1. Export Ray Tracing Quality Image

If you export an Image or Image Sequence in **Ray Tracing** quality, a separate window will show the result as it builds up.

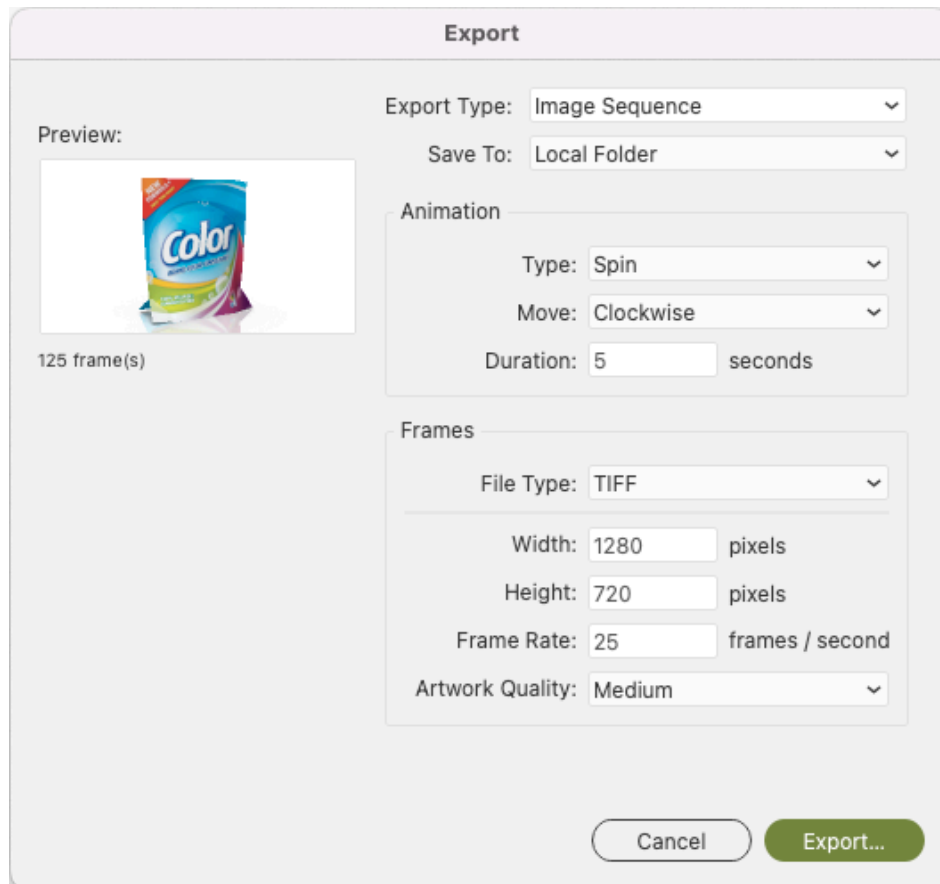


- The right side of the window shows a progress indicator, the Render Time, Time Remaining, and Export settings.
- You can click the **Cancel** button to interrupt the process.
- The preview in Ray Tracing quality shows a background pattern for areas that are not yet rendered. Transparent background from the final result will be shown as white in the preview.
- Parts of the image that are in the process of being calculated are indicated by corner marks. Intermediate steps in image rendering are also shown with corner marks to give an early indication of what the final result will look like.

## 6.2. Export Image Sequence

Studio can export the 3D design to an animated sequence of JPEG, PNG or TIFF images, that can be used to create movies.

1. Choose **Export...** from Studio's fly-out menu. Choose **Image Sequence** as export type.



2. Set the **Animation** type and settings you want to use for the Image Sequence.
  - **Spin**: a 360 degrees rotation around the model's vertical axis. In the **Move** dropdown you can set the direction: Clockwise (CW) or Counterclockwise.
  - **Transition**: the camera animates from one view to another. In **From** and **To** you can select one of the view presets (Front, Back, Bottom, ...) or the current view.
  - **Wiggle**: the camera simultaneously rotates around the vertical and horizontal axis of the model. Use **Vertical** and **Horizontal** to set the angle of rotation.
3. Set the **File Type**: TIFF, JPEG or PNG.
4. If File Type is set to JPEG, you can set the **Quality**: Low, Medium, High or Maximum. A higher quality will result in a larger file, while lower quality will allow more compression and thus a smaller file size.
5. Set the **Duration** for the animation in seconds. The lower the value, the faster the animation will spin, transition or wiggle.

6. Set the **Width** and **Height** of the images to be created.
7. Set the **Frame Rate**: how many images should be created per second. Underneath the Preview you can see the total number of frames that will be created.
8. Define the **Artwork Quality**.  
 Choosing Low (fast) will export to an image fast but with less detail, while choosing Medium, High or Highest (slow) will produce greater detail but will take more time.  
 This is not available in Ray Tracing quality
9. Click **Export** to save the file.  
 If you export in **Ray Tracing** quality, a separate window will show the result as it builds up. See [Export Ray Tracing Quality Image](#) on page 244

### 6.2.1. Integrate an Image Sequence in an HTML5 web page

You can integrate an image sequence (exported from Studio 16.1.1 or later) in an HTML5 web page. This means that all the images are rendered upfront.

