# Autodesk® Netfabb® 2021.0

## What's New

WESTCAM®

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# Autodesk® Netfabb® 2021.0

- **Netfabb 2021 Release Highlights**
- **Netfabb Simulation 2021 Release Highlights**

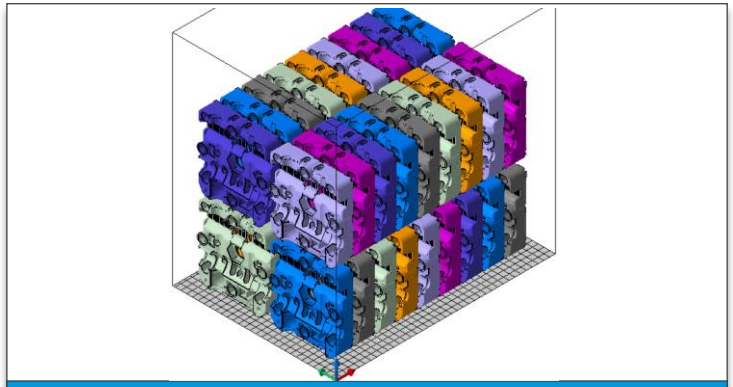
*Image courtesy of Philip Manger*

# Netfabb 2021.0 Release Highlights

## Market Impact

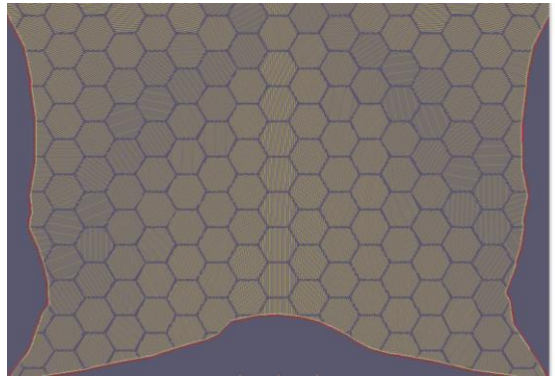
New Machines:
- Mimaki
- Origin
- Formlabs

Improved connectivity
- HP



## User Experience

- New support functionality
- Part library improvements
- Improvements to arranging parts
- Automating common workflows



