CREATE PROJECT
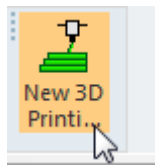## Edit Printer

Tutorial_V5 - Updated: 14,0200,1599,1024(SP2)

In this exercise, we will learn how to edit the printer

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

1. Open a new 3D printing project

2. Select Edit Printer

   Edit Printer

   Edit (or Add) the defined 3D Printer, and define material (where relevant)
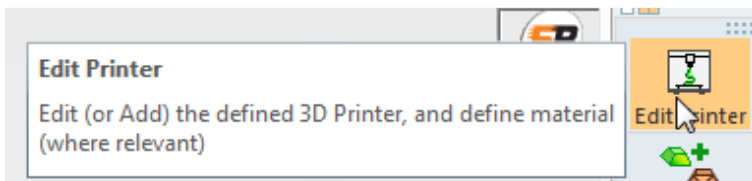
3. In the dialog below we define the following:

   Edit Printer

   Printer

   My Printer ▾

   Edit Printers and Materials

   Material

   CLI-Generic ▾

   Min. Overhang Angle 30
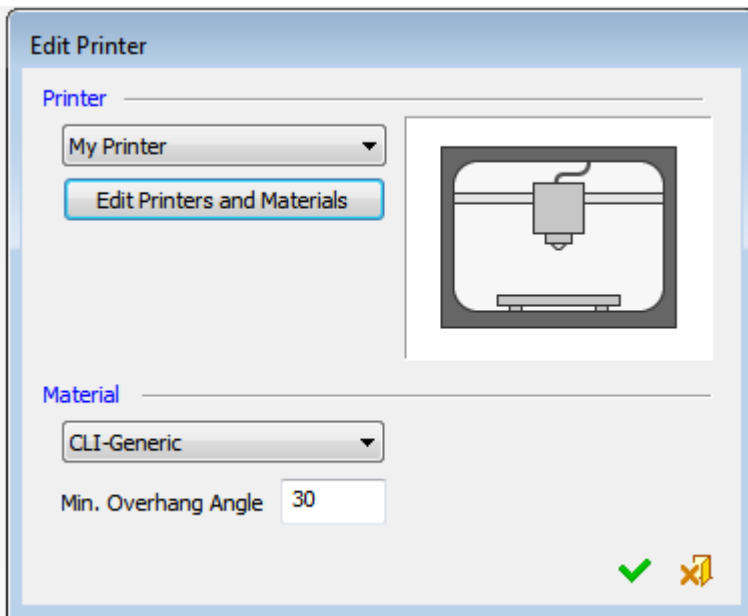
Printer

Select the printer from a drop down list of available printers
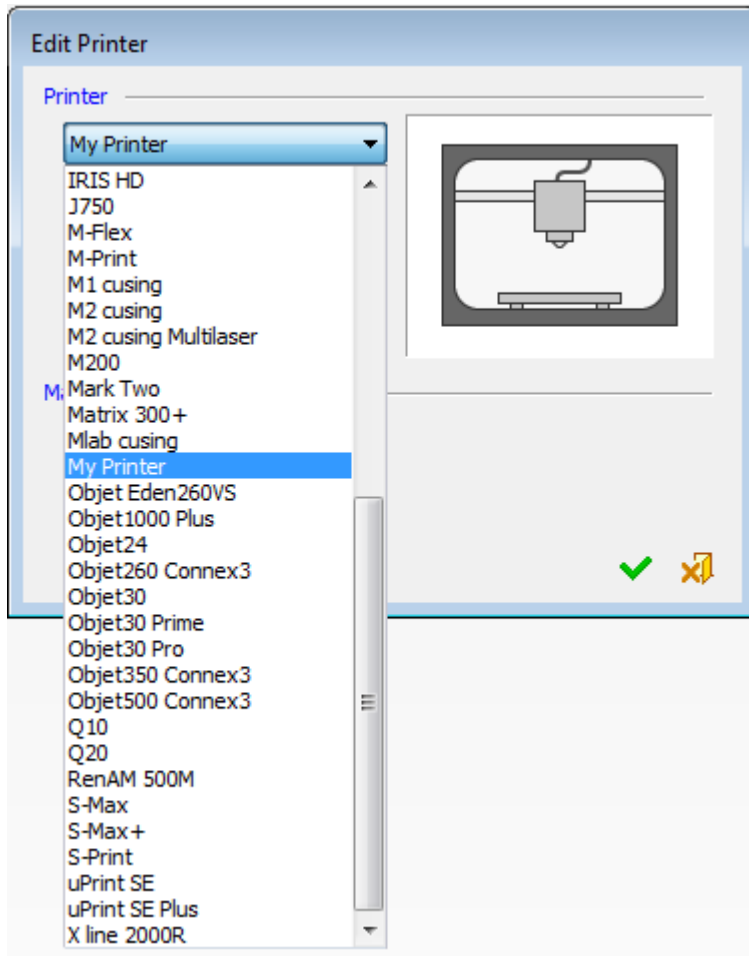
Material

The list shows only the materials that are relevant for the selected printer.