The advantage is that even complicated models can be viewed smoothly on any device, and that it is easier to integrate in other web sites. The downside is that the animation is fixed, so the user can only move the model in a preconfigured way.

The alternative is using a Studio Viewer - see [Studio Viewers](#) on page 255.

You can download an example of HTML5 web page containing an image sequence, and use your own content in it.

1. Download the ZIP file containing the example Image Sequence and HTML5 code here: [http://docs.esko.com/docs/en-us/studioessentials/18/otherdocs/HTML5\\_Image\\_Sequence\\_Viewer.zip](http://docs.esko.com/docs/en-us/studioessentials/18/otherdocs/HTML5_Image_Sequence_Viewer.zip)



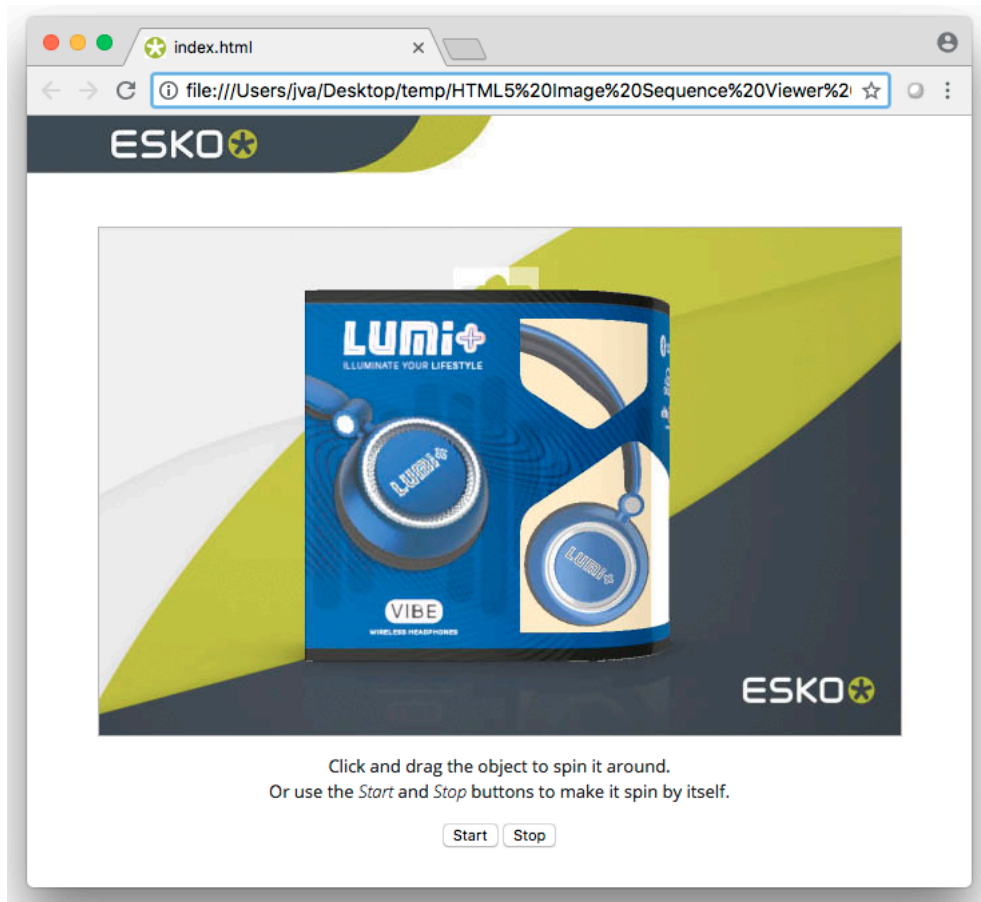
**Note:** This ZIP file also contain this instructions on how to use it.

2. Prepare your scene in Studio
3. Export the Image Sequence, using this settings:
  - **File Type:** jpeg or png. TIFF is not supported on all browsers.
  - **Animation:** set Type to "Spin", and Move to "Model CCW"
  - Set the image **Width** and **Height**, and remember these values.
  - Set the **Duration** and **Frame Rate**. Remember these values, as well as the total amount of frames (shown below the preview).
  -
4. Save the images in the `ImageSequence` folder, using **Frame** as filename, hence overwriting the images already there.
5. Open the **index.html** file in a text or html editor. Change the following lines according to the values you used in the Export, and save the file.

```
var imageWidth = 400; // The width (in pixels) of your images
var imageHeight = 400; // The height (in pixels) of your images
var numberOfFrames = 36; // The total number of images
```

```
var framesPerSecond = 8; // How fast you want the animation to play
var framesExtension = ".tif"; // The file extension of your images.
```

6. Double-click the index.html file to check the result in your browser.



7. An experienced web developer can integrate this into a different web page.
- Copy the part between `<!-- Begin 3D Viewer -->` and `<!-- End 3D Viewer -->` from the `index.html` file into the html code of your own web page.
  - Make sure that all the images are reachable from the local url such as "ImageSequence/Frame0.tif". If you have to put them in a different location, then you will have to adapt the `imagesequence.js` file.
  - Make sure the javascript code is reachable from the local url "js/imagesequence.js", or adapt the html code to load it from another location.