## Thought Leadership

- New 3D Packing methods
- ATU improvements
- Increased SimLT limits

# More Machine Integration

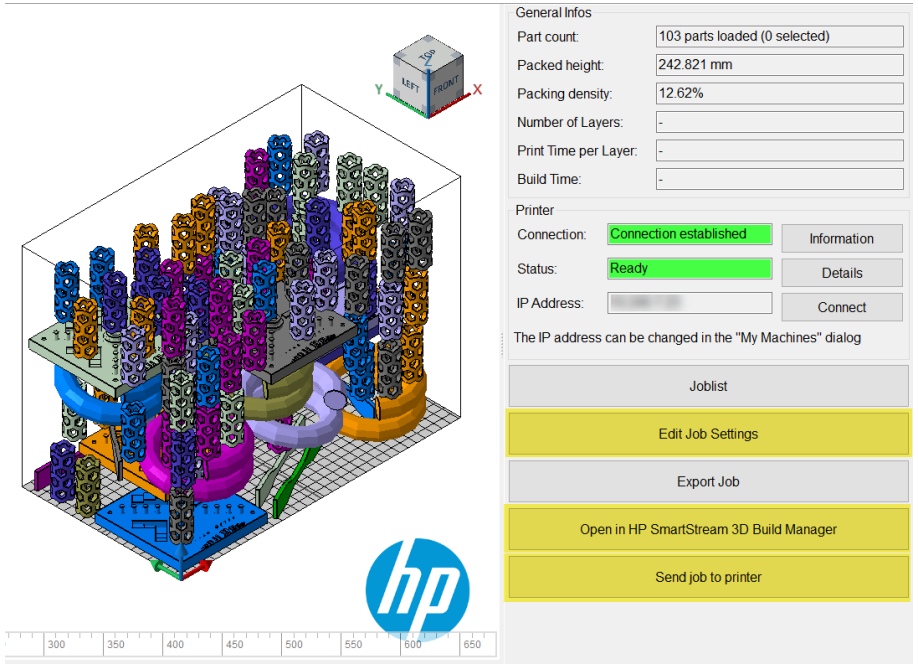

**Origin One**

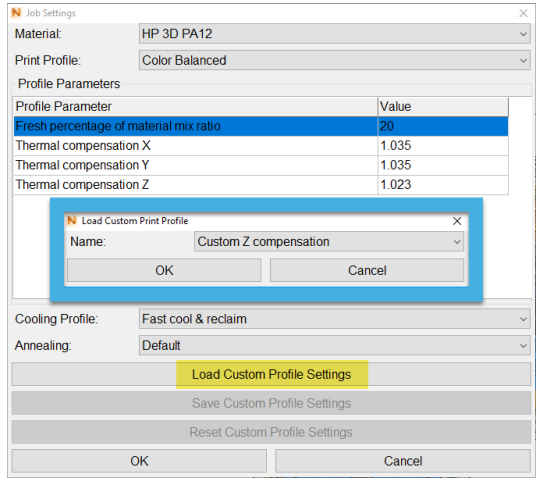

**Formlabs 3L and Fuse 1**

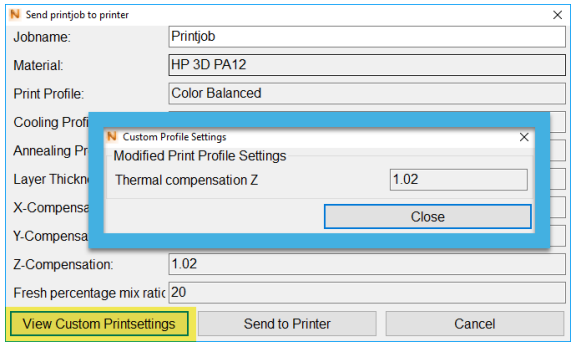

**Mimaki 3DUJ-553**

# Better connection to HP machines

Create, save and load print profiles for a given material for HP printers  directly within Netfabb and transfer the full build platform to HP SmartStream 3D Build Manager with one click.



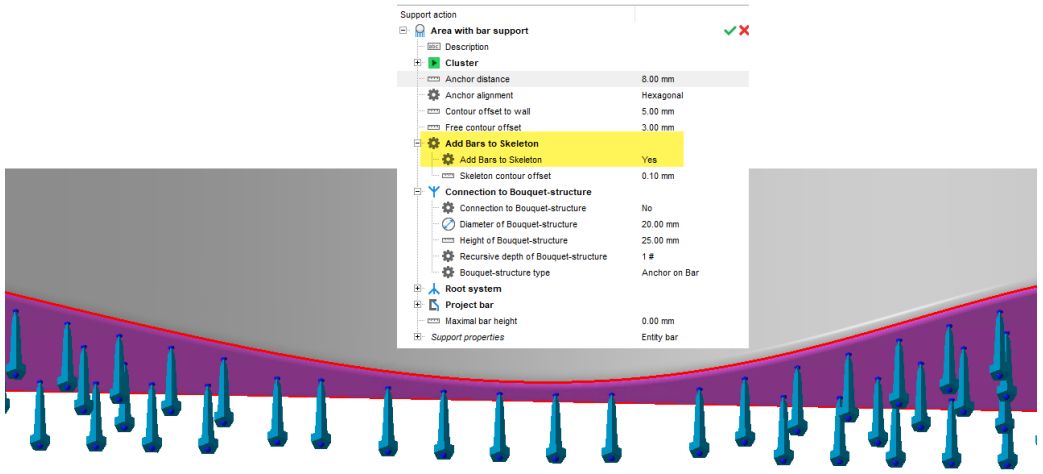

**Where to find it?**

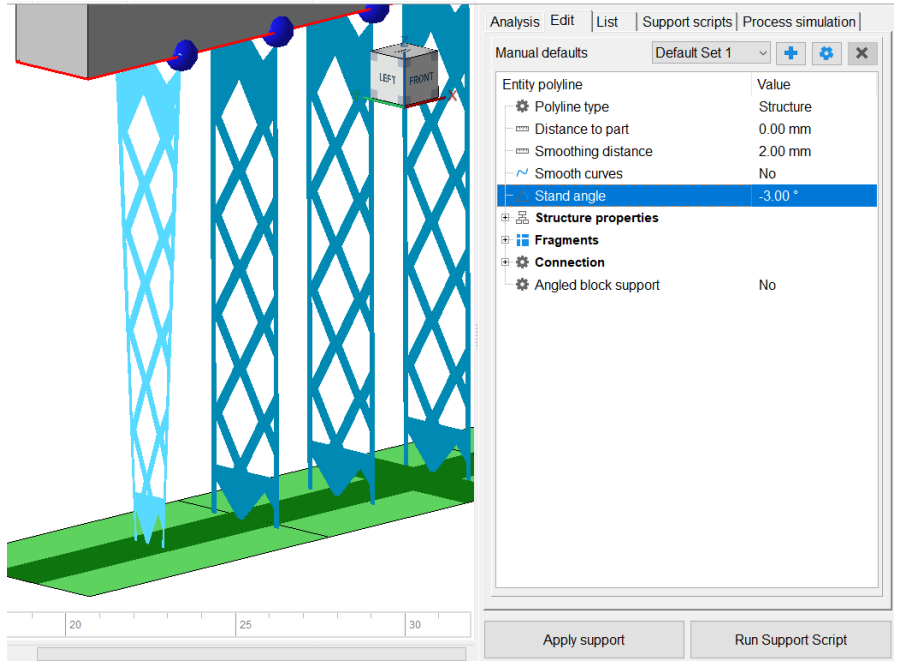
- HP workspace: Edit Job Settings,
- HP workspace: Send job to printer
- HP workspace: Open in HP Smart Stream

# New Support Functionality

New ways to create and manage support structures

- Clone supports between similar parts
- Taper polyline supports
- Better bar supports for thin sections



