3DXpert™ for SOLIDWORKS®

Adjust model for 3D Printing

Scaling

14,0200,1599,1024(SP2)

3D SYSTEMS

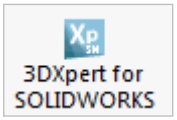
In this exercise, we will learn to create **Scaling** to added 3DP component.
As the printed part cools down, it shrinks.
Therefore, it may be required to scale it up so that it shrinks to the correct size.

To use this command we need to follow few steps (guided):

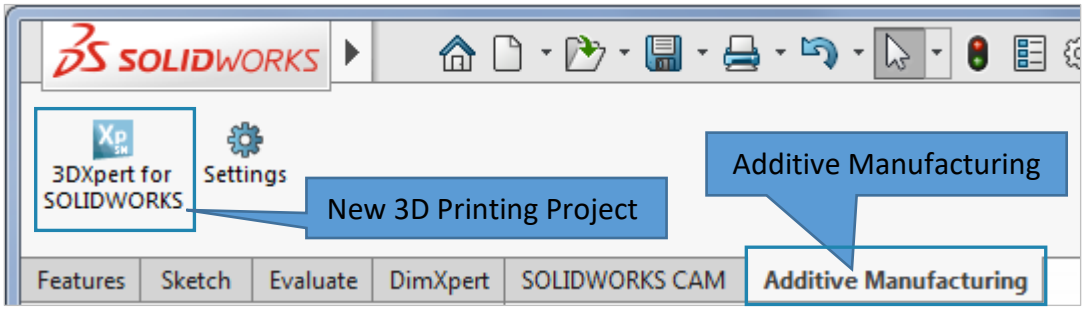
- Load **3DXpert-Exercise-Scaling_Start.SLDPRT** to SOLIDWORKS
- Launch **3DXpert for SOLIDWORKS**.
- Add **shrinkage compensation**.

! Notice/ Remember		Left mouse button name is ***"pick"***
		Middle mouse button name is ***"Exit"***
		Right mouse button name is ***"Click"***

1. Load **3DXpert-Exercise-Scaling_Start.SLDPRT** to SOLIDWORKS from the folder that it was downloaded to.

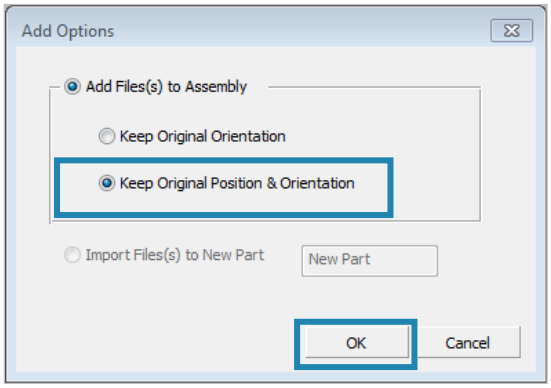
2. From the Additive Manufacturing tab ***pick*** **3XPert for SOLIDWORKS** 

command.



This command will launch **3DXpert for SOLIDWORKS**.