If the result is not what you expected:

- If you don't see anything in the html file, check if you can open a single image, and check if the file name of the first frame is "Frame00.png" or "Frame00.jpeg". You can open your browsers development console to check for error messages.
- If the animation is distorted, check the values of `ImageWidth` and `ImageHeight` in `index.html`.
- If the animation skips, check the value of `NumberOfFrames` in `index.html`. This number should be one more than the highest number in the file names in the `ImageSequence` folder.
- If the animation is slow to load, check the total size of all the images. Since these have to be loaded all to show the full animation, it's advisable to keep them below 50Mb in total. You can reduce this in different ways:
  - use **jpeg** as file type, since this typically results in smaller files

- Reduce the **Image Size**
- Lower the **Frame Rate**. This will make the animation less smooth.

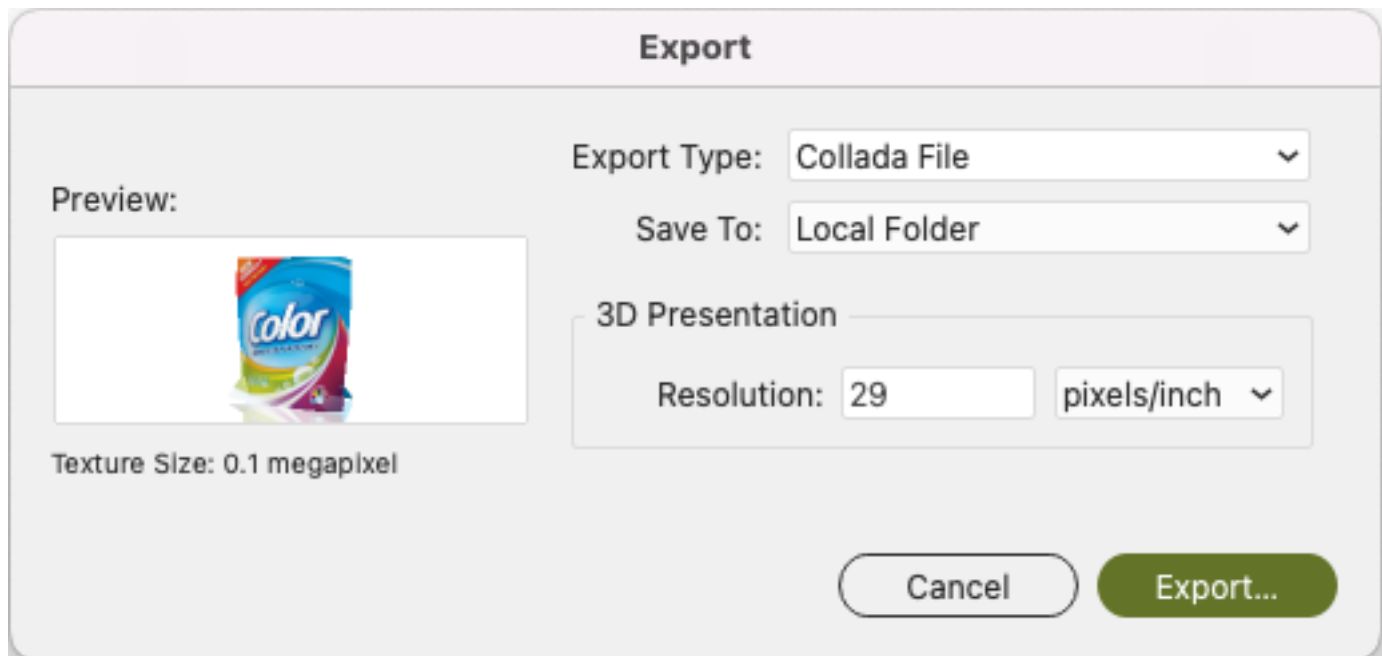
## 6.3. Export Collada File

Studio Advanced can also export to a Collada file (\*.zae), a common exchange format for 3D models.



**Note:** Export Collada File is not available in Ray Tracing quality.

1. Choose **Export...** from Studio's fly-out menu.
2. Choose **Collada File** (\*.zae) as export type.



3. Define where to save the result in the **Save To**: choose Local Folder, WebCenter or Esko Cloud. See [Using Studio and WebCenter Connector](#) on page 258 and [Using Studio and Esko Cloud Connector](#) on page 258
4. Specify the **Resolution** for the graphics.
  - In Visualizer quality, you can't specify the resolution. The resolution is optimized so that textures within the Collada file are never larger than 2K x 2K
  - In Designer quality, you can set the resolution. If the resolution is higher than the optimal resolution, you will get a warning that the model will be sliced. If the file is intended for viewing, the slicing will not cause any problems, but if you want to use the file in a 3D modeling program, you can choose to use the optimal resolution instead.
5. Click **Export** to save the file.