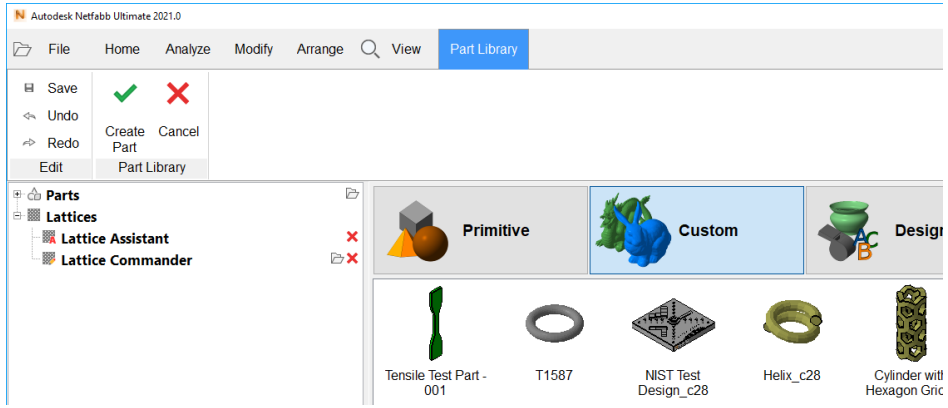



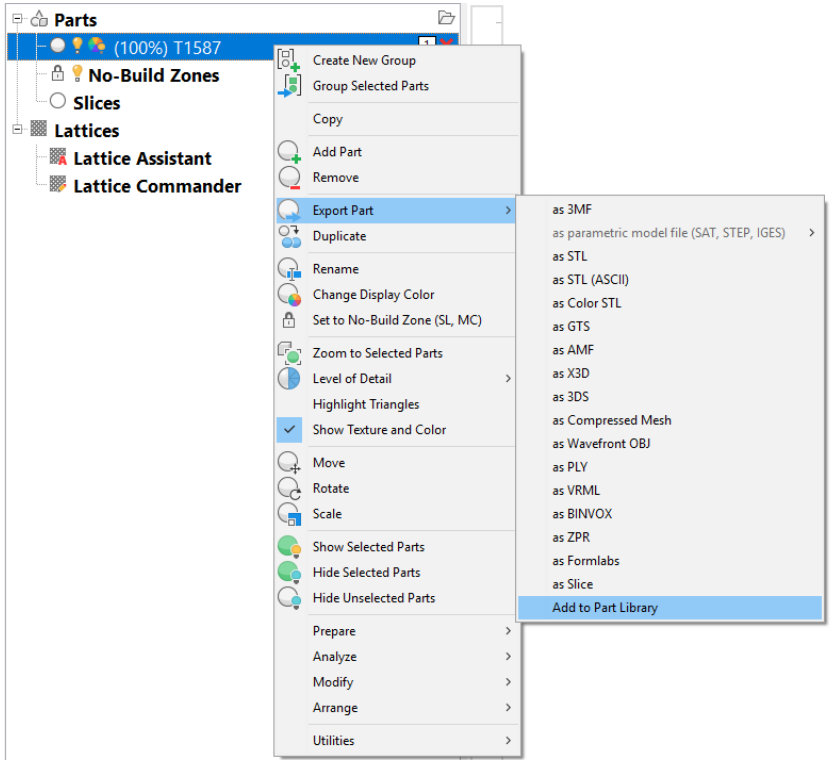

**Where to find it?**

- Home Tab: Supports Panel: Manage Supports: Attach Cloned Support
- Home Tab: Support Panel: Generate Supports: Support Scripts: Area with Bar Supports: Add Bars To Skeleton

# Part Library Improvements

Ability to add geometries to the Custom Part Library



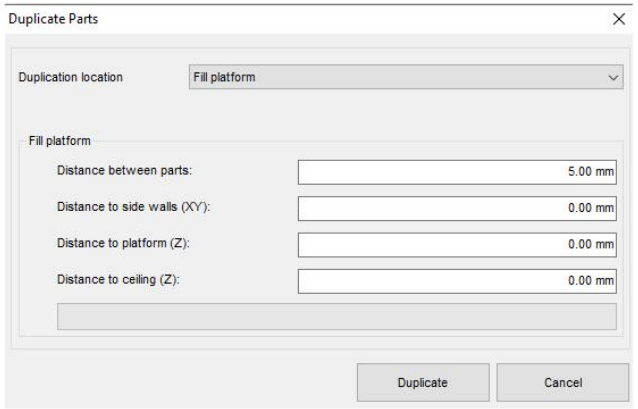

**Where to find it?**

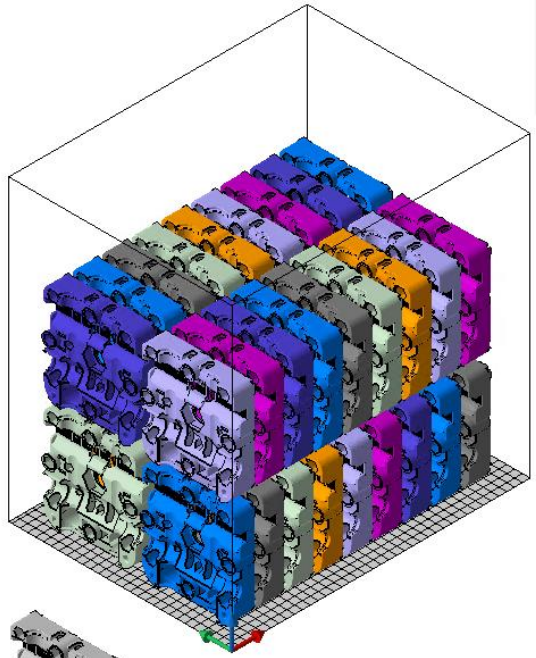
- Select a Part: Right click menu: Export Part: Add to Part Library