3. After the **3DXpert for SOLIDWORKS** is invoked, new window will open:

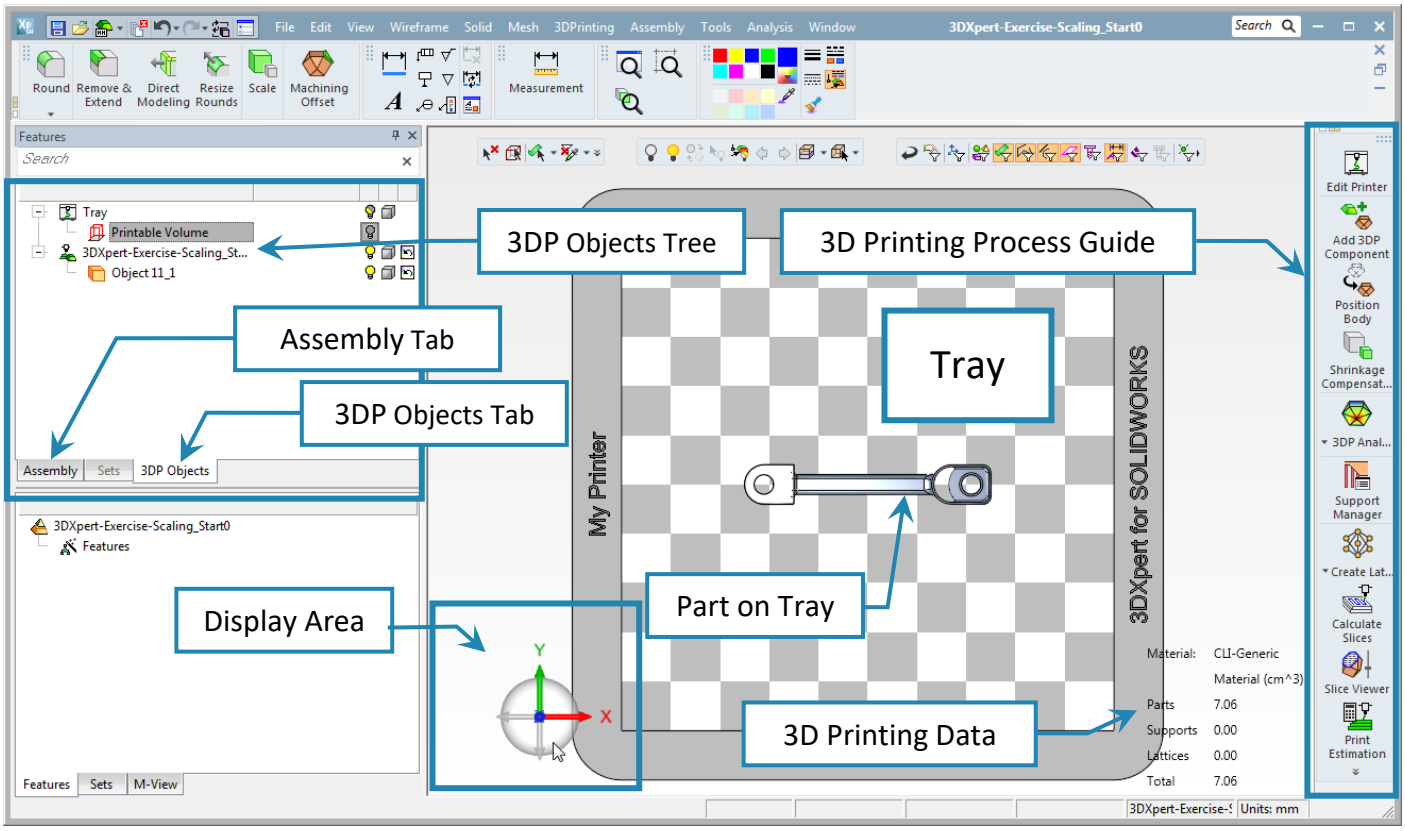


Pick **Keep Original Position & Orientation** and **OK**:

In this window we set the basic positioning of the part on the tray

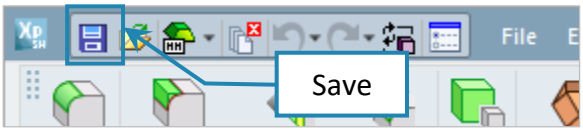
- **Keep Original Orientation** means that the part will not rotate to any direction - XYZ of the part will be parallel to the XYZ of the tray - but the center of the bounded silhouette will move to the center of tray.
- **Keep Original Position & Orientation** means that the part will not rotate to any direction - XYZ of the part will be parallel to the XYZ of the tray - but the center of the part (UCS 0,0) will move to the center of tray.

After the file is open the screen will look like this:

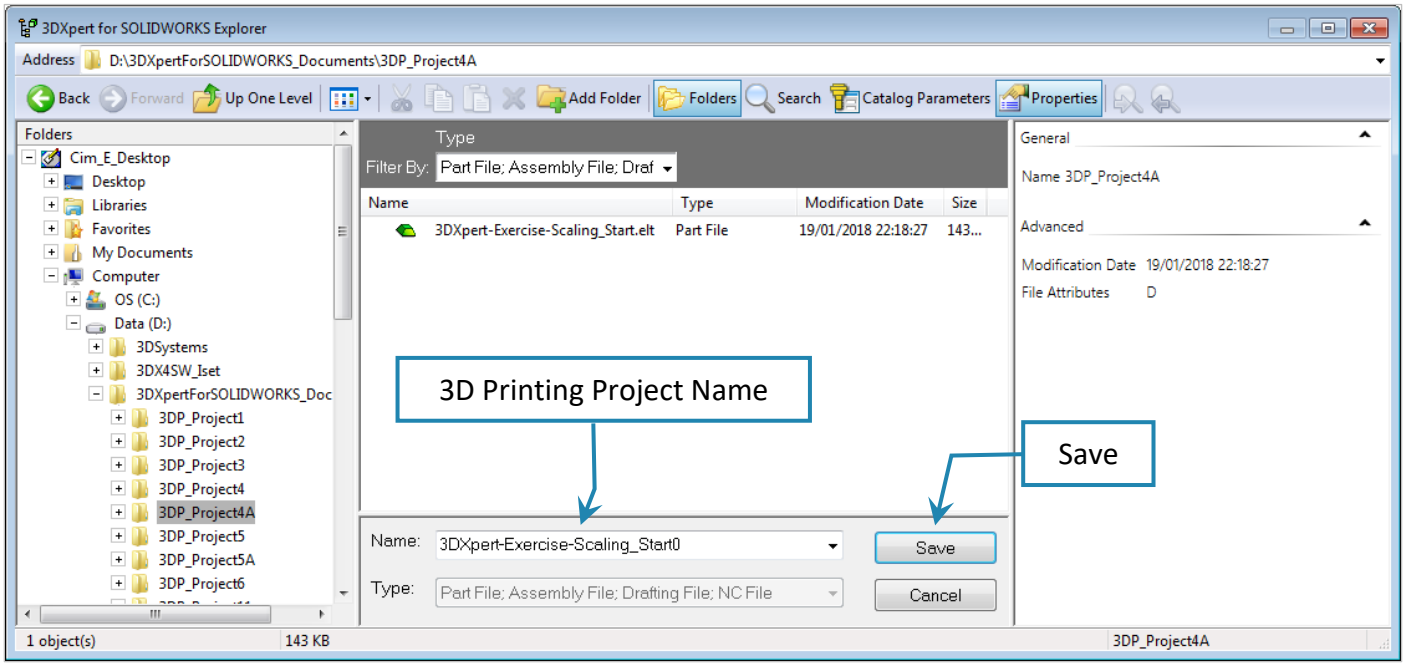


Notice the Process Guide on the right side of the screen. This guide contains most of the functionality to enable preparing the part for printing.

4. Save the project, pick the Save command on top left corner.

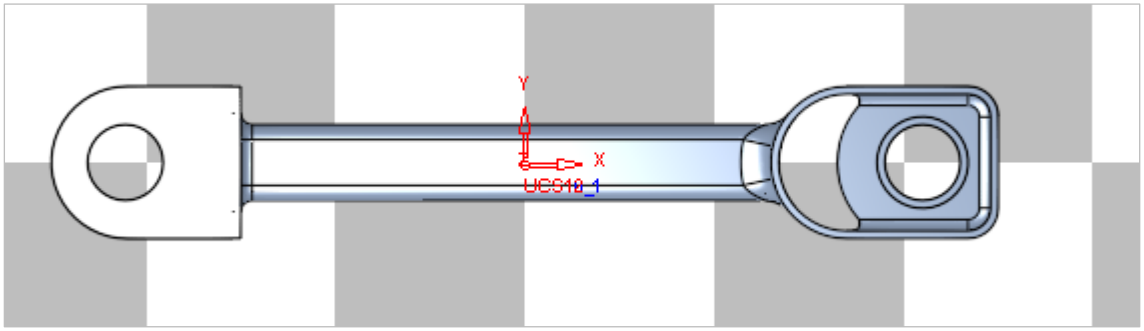


This command will open the ***3DXpert for SOLIDWORKS Explorer***. Save the file to the same folder with the downloaded files.

