3DXpert™ for SOLIDWORKS®

# Build Platform Arrangement

## Copy Array

14,0200,1599,1024(SP2)

3D SYSTEMS

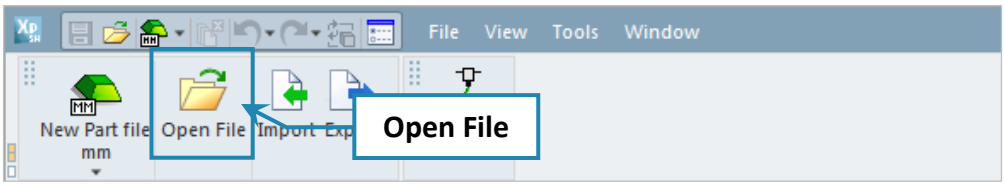
In this exercise, we will learn how to apply **Copy Array** to a part which placed on tray.
This is useful when you wish to increase or multiply the number of similar parts on tray.
Instead of adding the same part again and again, it is possible to copy the original part in 3DXpert For SOLIDWORKS as much as required.
The **2D Nesting** Calculation can be run at any time, also only for a quick analysis.
The **Copy Array** command can copy one or more parts and place them in an array.

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

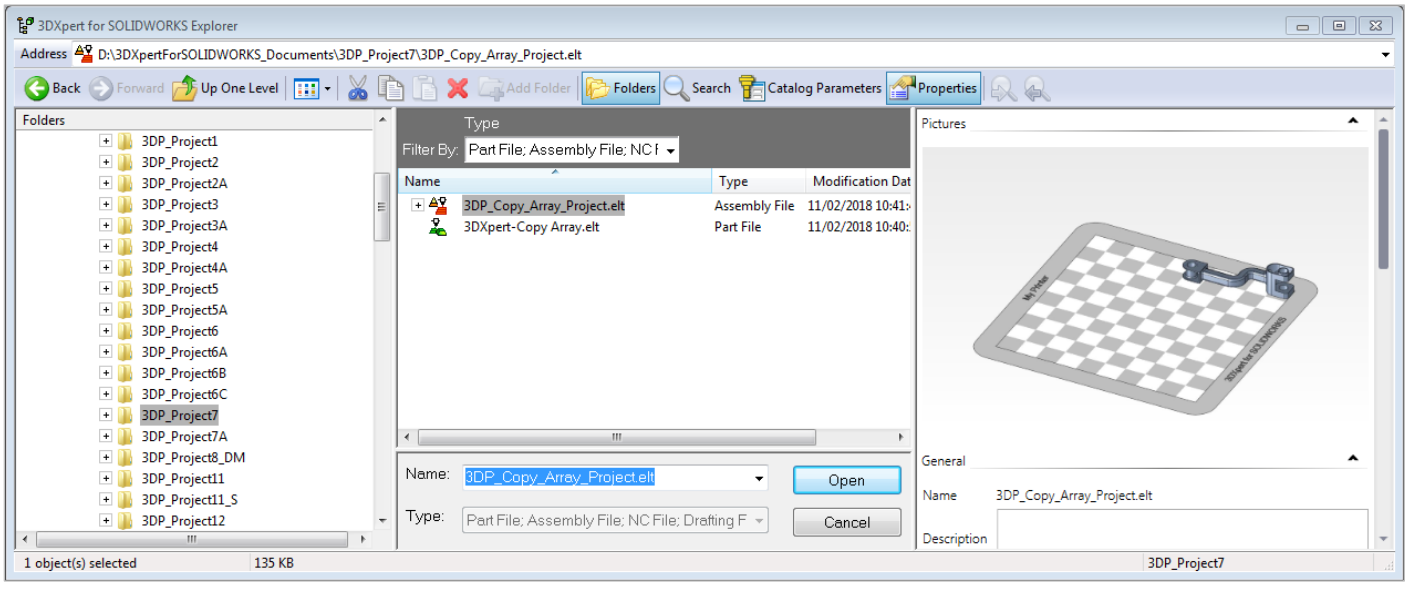
- Open downloaded **3D Printing Project** from the Initial screen.
- Use **Copy Array** command to multiply the parts on tray.