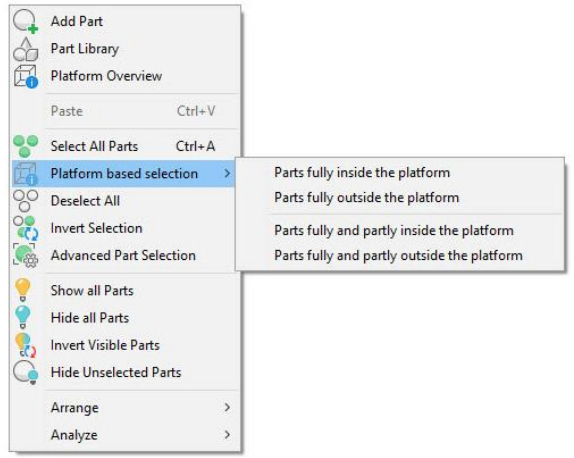
# Improvements to arrange tools

User Interface improvements for duplication workflows including;

- a new rectangular pattern dialogue,
- ability to  automatically fill the build volume with selected parts or slices
- selecting parts based on their position in or outside of the platform



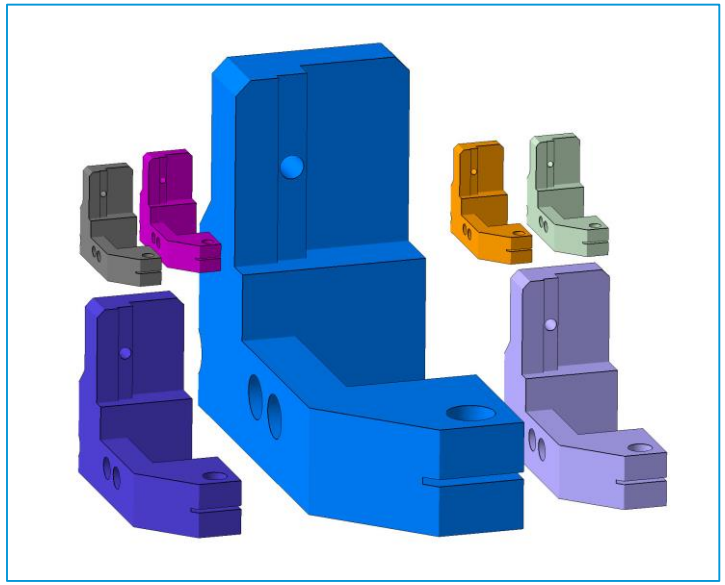


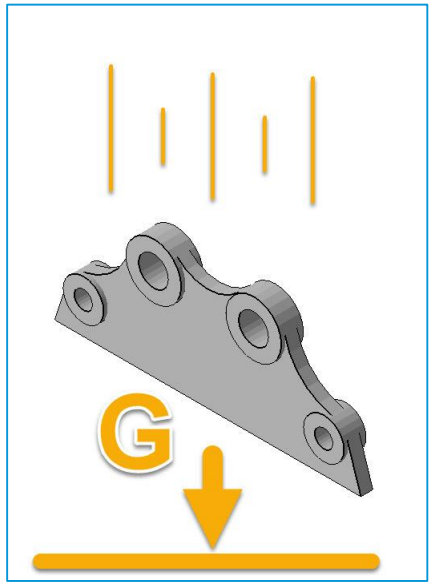

**Where to find it?**

- Home Tab: Arrange Panel: Duplicate Button
- Right click on canvas: Platform based selection

# New 3D Packing Methods

Two new packing algorithms (Gravity and Size Sorting) to increase packing density for processes that don't require support structures such as SLS and MJF.