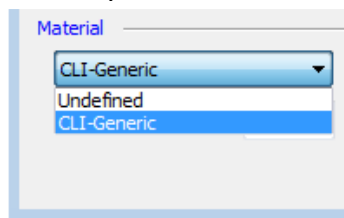The definition of material is essential, as without a material it is not possible to load\set a matching Build Style. 'Undefined' material means that Technologies will not be available later on.

Min Overhang Angle

During positioning of the part, the system runs a down faces analysis

The down faces analysis is a visual analysis tool, based on the defined Overhang Angle.

See that some the part's faces are colored in yellow or in red. These are the down facing areas (or, in other words. faces that 'see' powder below).

The value of the angle is taken from the printer parameters dialog, and can be changed in the positioning tool or in the support manager

Min. Overhang Angle	30.
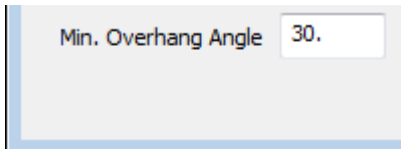
4. Select 'Edit Printers and Materials'

Edit Printers and Materials

Printer

Printer:	My Printer ∨

Restore Defaults	✕ Delete Printer	💾 Copy as new

Printer Type:	My Printer
Printer Name	My Printer
Comment	Virtual Printer for general purpose
Chose Picture	📁
Technology	None ∨
Default Printable Area	Undefined ∨

☐ Multi Head Printer   Multi Head Definition

☐ Consider Z0 Layer in Send to Print

Default Project Parameters

Default Layer Thickness (µm)	30.
Minimal Distance Between Objects	1.
Minimal Distance Above Tray	5.

Tray Settings

Tray X Size	250.
Tray Y Size	250.
Tray Z size	400.

Tray Origin Point

◉ Center of Tray

◯ Manually Define
(Distance from origin to bottom left corner)

X Origin	-125.
Y Origin	-125.

Material

Material:	CLI-Generic ∨

Restore Defaults	✕ Delete Material	💾 Copy as new

Material Name:	CLI-Generic

Angles for Design (does not affect slicing)

Default Min. Overhang Angle:	30.
Down-Facing Angle:	0.
Up-Facing Angle:	0.
Staircase Effect Angle:	0.

Tray Markings

☐ Mark Recoater \Roller \Printheads Direction on Tray

◉ Recoater   ◯ Roller   ◯ Printheads

Recoater \Roller \Printheads Direction

◉ X   ◯ Y

☐ Mark Gas Flow Direction on Tray

Gas Flow Direction

◉ X   ◯ Y   ◯ -X   ◯ -Y

💾 Save Material

Technology Settings	Template Manager	💾 Save Printer	⤶

Edit Printer

Following is the description of each parameters:

Printer Name

The printer selected in the Edit Printer dialog. This option is grayed out and cannot be changed here.

Comment

Add a comment regarding the printer, if required.

Choose Picture

Select a picture to represent the printer. Click the browse button to open the browser in the folder of the current printer. You can then select a picture and it will replace the current printer picture or add it with the relevant name if it does not exist.

Technology-

Define a Technology by selecting it from the dropdown list of technology templates for the selected printer. The technology defines the kind of additive manufacturing process that will used to create the required object.
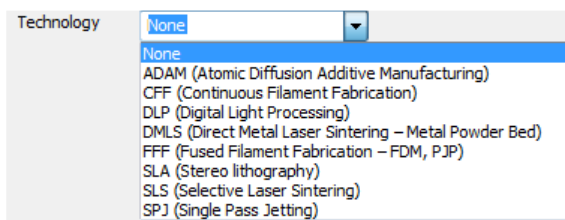
The following technologies are available:

Note that the naming convention is *Technology Short Name (Technology Full Name):*

None

No technology.