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

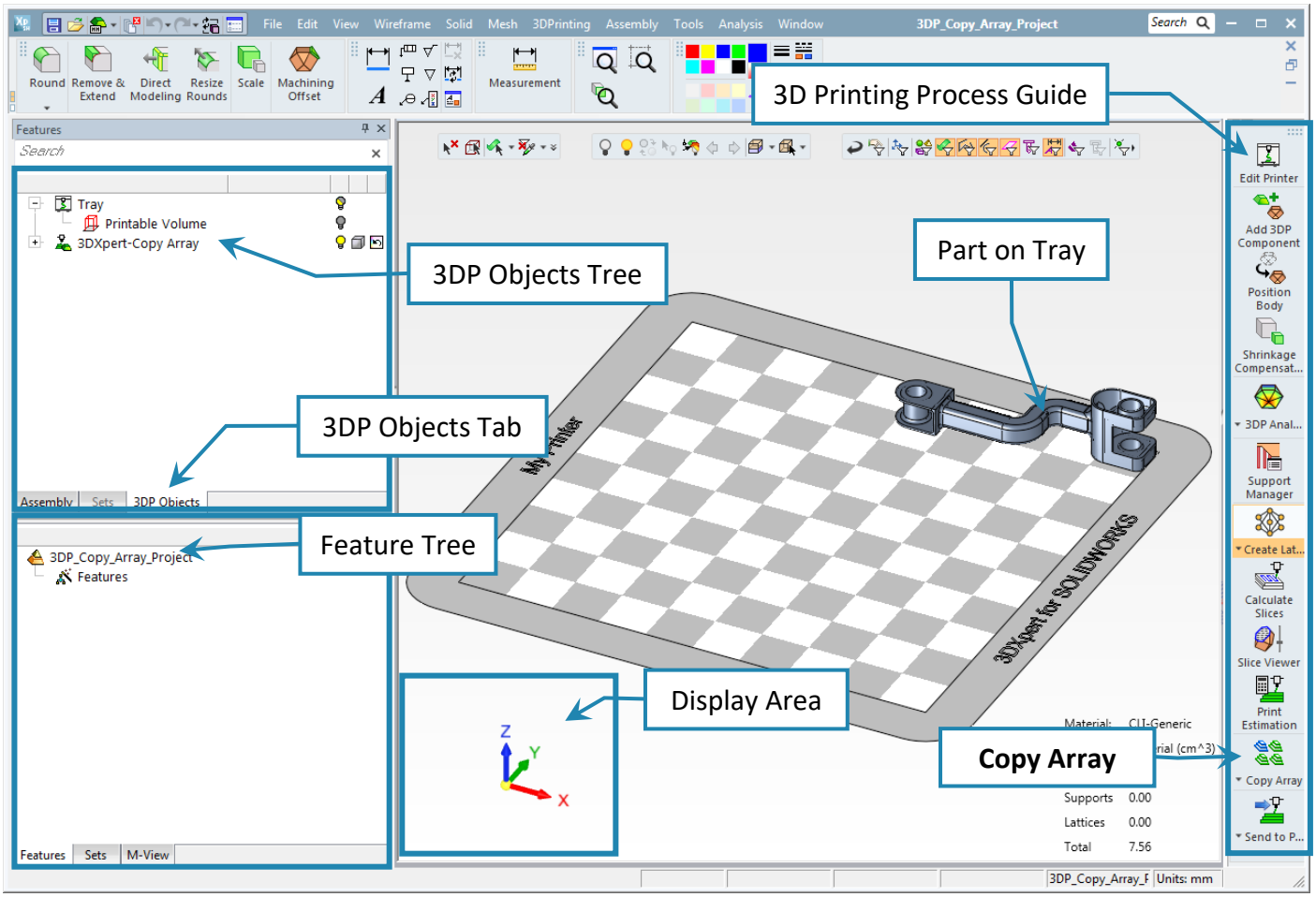
1. From the Initial screen ***pick*** **Open File**.