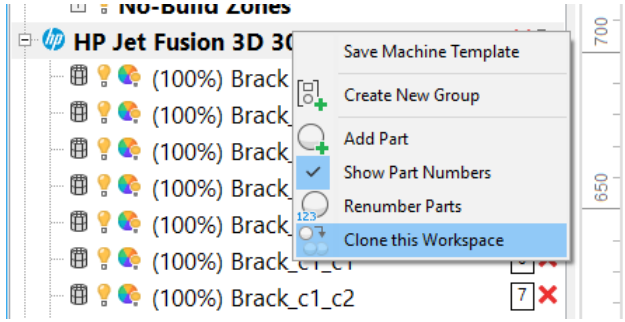


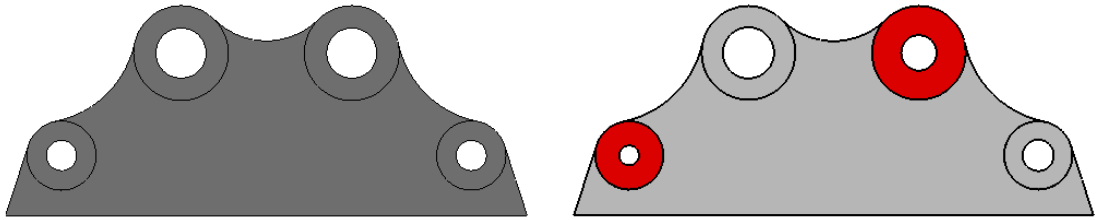

**Where to find it?**

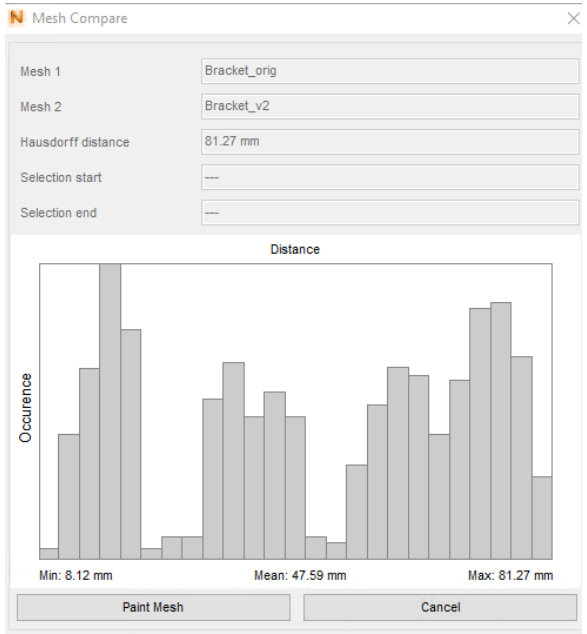
- Home Tab: Arrange Panel: Pack Dropdown: 3D Packing – Size Sorting
- Home Tab: Arrange Panel: Pack Dropdown: 3D Packing – Gravity

# Automating common workflows

- New Scripting examples for comparing two meshes.
- Automatic Support Separation.
- Ability to quickly duplicate any workspace.