**Note:** The exported Collada files (.zae) can be further used in other Esko Studio applications such as Studio Toolkit or Esko Store Visualizer and ArtiosCAD, or can be viewed in the iOS Studio Viewer app or in the standalone Studio Viewer application.



**Note:** Not all lighting environments are supported in the Studio viewers: "Photo Studio 5" and "Photo Studio 6" are replaced by "Photo Studio 2", and custom lighting environments are replaced by the "Office" environment.



**Note:**

Since Studio 23.03, Collada files will always be exported including graphics, but without printable parts. As a result, these Collada files can no longer be used as Structural Design file in Adobe Illustrator.

In earlier versions of Studio, **Export Collada File** was sometimes used to include material changes to the non-printable parts in the Collada file. In version 23.03 and above, you can use **Send Non-Printable Materials to Toolkit** for this. See [Send Non-Printable Materials to Toolkit](#) on page 182



**Note:** For ARD boxes, a warning will appear if panels are coincident. Coincident panels can lead to slow rendering in Esko Viewers and even artefacts like z-fighting in third-party viewers. You can get rid of the coincident panels by changing the fold angles of the panels. See [Coinciding panels](#) on page 81 for more information.

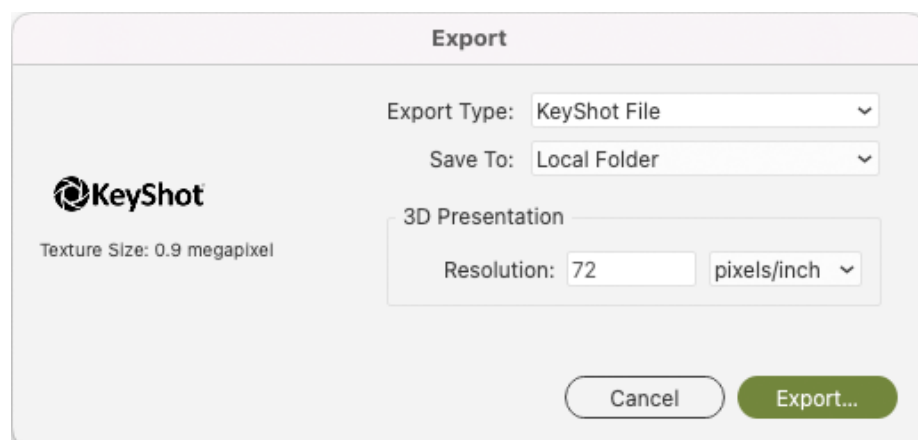
## 6.4. Export KeyShot

Studio can export the 3D design to a KeyShot file (.bip), a common exchange format for 3D models. KeyShot is a third party application with which photorealistic renders and animations can be made of the imported model.



**Note:** **Export Keyshot** is not available in Ray Tracing quality.

1. Choose **Export...** from Studio's fly-out menu. Choose **KeyShot File** as export type.



2. Specify the **Resolution** for the graphics.

3. Click **Export** to save the file.

This will save the .bip file (the structural file) and the texture folder carrying the same name next to it.

When using drag and drop to open the exported file in KeyShot, we recommend using the **Open** option in KeyShot, and not "Import". Importing textures using the "Import" sometimes fails, resulting in black materials or unexpected quitting of the application.

Limitations:

- Holographic materials are not supported
- Changes to the panel order made by using **Bring panel forward** and **Send panel backward** are not preserved in the KeyShot file

## 6.5. Export a 3D PDF or U3D File

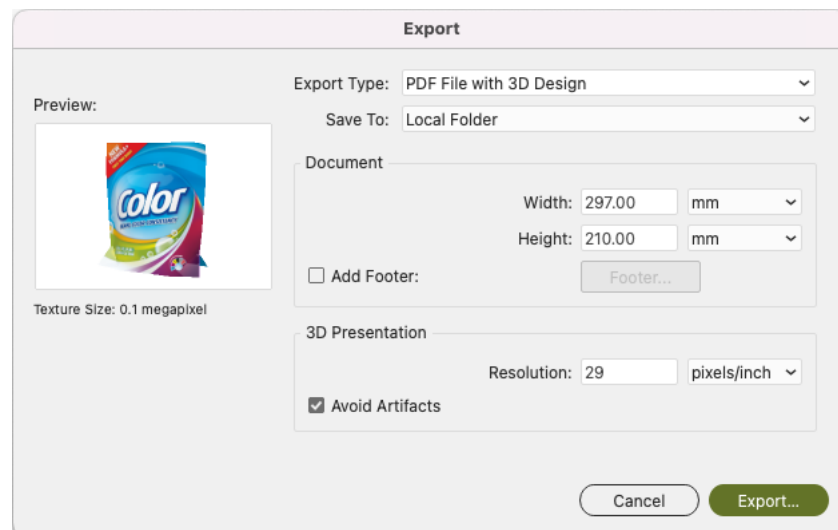
In Adobe Reader or Acrobat Professional (version 8.0.1 or later) you can view / rotate 3D objects in PDF files. Studio Advanced can write such PDF files that can be used to view a package in 3D on a computer that does not have Illustrator or Studio installed.