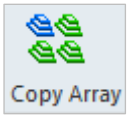



2. This command will open the **3DXpert for SOLIDWORKS Explorer**.
   Load project file **3DP_Copy_Array_Project.elt** from the same folder where you placed the downloaded files.

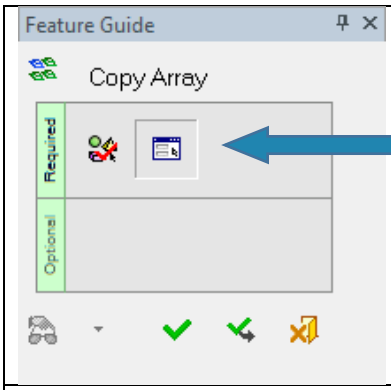


Once the file is open, the screen will look like this:




3. From the 3D Printing Process Guide access **Copy Array**  command.

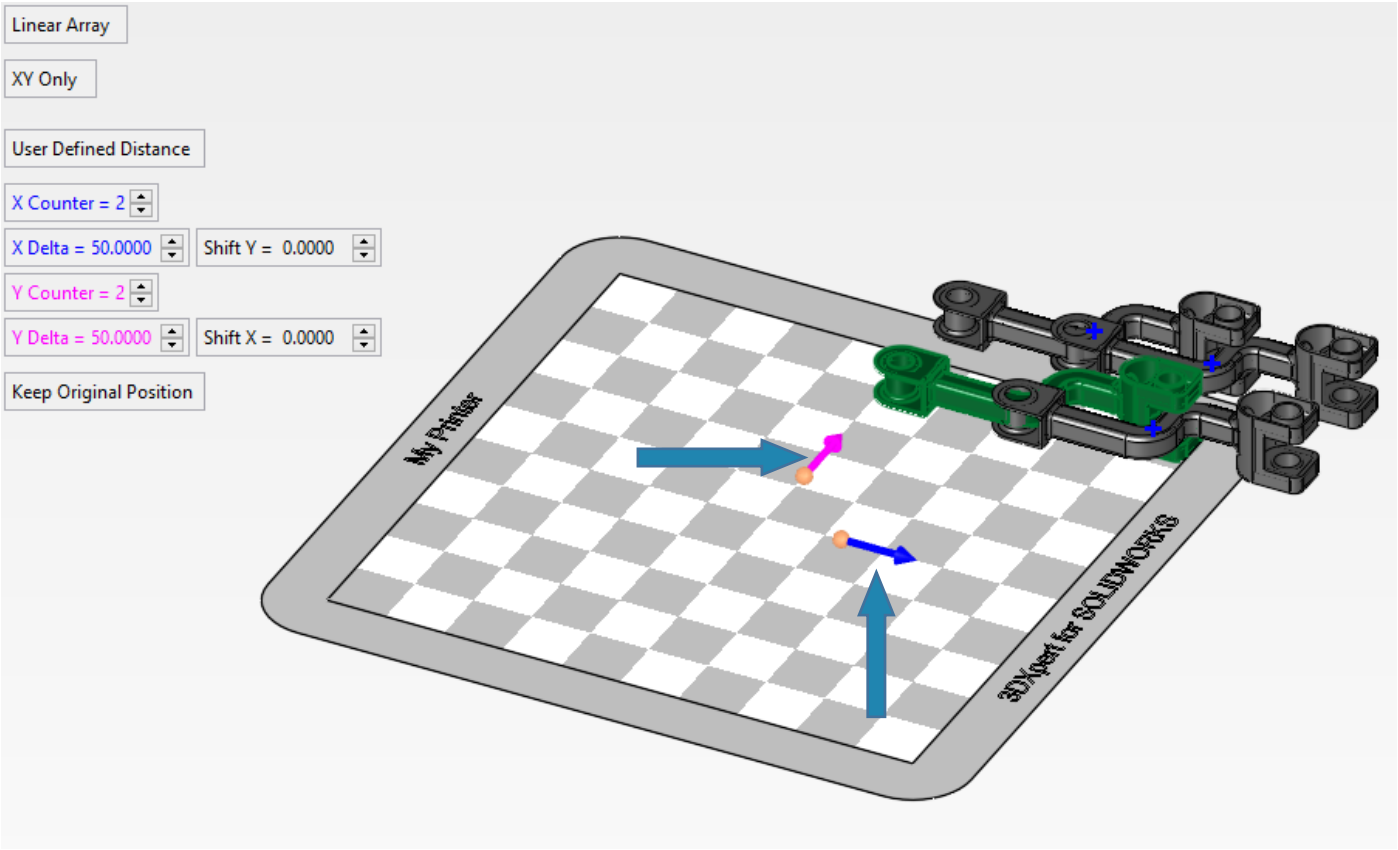




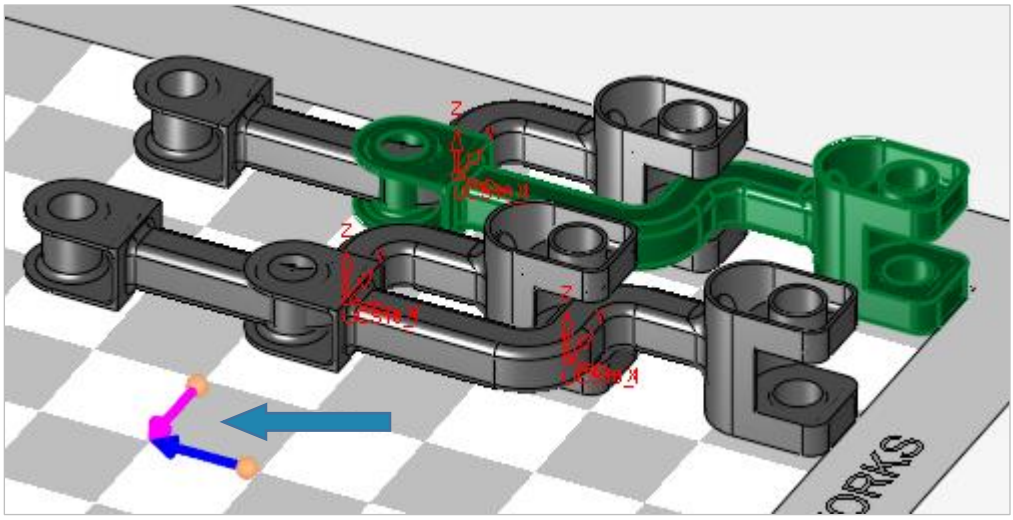

| | | |
|---|---|---|
| | | **Copy Array** |
| | | 1) ***Pick*** component(s) to be copied<br>2) Set Array parameters<br><br>To move from step 1) to 2) press ***Exit*** |
| | | **No *"Preview"*** for this command |
| | | To approve and finish use the ***"OK"*** |
| | | To approve and continue use the ***"Apply"***. |
| | | ***"Cancel"*** – exit the command without keep changes |

Note that Copy Array the preview is automatic (or "On Fly").

4. ***Pick*** the part from the screen and ***Exit***.