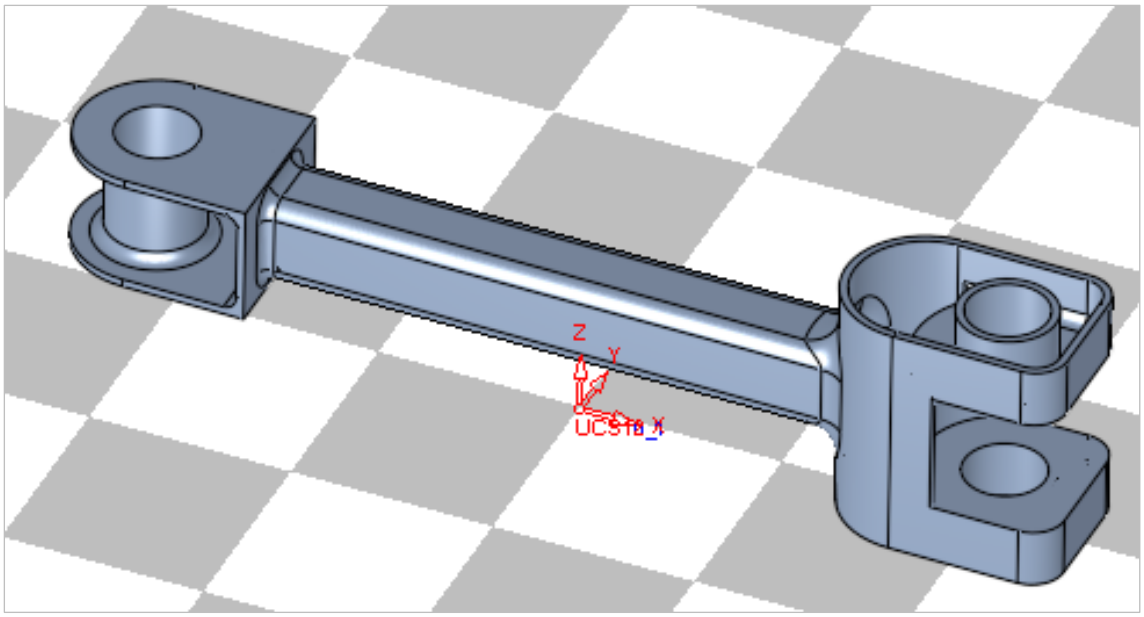


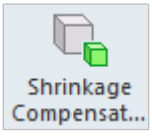
After adding the **3DP component** the tray will look like this**:**

From a TOP view

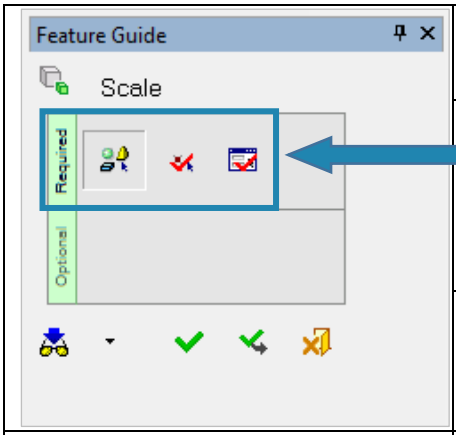


From ISO view



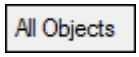
5. ***Pick* shrinkage compensation** 

command from the 3D Printing Process Guide.

<table>
<tr><td rowspan="2"> 
</td><td colspan="2">  shrinkage compensation</td></tr>
<tr><td colspan="2">1) Pick object
2) Pick a pivot point
3) Set parameters</td></tr>
<tr><td></td><td>  </td><td>"Preview" the result without executing</td></tr>
<tr><td></td><td>  </td><td>To approve and finish use the "OK"</td></tr>
<tr><td></td><td>  </td><td>To approve and continue use the "Apply".</td></tr>
<tr><td></td><td>  </td><td>"Cancel" – exit the comand without keep changes</td></tr>
</table>

Since the command have some defaults its "jumps" to the last stage in this command.

6. ***Pick*** the first stage in the Feature Gide - ***Pick* object**  **.**

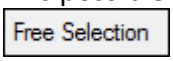
   At the first stage it is possible to choose between 

   All Objects (default) and 

   By *Pick*.
   The option **All Objects** does the same **shrinkage compensation** to all and in case of **By *Pick*** we have to repeat the command as needed.

   Keep **All Objects** and ***Exit*** (left mouse button) to continue.