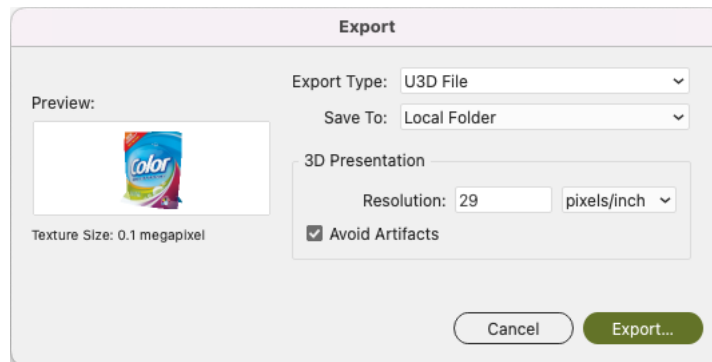
U3D is a common exchange format for 3D objects. For example, in Acrobat Professional 8.0.1 or higher you can place U3D files in PDF files.



**Note: Export a 3D PDF or U3D File** is only available in Designer quality.

1. Choose **Export...** from Studio's fly-out menu. **PDF File with 3D Design** or **U3D File** as export type.





2. Define where to save the result in the **Save To**: choose Local Folder or WebCenter.  
See [Using Studio and WebCenter Connector](#) on page 258
3. When exporting a PDF file, you can define the **Size** of the PDF file. Since the PDF file is only meant for on-screen viewing, this size is of little importance. The **Add Footer** toggle allows you to switch on or off the footer text. Instead of the default Esko text you can also personalize the footer text and include your own message.
4. Specify the **Resolution** for the graphics.
5. To avoid z-fighting problems in the exported PDF or U3D files, you can use the **Avoid Artefacts** option. This will make sure that whenever it is unclear which panel is on top (resulting in flickering graphics), a calculated choice will be made, cutting out the underlying part and giving the top part carte blanche.
6. Click **Export** to save the file.



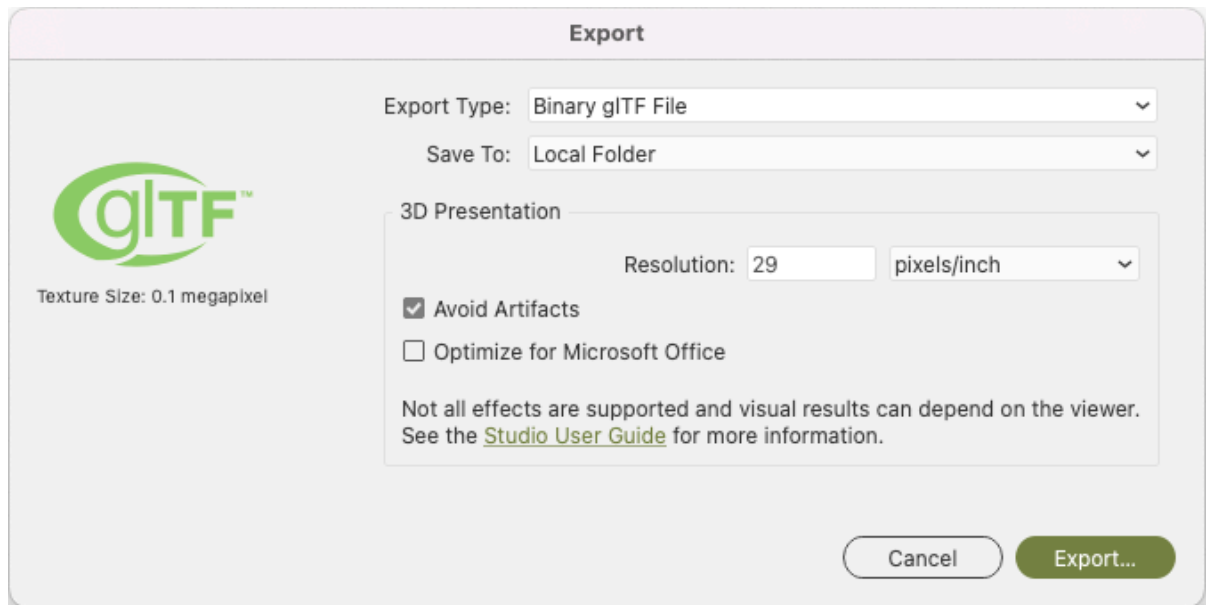
## 6.6. Export a Binary glTF

glTF is a standard file format for 3D scenes and models, and can be used in various applications, e.g. Microsoft Office. Studio Advanced can write .glb files, self-contained, binary glTF files, that can be used to view a package in 3D on a computer that does not have Illustrator or Studio installed.