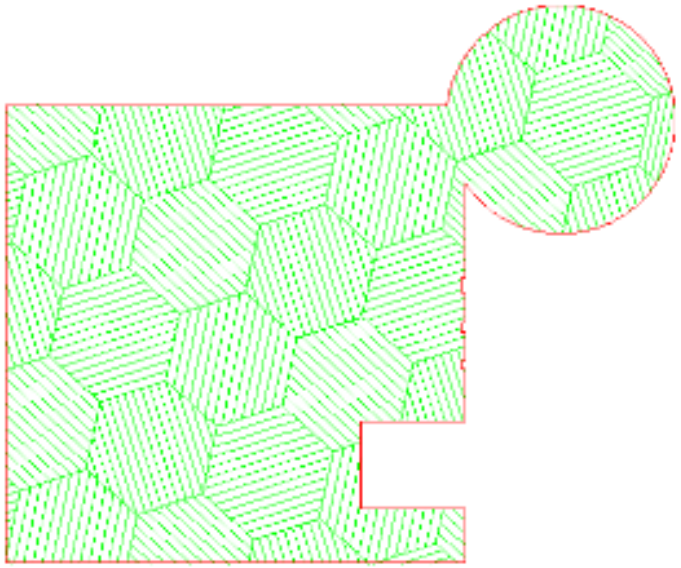



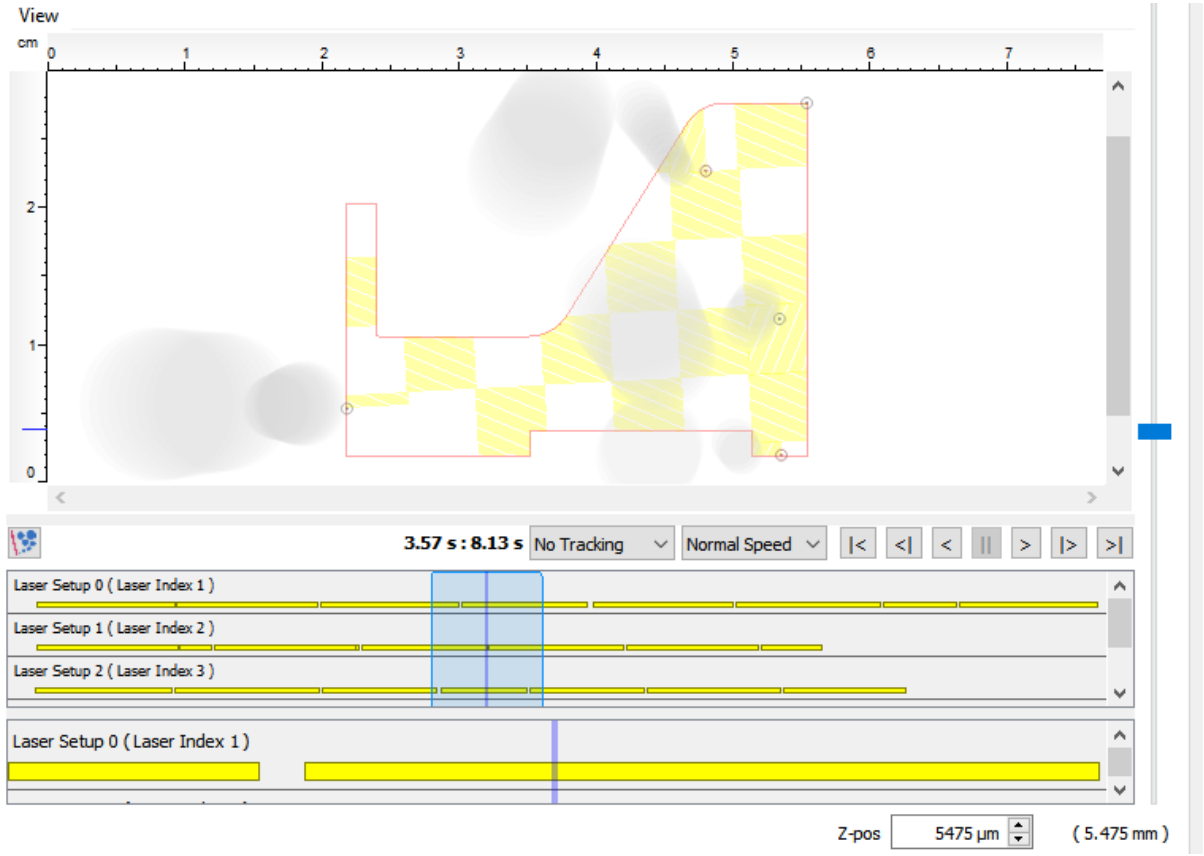

**Where to find it?**

- Netfabb installation folder \Examples \Lua Scripts\ Script32_MeshCompare.lua
- Home Tab: Supports Panel: Manage Supports: Separate open and solids support to parts
- Right click on a workspace: Clone this workspace

# Advanced Toolpath Utility Improvements

- Hexagonal Hatch Patterns.
- Ability to inspect and run smoke simulation of slice data from SLM Solutions and Renishaw.
- Ability to control toolpath vectors based on external input, such as process simulation results.