ADAM

Atomic Diffusion Additive Manufacturing (Markforged Metal).

This technology uses metal powders encased in plastic binders. Heating removes the plastic and the metal powder is sintered into a design, layer by layer. The sintering provides metal crystal growth through the bonded layers to increase structural durability.

CFF

 Continuous Filament Fabrication (Markforged Polymers).

This technology is similar to that of FFF, as parts are built by fusing two-dimensional slices on top of each other.

DLP

 Digital Light Processing.

This technology is similar to SLA in that it uses a light source to solidify a photopolymer resin layer by layer into a solid object. The difference is that instead of an ultraviolet laser to cure the photopolymer resin, a safelight (light bulb) is used.

DMLS
Direct Metal Laser Sintering – Metal Powder Bed.
This technology uses lasers to melt ultra-thin layers of metal powder, layer by layer to create a solid object.

FFF
Fused Filament Fabrication.
This technology extrudes a filament of molten material to form layers as the material hardens immediately after extrusion from the nozzle. Each layer fuses with the previous to create a solid object.
A filament is a thread or string of material fed into a 3D printer and extruded for fabrication.

This technology is also known as:
Fused Deposition Modeling - FDM
Plastic Jet Printing - PJP
Fused Filament Modeling - FFM
Melted and Extruded Modeling - MEM

SLA
Stereolithography.
This technology uses an ultraviolet laser to solidify a photopolymer resin layer by layer into a solid object.

SLS
Selective Laser Sintering.
This technology uses a laser to bind photosensitive powdered material by melting or sintering it together layer by layer to create a solid object.

SPJ
Single Pass Jetting (Desktop Metal).
This technology uses multiple jets (printheads) to dispense droplets of a photopolymer material that solidifies under ultraviolet light, layer by layer to create a solid object. The jets work in conjunction with powder spreaders to spread powder and print in a single quick pass across the build area.

These technology templates are stored under the following folder:
...\ProgramData\3D Systems\3DXpert Standard\13.0\Data\3D_Printing\Templates\Technologies\

3D SYSTEMS®

Tray X, Y,Z Size
Define the XYZ size of the 3D printing tray

Tray X Size	275.
Tray Y Size	275.
Tray Z size	420.

Tray Origin Point
Define the origin point of the printing tray
Either by selecting the default Center of Tray option, or by Manually Defining the center

Tray Origin Point

◉ Center of Tray

◯ Manually Define
(Distance from origin to bottom left corner)

X Origin	-137.5
Y Origin	-137.5

Mark Recoater / Roller / Printheads Direction on Tray
Select the method of applying material; recoater blade, roller or printheads.

☑ Mark Recoater \ Roller \ Printheads Direction on Tray   ◉ Recoater   ◯ Roller   ◯ Printheads

Recoater \ Roller \ Printheads Direction   ◉ X   ◯ Y

The recoater/roller moves across the tray to produce a very flat layer of powder which will be the basis for the part to be built. After each laser scan (layer built), the recoater/roller moves across to deposit more powder, and the process is repeated until the part is produced.
The printheads are jets which dispense droplets of a photopolymer material that solidifies under ultraviolet light.

Mark Gas Flow Direction on Tray
Set the gas flow direction

☑ Mark Gas Flow Direction on Tray

Gas Flow Direction   ◯ X   ◉ Y
   ◯ -X   ◯ -Y

Edit Printer

3D SYSTEMS

Material

Set a material by selecting it from the dropdown list of materials for the selected printer. The currently defined material (set in the Edit Printer dialog) is automatically selected.

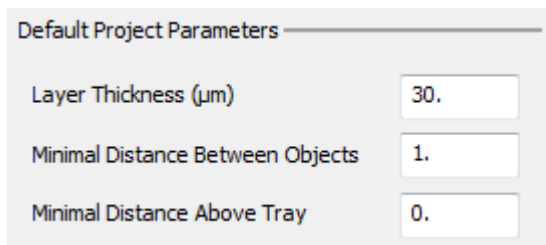 Copy as New Material- Copy the material's folder under the printer folder

 Delete Material: Delete the existing material's folder under the printer folder

Default Project Parameters

Default Layer Thickness (µm) - This is the default value. It will be used for the Print Estimation and also the slicer (for this printer). The default is 30.

Minimal distance between objects - Set the minimum distance between objects, if multiple objects are placed on the printing tray.