**Note:** **Export a Binary glTF** is not available in Ray Tracing quality.

1. Choose **Export...** from Studio's fly-out menu. **Binary glTF** as export type.



2. Specify the **Resolution** for the graphics.

- In Visualizer quality, you can't specify the resolution. The resolution is optimized so that textures within the binary glTF file are never larger than 2K x 2K
- In Designer quality, you can set the resolution. If the resolution is higher than the optimal resolution, you will get a warning that the model will be sliced. If the file is intended for viewing, the slicing will not cause any problems, but if you want to use the file in a 3D modeling program, you can choose to use the optimal resolution instead.

3. To avoid z-fighting problems in the exported glTF file, you can use the **Avoid Artifacts** option. This will make sure that whenever it is unclear which panel is on top (resulting in flickering graphics), a calculated choice will be made, cutting out the underlying part and giving the top part carte blanche.

4. Set the **Optimize for Microsoft Office** option.

- When enabled, the exported glTF file will be optimized for viewing or including in Microsoft Office applications. It needs to be enabled to see transparency in Microsoft office. For printable parts with transparency, some color accuracy will be lost. Multiple Layers with transparency, die cut or invisible labels are sometimes rendered in the wrong order. A printable part is "transparent" from the moment it contains some transparency. For example, when printing an opaque ink on a transparent film, the opaque parts are also considered transparent.
- When disabled, advanced glTF features are used that might result in more realistic looking files in some viewers.


**Note:**

In Visualizer quality, when **Optimized for Microsoft Office** is enabled, bottles where both the bottle and the label have transparency effects might show the back of the label through the front of label depending on the camera orientation.

A bottle is considered transparent when it has a see-through material, e.g.: glass, clear plastic, cloudy plastic, etc. The label is considered transparent when it has a (partially) transparent substrate (e.g. plastic film) or uses a Visualizer Finishing Operations die-cut operation.

Die cuts embedded in the Structural Design using Studio Toolkit (i.e. using the **Send Path to Toolkit** feature) can be used without problem.

- Click **Export** to save the file.



**Note:** Non-printable materials will be exported as seen in Visualizer quality, even when exporting in Designer quality. For example when exporting a Designer quality glTF file featuring a glass bottle, the bottle will be transparent if the glTF viewer supports it.

### Limitations

- Scene settings like Lighting Environment, Background, Floor Reflection and Floor Shadows are not stored in the binary glTF file. Also **Keep Vertical Lines Parallel** is not stored.
- The camera is stored in the file, but not all viewers honour this.
- From the Visualizer materials, Iridium and Holographic materials are not supported.
- 'Cloudy Plastic' as non-printable material is stored as Plastic in the binary glTF file.

### glTF Viewer limitations

- All existing glTF viewers are not able to show more than one layer of transparency. So if you have a glass bottle with a liquid in it, the glTF viewer will show it as an empty glass bottle. As a workaround, try to limit the amount of transparent objects. In the example of the glass bottle filled with liquid, you can make the liquid a plastic.
- When optimizing the binary glTF for MS Office, colored transparent parts will lose their color. If the option is disabled, Studio will use an advanced glTF feature to store the color of the transparent part in the binary glTF file. Viewers that honour this advanced feature, will properly show the color filtering as intended.

### Extensions used by Esko

Extension	Visualizer	Designer
KHR_materials_pbrSpecularGlossiness	Required	Optional for better legacy plastic
KHR_materials_transmission	Required for transparency	Optional for more realistic material
KHR_materials_specular	Required	Unused
KHR_materials_ior	Required	Unused

## 6.7. Studio Viewers

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There are free Studio Viewers available for any device: Mac and Windows computers, or iOS tablets. The Studio Viewers can view any Collada file created by Esko software and can show all the print and finishing effects of the package.

### 6.7.1. Studio Viewer for Mac OS and Windows

The Studio Viewer applications for computers running Mac OS or Windows are available as free downloads from the Esko website: <https://www.esko.com/en/Support/DownloadsAndLicenses/free-software/#viewers>

The Studio Viewer is also included in the installation of Studio Advanced.

### 6.7.2. Studio Viewer for Mobile Devices

#### Studio Viewer for iOS

The Studio Viewer for Mac iOS is available from the App Store: <https://itunes.apple.com/us/app/studio-viewer/id520805739?mt=8>

The app requires iOS 6.0 or higher, and can be used on iPhone, iPad and iPod.

#### Adding Collada files to the Studio Viewer library

To add Collada files to the Studio Viewer library, simply tap a Collada file in an email message, web page or in any other source, and select **Open in Studio Viewer**. The selected Collada file will be added to the library on your device.



**Note:** Only files exported by the Studio plugins in Adobe Illustrator are supported. Collada files exported from Studio Toolkit are not supported.