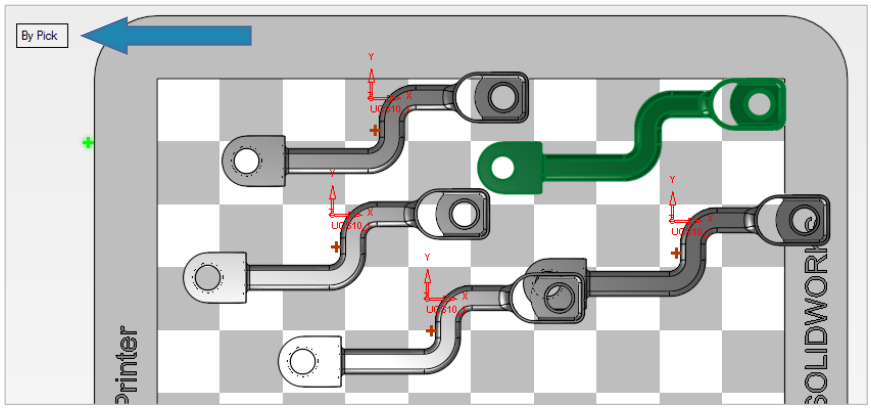



5. ***Pick*** the head of the two arrows (**Pink** and **Blue**) on the screen as seen in the picture above.
   This will Chang the direction of the copy instead of input – in the X & Y Delta:

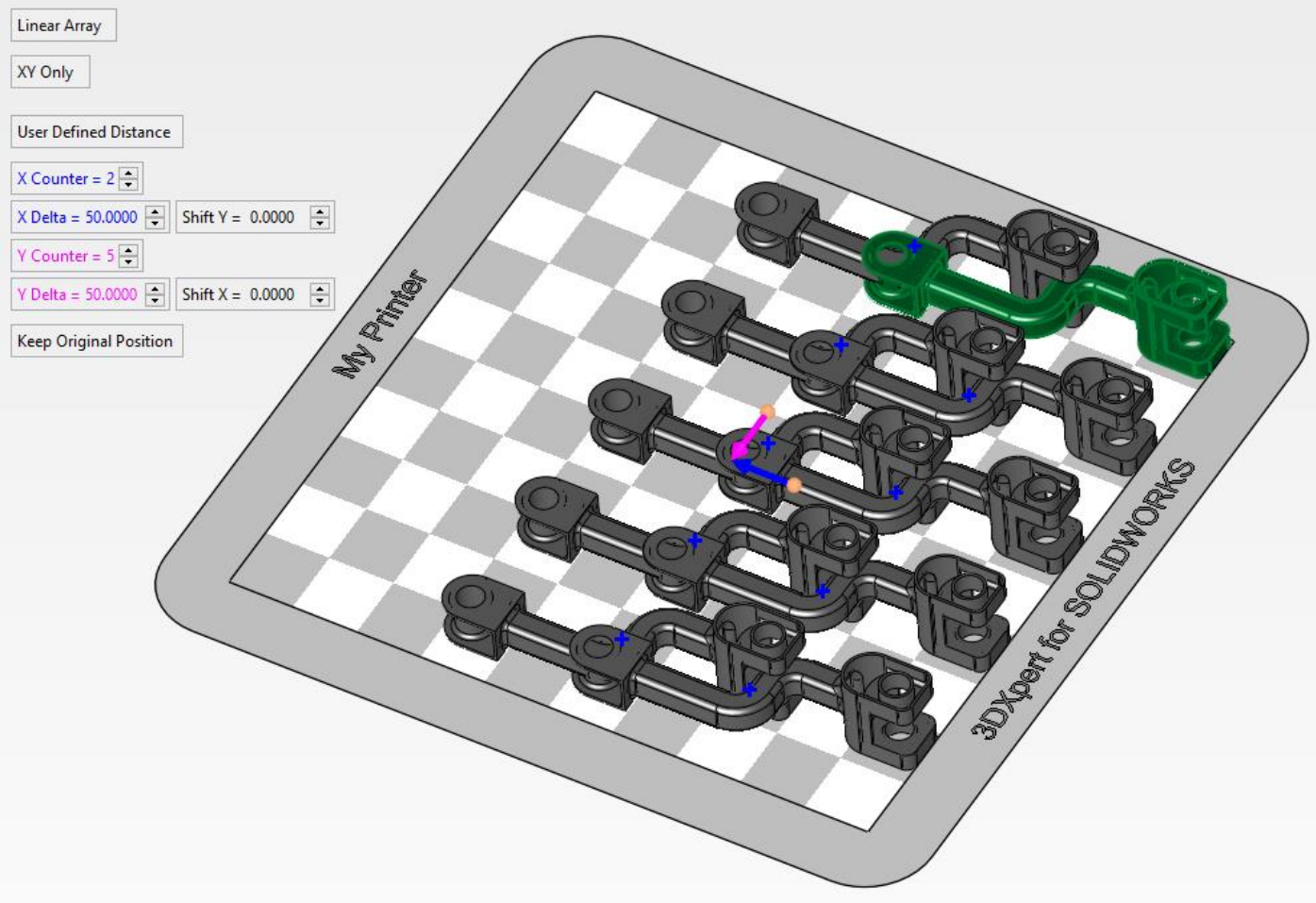


The main screen parameter allows the user to choose between **Linear Array** Linear Array (as seen in the picture above)

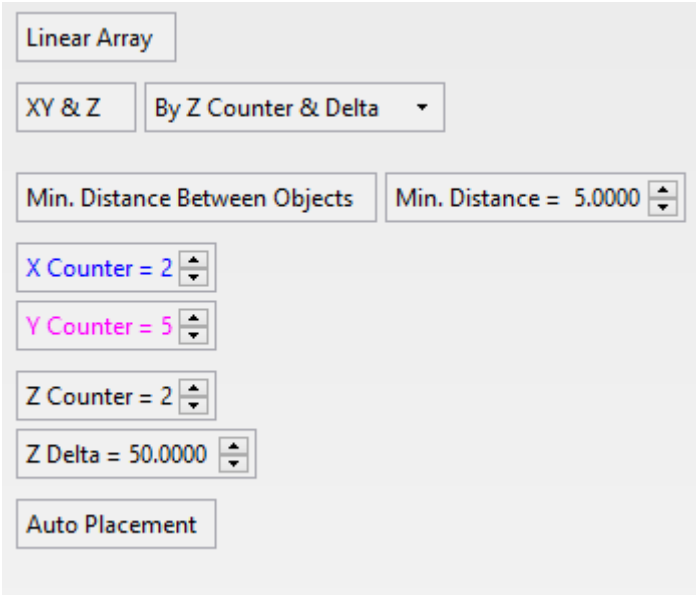
Or **By Pick** By Pick where, for each pick on the tray, a copy of the original part (as seen in the picture on the right) is placed.



6. Set parameters as shown in the next picture:




7. It is possible to copy array on **XY only** or also on Z direction. Change the parameter XY Only to **XY & Z** In this case, a 3D array is created in the X, Y and also Z direction.