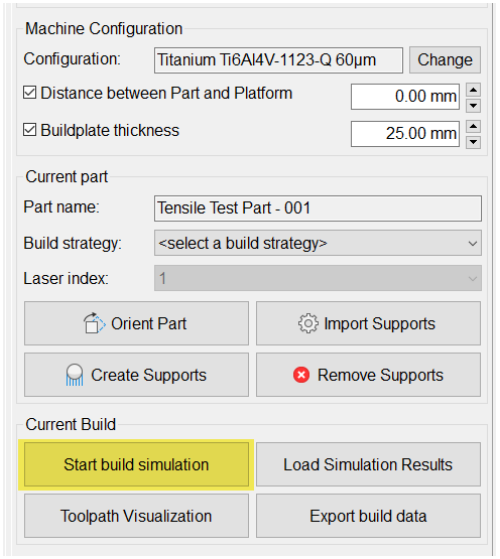


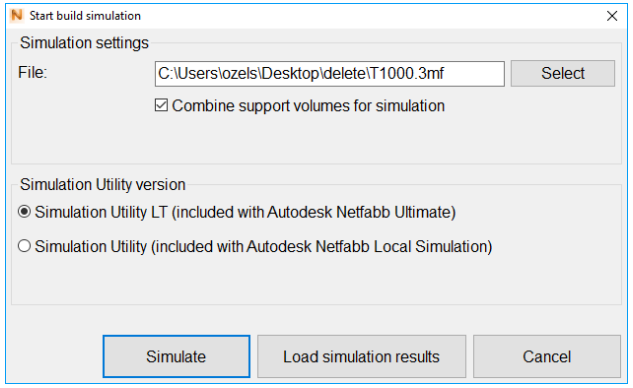

**Where to find it?**

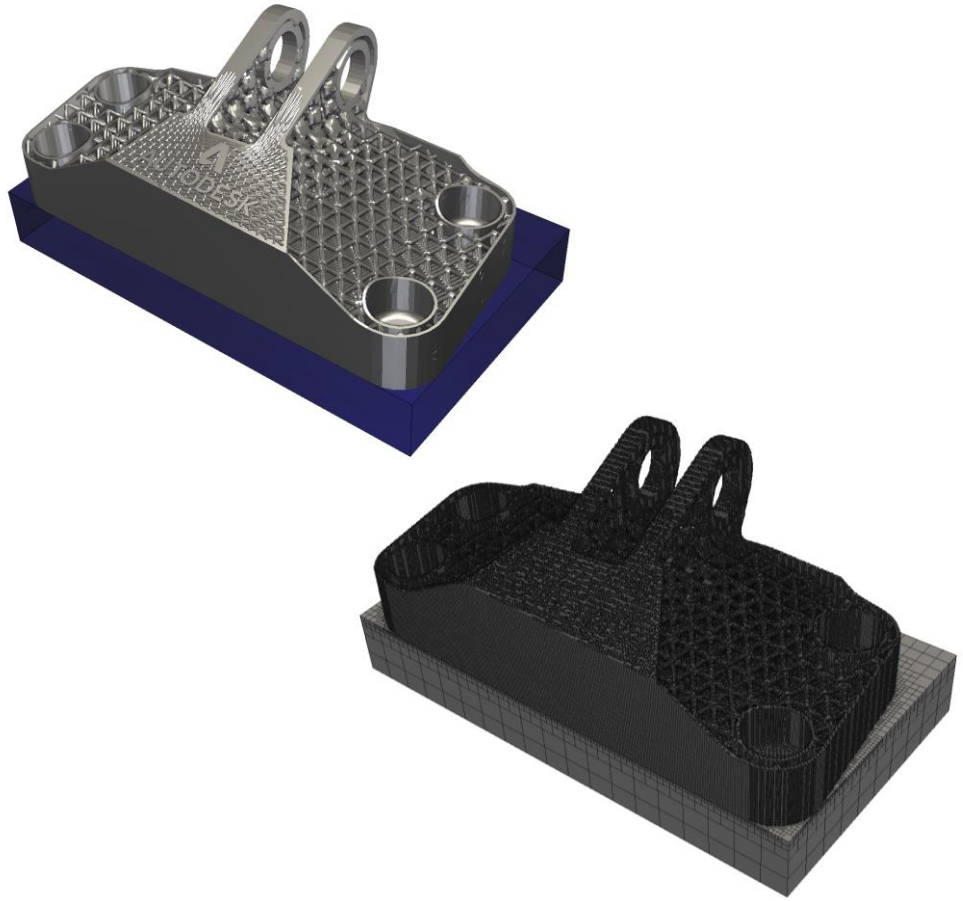
- Home Tab: Utilities Panel: Open Utility: Advanced Toolpath Utility

# Increased limits for Simulation Utility LT

Simulation Utility LT is included with Netfabb Ultimate and is used for process simulation for Metal Powder Bed Fusion technology. It's mesh limits have been increased so that more complex geometries can be simulated.