#### Removing Collada files from the Studio Viewer library

To remove Collada files from the Studio Viewer library tap the **Edit** button on the top right of the screen. To select the models to delete simply tap the model once. The selected models will be indicated with a green check mark. Next, press **Delete** in the top right corner to remove all selected models from the library.

#### Viewing Collada files in 3D

To view a Collada file in 3D simply tap the model in the library to open it.



You can interact with the model using simple gestures:

- Swipe using one finger to rotate the model
- Swipe using two fingers to pan the model
- double tap to reset the view.

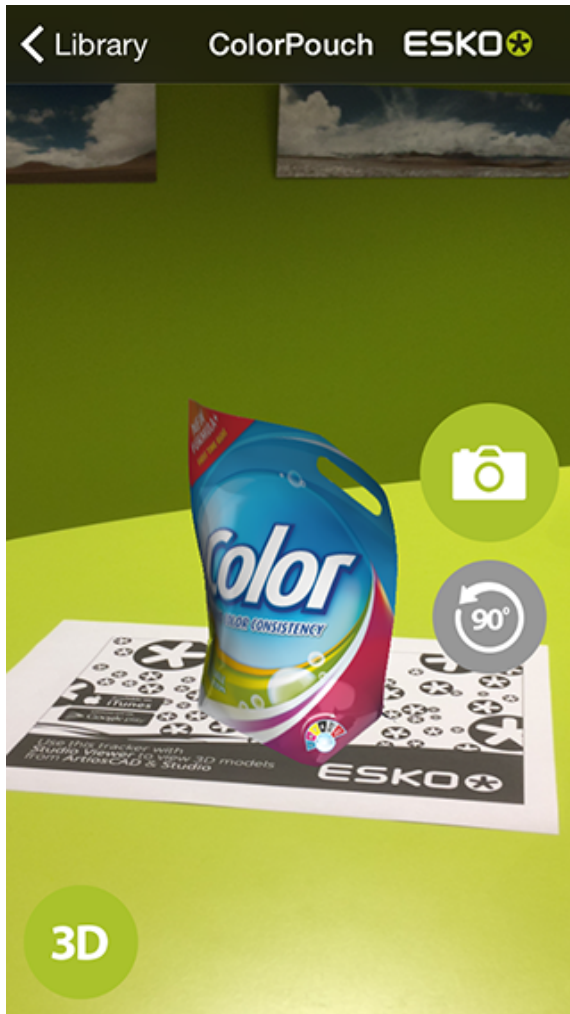
### Viewing Collada files in Augmented Reality (AR)

You can view any Collada file in **Augmented Reality** mode. This allows you to view the file in a real environment, using your device's camera in combination with a specialized Esko tracker.

You can receive the tracker by email or print it directly from the app. The tracker is also available to download from the Esko website: <https://www.esko.com/en/Support/DownloadsAndLicenses/mobile-apps/>

To activate Augmented Reality, open a file from the library and tap the **AR** button. Now aim your camera at the tracker to see the file in Augmented Reality.





In Augmented Reality mode you can rotate the model using one finger gestures or manipulate the tracker to interact with the model. It is also possible to quickly take a photo from your design in AR by tapping the camera button.

### Alternative for Android Users

Since there is no viewer for Android, as an alternative you can upload your model to Share & Approve, and use the Share & Approve Viewer. See [Using Studio and Esko Cloud Connector](#) on page 258 for more information on how to upload your model.

If you don't have a Share & Approve account, you can use a Trial / Free Tier account. For more information, see the Share & Approve documentation [here](#).

As a second alternative, you can export your model to a Binary glTF and use a third party viewer. See [Export a Binary glTF](#) on page 252

## 7. FAQ

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This section contains the answers to a number of Frequently Asked Questions.

### 7.1. Using Studio and WebCenter Connector

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If you have the WebCenter Connector plug-in installed, you can make a connection between WebCenter and Studio.



**Note:** The WebCenter Connector plug-in needs to be installed separately. You can find it on <https://mysoftware.esko.com>

#### Load a Scene from WebCenter

If you have the WebCenter Connector plug-in installed, you can load a Scene from WebCenter

1. In the **Scene** dropdown box, select **Load Scene from WebCenter**. See also [Load Scene](#) on page 219)
2. Choose a WebCenter Server and log in using your username and password
3. Navigate to the Project containing the desired ArtiosCAD single design document or Collada file. Make sure you set the **Files of Type** selector correctly.
4. Select the file and click **Open**

WebCenter Connector will download the file, and the Scene is loaded in the Studio Designer window.



**Note:** If the loaded scene is changed in WebCenter, WebCenter Connector will inform you that a new version is available. Click **Update** to download and use the new version, or **Cancel** to continue working with the current version.

#### Export a TIFF, 3D PDF, U3D or Collada file to WebCenter

When exporting to a TIFF, 3D PDF, U3D or Collada file while having the WebCenter Connector plug-in installed, you can set the **Destination** to WebCenter.

This allows you to choose the file name, and upload the file directly to WebCenter.