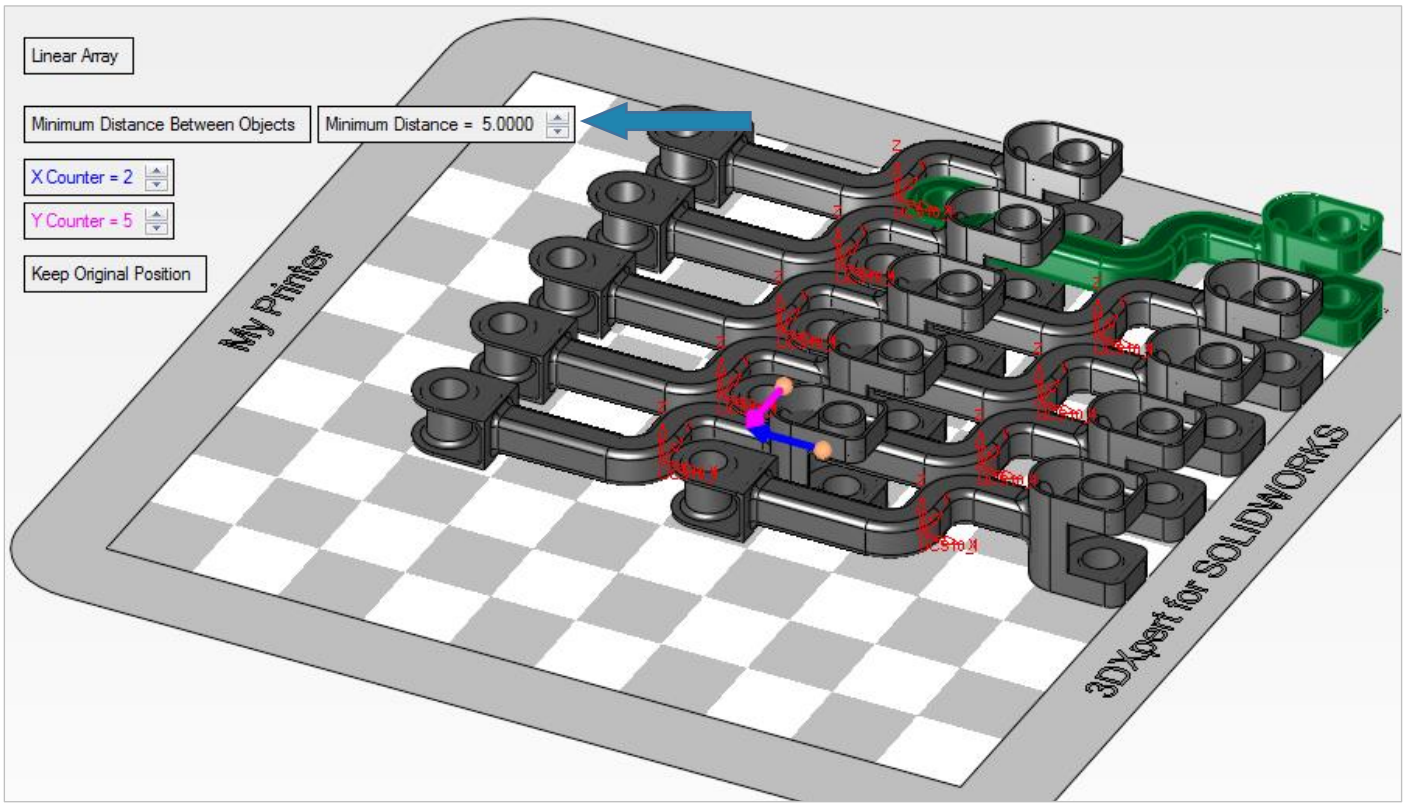
Additional options:

**By Z Counter & Delta**-Set the total number of parts in the Z direction (including the original part).

**Best Fit on Z**-Arrange the parts in the Z direction to best utilize the available 3D space in the Printable Volume on the tray, while taking into account the distance between the layers.
Each part is copied individually as much as possible to within the Printable Volume. As a result, the smaller (lower height) parts will have more instances than higher height parts.

**Best Fit by Layers**-Arrange the parts in the Z direction to best utilize the available 3D space in the Printable Volume, while taking into account the total bounding box of all the objects selected to be copied and also the distance between the layers.