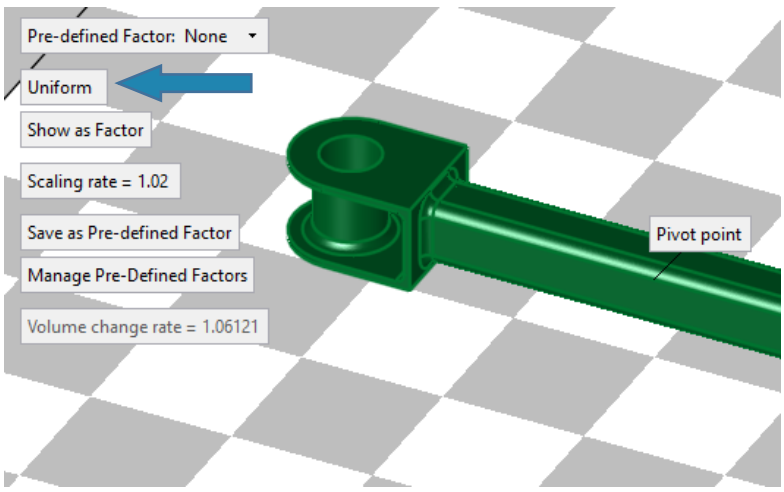
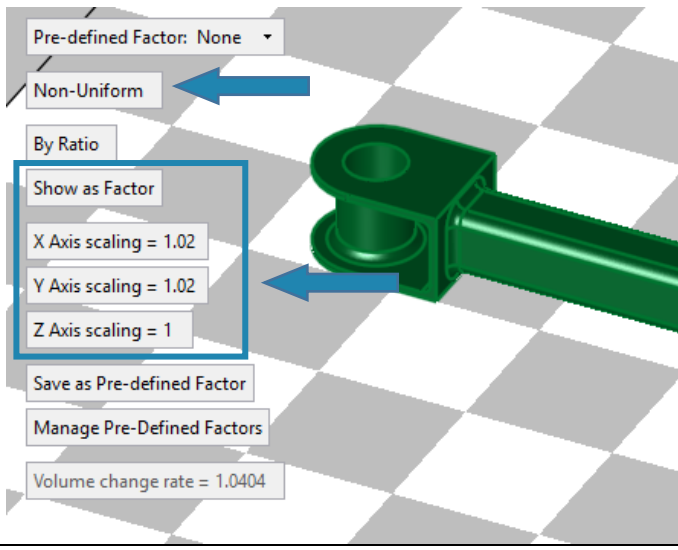
7. At the second stage ***Pick* a pivot point**  is possible to choose between 

   Center of Selected Geometry (default) and 

   Free Selection to ***pick*** any point as a pivot point.

   Keep **Center of Selected Geometry** and ***Exit*** (left mouse button) to continue.

8. Last stage **Set parameters**  .
   Set parameters as shown in the following pictures, to approve and finish use the *"**OK**"*:

Uniform Show as Factor	**Non-Uniform Show as Factor**
	

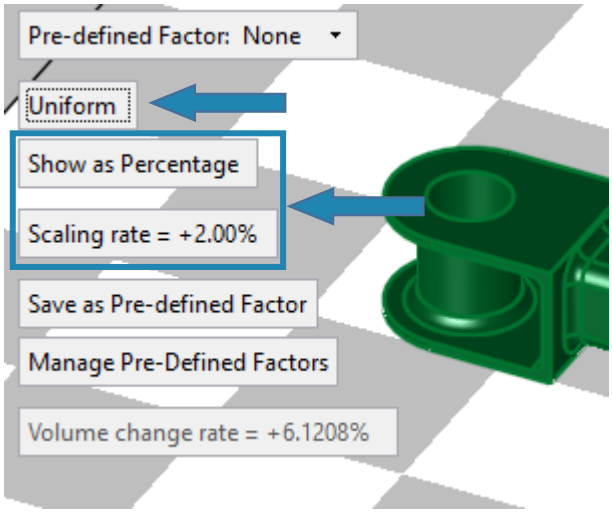
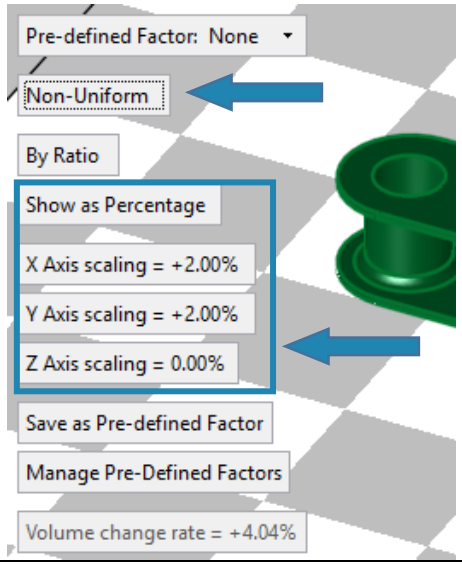
The **Uniform** parameter is used when the shrinkage compensation is the same to all main directions (XYZ) and can be changed to 

Non-Uniform for different values can be used for each main directions (X-Y-Z) separately.

In any method chosen, the Volume Change Rate 

is displayed.

It is possible to show the values **as Factor** Show as Factor or **as Percentage** Show as Percentage.

Uniform Show as Percentage	Non-Uniform Show as Percentage
	

After shrinkage compensation setting is finished and while the command is active the user can **save as Pre-defined Factor** Save as Pre-defined Factor (for a certain material or printing technology for example) and to use it next time.

!	*Please notice:* *when using Non-Uniform* compensation *with different values in any main plan direction (i.e. XY plane), cylinder in that plane are deformed*

End of Exercise.