Minimal distance above tray - Set the minimum distance above the printing tray for the placement of objects
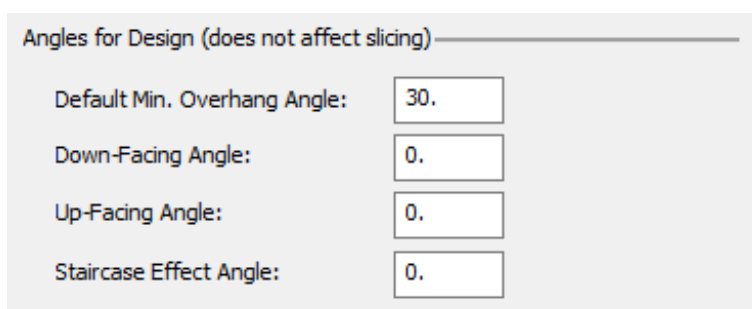

Angles for Design

Default Min. Overhang Angle - Defines the minimal angle of overhang. Based on printer and material, this practically dictates the amount of support, which may be required for the print to succeed

Down-Facing Angle - Set the default value of the down-facing angle. A down-facing face is a face whose normal points downwards, towards the build tray (given the selected build orientation)

Up-Facing Angle - Set the default value of the up-facing angle. Faces, whose angle is higher than this angle, are considered as up-facing. Up-facing areas usually require specific printing strategies.

Staircase Effect Angle - Set the default value of the staircase effect angle. The Staircase Effect occurs in near horizontal areas where the printing slices are more noticeable. The staircase effect is relevant for both up-facing and down-facing areas.

3D SYSTEMS

Printable Area

Define the printable area for the selected printer. This sets the area on the tray where printing is allowed. If several area definitions are available in the dropdown list, select one of the configurations of the printer.
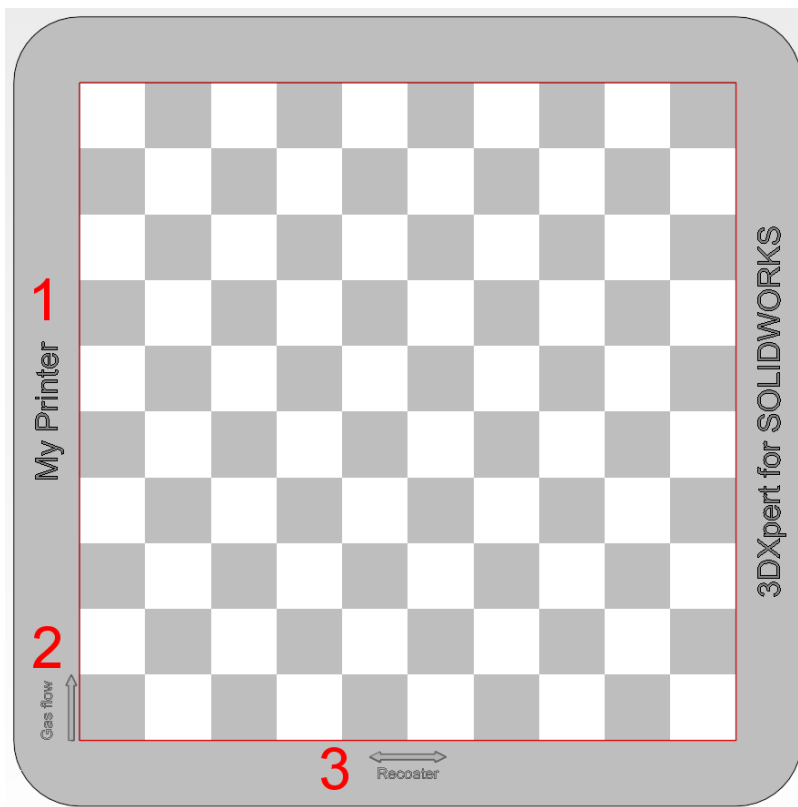
Note: Printable area definition is currently not set for the available printers.

Default Printable Area | Undefined ▼
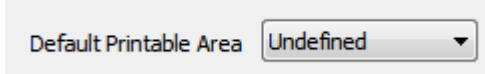
Once you set the parameters for your printer, some of the parameters defined for the printer are displayed on the tray.

The data presented on the tray is as follows:
1. Printer type (defined in the Edit Printer function).
2. Gas Flow direction (defined in the Edit Printer Parameters dialog).
3. Recoater/Roller/Printheads direction (defined in the Edit Printer Parameters dialog).

End of Exercise.