See also:

- [Export Image](#) on page 242
- [Export a 3D PDF or U3D File](#) on page 250
- [Export Collada File](#) on page 248

### 7.2. Using Studio and Esko Cloud Connector

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Using the Esko Cloud Connector plug-in, you can make a connection between Esko Cloud and Studio, and export Images or Collada files directly to Esko Cloud



**Note:** The Esko Cloud Connector is included in the Studio Installer. Installing Studio will automatically install Esko Cloud Connector as well.

### Export a TIFF or Collada file to Esko Cloud Connector

When exporting to a TIFF or Collada file while having the Esko Cloud Connector plug-in installed, you can set **Save To** to Share & Approve (Esko Cloud).

After clicking the **Export** button, you can enter your credentials for Esko Cloud, define the file name and location, and **Export** the file directly to Esko Cloud.

If you need to change the Esko Cloud Connector Settings, e.g. because your administrator has given you a different Base URL or you want to choose a different path for downloaded files, you can click the **Esko Cloud Settings** button in the Esko Cloud Login dialog box.

After exporting, you can click the **See in Esko Cloud** button to see your document in **Share & Approve**, where you can start sharing the document and start its approval process.

See also:

- [Export Image](#) on page 242
- [Export Collada File](#) on page 248

For more information on the Esko Cloud Connector plugin, we refer to the Esko Cloud Connector documentation: <http://www.esko.com/en/Support/Product?id=Esko%20Cloud%20Connector>

More information on Esko Cloud and Share & Approve we refer to this knowledgebase article: <https://wiki.esko.com/pages/viewpage.action?pageId=240072361>

## 7.2.1. Render Packshots on Esko Cloud

In Ray Tracing quality, rendering a Packshot can take a long time. Therefore it is possible to offload the rendering to the Esko Cloud. This allows you to continue using your computer while the Ray Tracing packshot (which is computationally intensive) is rendered on Esko Cloud.

You will be charged per Packshot. See <https://www.esko.com/en/downloads/trials/studio-cloud-rendering> to learn how to set up this service.

1. Set up the **Export Image** settings. See [Export Image](#) on page 242
2. Set the **Render On** option to **Packshots (Esko Cloud)**
3. Click **Export**
4. In the information dialog, click **Learn More** to get more information on subscriptions for offloading Packshots to Esko Cloud, or click **Continue**
5. Sign in with your **Esko ID**
6. Define the folder where the Packshot should be downloaded to after it is rendered.

The **Packshot** palette will open. You can open this palette at any time by choosing **Window > Esko Studio > Packshots**

When a Packshot is downloaded, a thumbnail of the packshot is shown in the palette. Double-click it to open the folder where the downloaded packshot can be found.

## 7.3. I don't have Studio Advanced - where is my documentation ?

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Studio Advanced is the combination of:

- Studio Designer
- Studio Toolkit for Boxes
- Studio Toolkit for Labels
- Studio Toolkit for Flexibles
- Studio Toolkit for Shrink Sleeves
- Studio Visualizer for Adobe Illustrator

This documentation combines the information on the individual components. If you have e.g. only Studio Toolkit for Boxes, you can still find all relevant information in this documentation. Underneath an overview of the components and a link to the most relevant chapters.

### **Studio Designer**

- [The Studio Window](#) on page 172
- [Step 2: Applying and adjusting artwork](#) on page 172
- [Step 3: Presenting](#) on page 211
- [Step 4: Share](#) on page 242

### **Studio Toolkit for Boxes**

- [Create a box](#) on page 72
- [Working with Parts and Panels](#) on page 182
- [Scenes and Multiple Documents](#) on page 219

### **Studio Toolkit for Labels**

- [Creating a revolved shape with labels](#) on page 99
- [Add a label to an existing shape](#)
- [Conical Warp](#) on page 203
- [Collada files or ACD files with Multiple Printable Parts](#) on page 222

### **Studio Toolkit for Flexibles**

- [Create a flexible bag](#) on page 115
- [Collada files or ACD files with Multiple Printable Parts](#) on page 222

### **Studio Toolkit for Shrink Sleeves**

- [Working with Shrink Sleeves](#) on page 161

- [Artwork Predistortion for Shrink Sleeves](#) on page 204
- [Scenes and Multiple Documents](#) on page 219

#### **Studio Visualizer for Adobe Illustrator**

- [Visualizer Quality](#) on page 211
- [Finishing Operations](#) on page 228

## 7.4. Scripting

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Using the Adobe Illustrator Scripting interface, you can automate a number of Studio features using a script.

- Placing the front or back side of Structural Design files in the current Illustrator document
- Changing the alignment and rotation of a placed Structural Design
- Loading scenes
- Changing camera angles
- Applying scene presets
- Applying view presets
- Exporting to Collada
- Exporting to JPEG, PNG or TIFF Image
- Exporting to a Binary glTF file

A full reference and a sample script is available for download here: <http://docs.esko.com/docs/en-us/studioessentials/23.03/otherdocs/StudioScripting.zip>