

Create a 3D Printing Project

New Project-set part on Tray

13,0600,1489,1616(SP6)





command.

In this exercise, we will learn to create New Project-set part on Tray.

To create a new project and set the tray we need to follow few steps:

- Load Manifold_05_E1.SLDPRT to SOLIDWORKS
- Launch **3DXpert for SOLIDWORKS**.
- Edit Printer If needed *pick* a printer, set the printer's parameters and material.
- **Position Body** move and rotate the body to fit 3D printing considerations using dedicated analysis tools.

	Left mouse button name is " <i>pick</i> "
Notice/ Remember	Middle mouse button name is <i>"Exit"</i>
	Right mouse button name is "Click"

- 1. Load Manifold_05_E1.SLDPRT to SOLIDWORKS from the folder that it was downloaded to.
- 2. From the Additive Manufacturing tab *pick* **3XPert for SOLIDWORKS**



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

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

Add	Options		8		
Ī	- Add Files(s) to Assembly —				
	C Keep Original Orientation				
	Keep Original Position & Orientation				
1-	O Import Files(s) to New Part	New Part			
		ОК	Cancel		

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.

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	A		Save		Æ

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

3DXpert for SOLIDWORKS Explorer		
Address 🐌 D:\3DXpertForSOLIDWORKS_Documents\3DP_Project2		•
🔇 Back 📀 Forward 🏄 Up One Level 🔢 - 🐰 🗈 🔓 📈 🏹 Add Folder 🃂 Folders 🔍 See	rrch 🚰 Catalog Parameters 🚰 Properties 🔍 🔍	
Folders Type	General	•
E 🗹 Cim_E_Desktop Filter By: All Types 🗸	News 3DB Period2	
+ Desktop	Name SDF_Project2	
+ Cupper Modifica	Ition Date Size	•
Manifold_05_EL.SLDPRT_SLDPRT_file 19/01/201	.8 09:32:04 1,0 Advanced	
	Modification Date 19/01/2018 17:14:1	a 👘 👘
T S C C)	File Attributes D	
3D Printing Project Name		
+ 🔒 3DX4SW_Iset		
- 🐌 3DXpertForSOLIDWORKS_Doc		
+ 🔒 3DP_Project1		
+ BDP_Project2	Save	
1 D DD D i i i		
+ i SDP_Project4		
+ B 3DP Project5		
+ B 3DP Project6	 Save 	
Part File; Assembly File; Drafting File; NC File	Cancel	
1 object/c) 1 002 KB	3DD Project?	
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- New Project-set part on Tray

In the **3DP Objects Tree** it is possible to see that an object named **Tray** was automatically add to the tree, the **Tray** represents the printing area of the selected 3D printer.

For a clear view of the part, you can always hide or show the tray by pressing the bulb alongside the Tray part in the project's tree. This is also applicable for any other parts that we may add later on.



5. From the 3D Printing Toolbar *pick* the Edit Printer Edit Printer command,

Edit Printer	Select Printer
Printer My Printer Edit Printer Parameters	
Material	Overhang Angle
Min. Overhang Angle 30.	
🗙 Xh	

Please notice: **My Printer** is used for this exercise as well as 30° Overhang Angle.

ζ





6. *Pick* the **My Printer** button My Printer

Edit Printer	
Printer	
My Printer	
M2 cusing M2 cusing Multilaser M200 Mark One Mark Two Matrix 300 + Mini Mlab cusing Mi Mojo My Printer Objet Eden260VS Objet1000 Plus	
Objet24 Objet260 Connex3 Objet30 Objet30 Prime Objet30 Pro	► ×
Objet350 Connex3 Objet500 Connex3	
Original + Orion Delta Play Plus Plus 2	E
Q10 Q20 RenAM 500M	
Replicator Replicator 2 Replicator 2X	•

7. Pick the Edit Printer Parameters button

Edit Printer Para	meters					
Printer Name	My Printer		Material Manager	ment		
Comment	Virtual Printer for SolidWorks u		CLI-Generic		•	🛃 🗙
Chose Picture	۵,					
Technology	None	•				
Tray X Size		250.				
Tray Y Size		250.				
Tray Z size		400.				
Tray Origin Point	•		Default Project P	arameters —		
Center of Tray			Layer Thickness (µm)			30.
<u></u>			Minimal Distance Between Objects			1.
(Distance f	rom origin to bottom	left corner)		,		
(Distance in		herecomery	Minimal Distance	e Above Tray		0.
X Origin		-125.				
Y Origin		-125.	Printable Area [Definition	Indefined	•
Mark Recoate	er \Roller \Printhea	ds Direction on Tray	Recoater	Roller	© P	Printheads
Recoater \	Roller \ Printheads [Direction	@ X 🛛 🔿	Υ		
Mark Gas Flor	w Direction on Tray					
Gas Flow Direction			@ X 💿	Y		
			⊙ -x ⊙) -Y		
E.				Restore Def	aults	🗸 🗙

From this window it is possible to edit parameters to current or define a new printer, starting from the printer name, printer picture, printer volume and more.

Edit Printer Parameters

and look at the list of printers.

and a new window will open:





8. After adding the 3DP component the tray will lock like this:

Generic Frider

From a TOP view

From ISO view



Rotate the display and or use Dynamic UCS (display area bottom left) to view the position of the part.

9. Click (right mouse button) on the X axis of the Dynamic UCS to see that part of the body is under the tray, this will be fixed in the next step of positioning the body.









command,

10. *Pick* the **Position Body** Bod

Feature Guide # × Position Body	Position Body			
1) Pick object 2) Position Body				
	"Preview" the result without executing			
	✓ To approve and finish use the " <i>OK</i> "			
	To approve and continue use the " <i>Apply</i> ".			
	"Cancel" – exit the comand without keep changes			

The first thing that happen is that the body "jumps" so the lower point of the body will be at tray level. Above Tray parameter always keep the body above Tray level (Z=0).





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At this stage click the dynamic UCS anywhere on the white ball for ISO view





The bounding box (together with the part) can be moved and rotated either dynamically or by selecting the relevant parameters. To move the box dynamically, pick the part and drag it around the tray; to rotate the box, pick any of the edges of the box and drag it to rotate it.

To move the box dynamically, *pick* the part and drag it over the tray.

If **Consider Components** option is selected, the part cannot escape the boundaries of the printable area of the tray.

To rotate the box, *pick* any of the edges of the box and drag it to rotate it.

If **Consider Components** option is selected, the part cannot escape the boundaries of the printable area of the tray.

If that happens during rotation

The part "jumps" up above the tray.

es of the box selected, the ries of the Rotate around any edge

3D SYSTEMS





Orientation Analysis will be done according to the selected method chosen from the drop down menu.

Pick Auto Orientation button to start analysis after selecting the required method.

Overhang Angle defines the degree of overhang after which some support structure should be added to areas of the Body.

The angle is measured from the horizon and was set at **Edit Printer** stage. It is possible to change the angle at any time also in **Position Body** command.

The **Auto Orientation** takes the **Overhang Angle** in consideration while analyzing.





Reset Orientation allows at any time to reset the body Orientation to the same Orientation like when the part was added.

Flip rotates the body upside down (and vice versa). Auto Placement allows to position the part in the center of the tray without changing the **Orientation**.



Reset Orientation

Flip

End of Exercise.