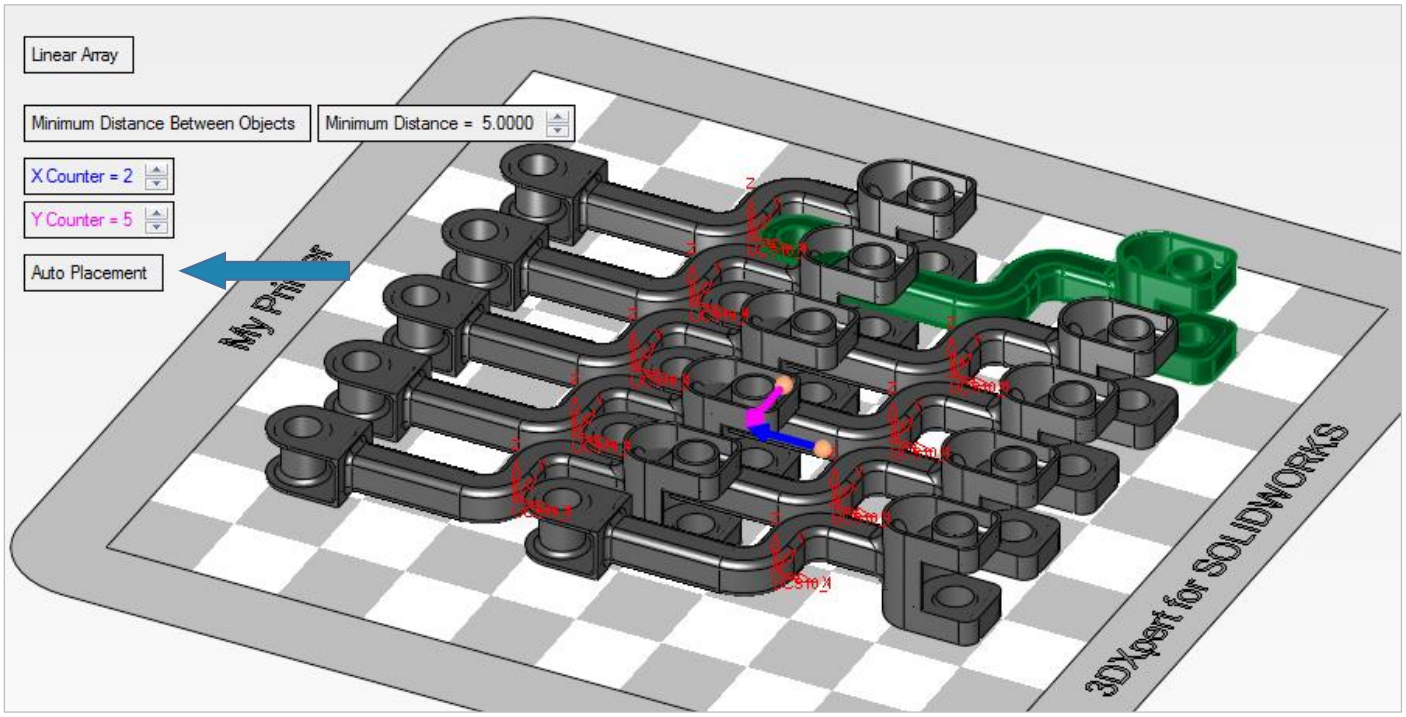
8. Change parameters from **User Define Distance** to **Minimum Distance Between Objects** and set **Distance=5.00** as shown in the next picture:




Note that in this mode of **Minimum Distance** the X&Y Delta are not displayed and that the systems ensues that the parts do not touch each other.

Change **Keep Original Position** to **Auto Placement** – the parts are now positioned around the center of the tray.

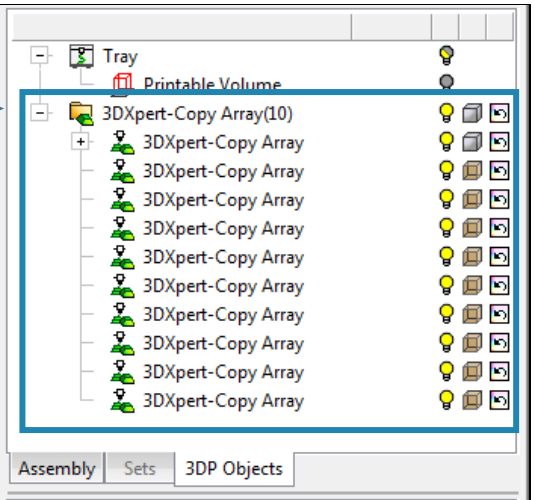
***Pick* OK**  in the feature Guide to approve.




End of Exercise.

Note:

**3DP Objects Tree** (upper left):
10 same parts on tray where created by using an assembly command **Copy Array**.
To each part it is possible to set its own render mode (Solid, transparent or wireframe) and color.
It is also possible to hide or show it.




**Feature Tree** (bottom left):
At any time, it is an option to edit and change **Copy Array** command from the **Feature Tree** and to set new parameters.