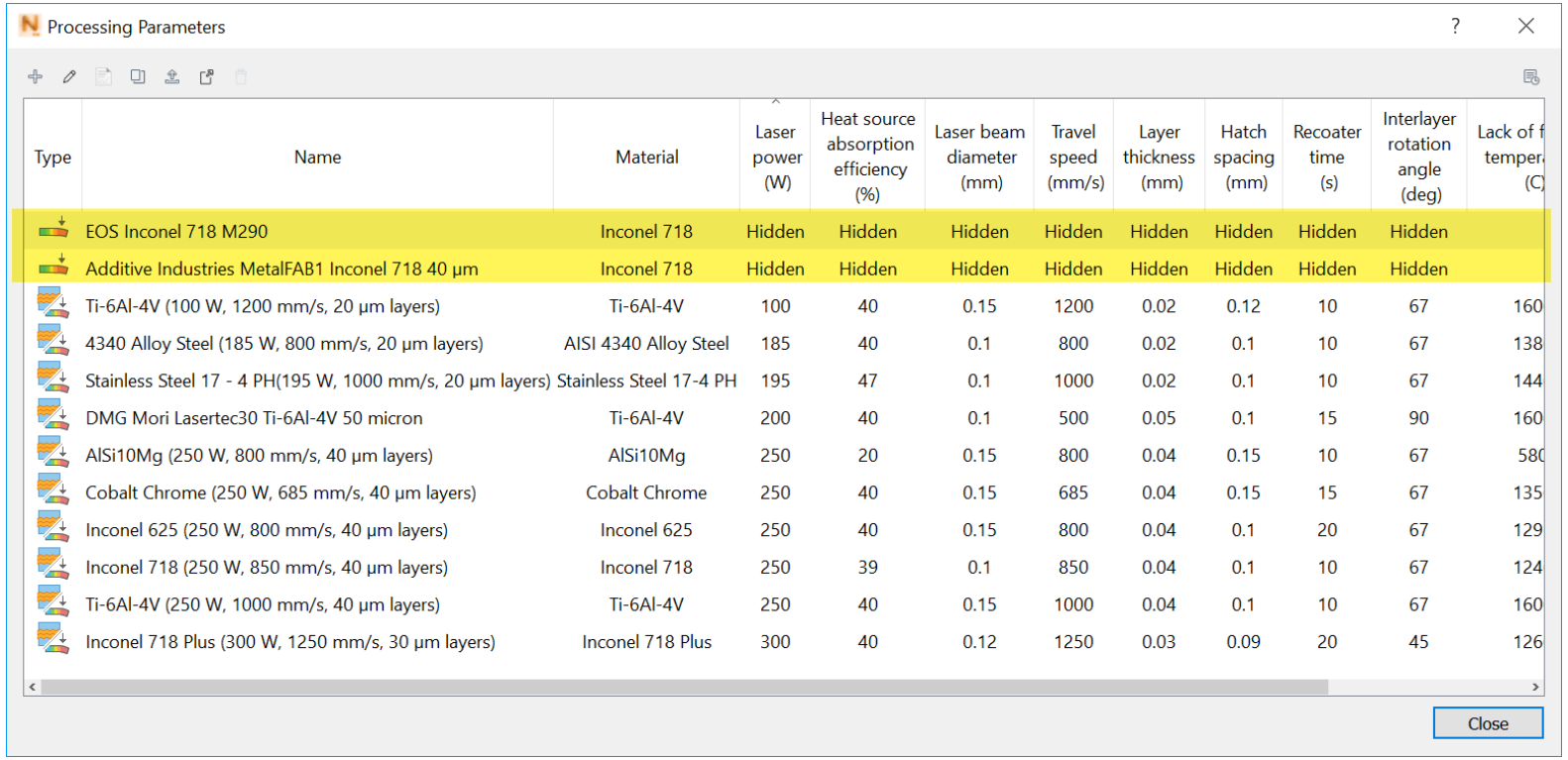
**Where to find it?**

- Machine configuration panel: Start build simulation: Simulate

# Netfabb Simulation 2021.0 Highlights

Validated parameter files (PRM files) for Inconel 718 with machine vendor defaults for

- EOS - M290,
- Additive Industries - MetalFAB1



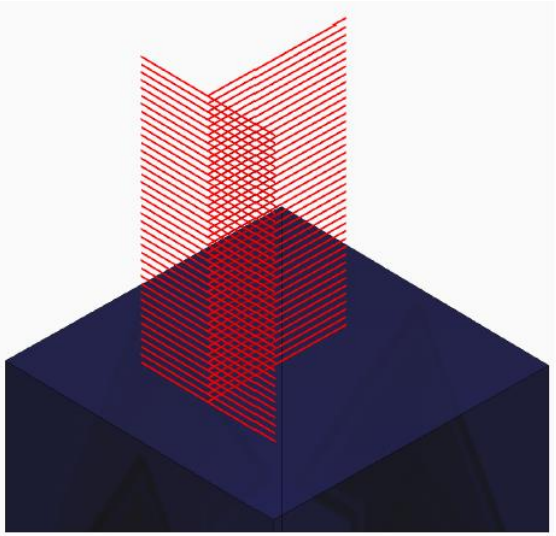

| Type | Name | Material | Laser power (W) | Heat source absorption efficiency (%) | Laser beam diameter (mm) | Travel speed (mm/s) | Layer thickness (mm) | Hatch spacing (mm) | Recoater time (s) | Interlayer rotation angle (deg) | Lack of f temper (C) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | EOS Inconel 718 M290 | Inconel 718 | Hidden | Hidden | Hidden | Hidden | Hidden | Hidden | Hidden | Hidden | |
| | Additive Industries MetalFAB1 Inconel 718 40 µm | Inconel 718 | Hidden | Hidden | Hidden | Hidden | Hidden | Hidden | Hidden | Hidden | |
| | Ti-6Al-4V (100 W, 1200 mm/s, 20 µm layers) | Ti-6Al-4V | 100 | 40 | 0.15 | 1200 | 0.02 | 0.12 | 10 | 67 | 160 |
| | 4340 Alloy Steel (185 W, 800 mm/s, 20 µm layers) | AISI 4340 Alloy Steel | 185 | 40 | 0.1 | 800 | 0.02 | 0.1 | 10 | 67 | 138 |
| | Stainless Steel 17 - 4 PH(195 W, 1000 mm/s, 20 µm layers) | Stainless Steel 17-4 PH | 195 | 47 | 0.1 | 1000 | 0.02 | 0.1 | 10 | 67 | 144 |
| | DMG Mori Lasertec30 Ti-6Al-4V 50 micron | Ti-6Al-4V | 200 | 40 | 0.1 | 500 | 0.05 | 0.1 | 15 | 90 | 160 |
| | AlSi10Mg (250 W, 800 mm/s, 40 µm layers) | AlSi10Mg | 250 | 20 | 0.15 | 800 | 0.04 | 0.15 | 10 | 67 | 580 |
| | Cobalt Chrome (250 W, 685 mm/s, 40 µm layers) | Cobalt Chrome | 250 | 40 | 0.15 | 685 | 0.04 | 0.15 | 15 | 67 | 135 |
| | Inconel 625 (250 W, 800 mm/s, 40 µm layers) | Inconel 625 | 250 | 40 | 0.15 | 800 | 0.04 | 0.1 | 20 | 67 | 129 |
| | Inconel 718 (250 W, 850 mm/s, 40 µm layers) | Inconel 718 | 250 | 39 | 0.1 | 850 | 0.04 | 0.1 | 10 | 67 | 124 |
| | Ti-6Al-4V (250 W, 1000 mm/s, 40 µm layers) | Ti-6Al-4V | 250 | 40 | 0.15 | 1000 | 0.04 | 0.1 | 10 | 67 | 160 |
| | Inconel 718 Plus (300 W, 1250 mm/s, 30 µm layers) | Inconel 718 Plus | 300 | 40 | 0.12 | 1250 | 0.03 | 0.09 | 20 | 45 | 126 |

**Where to find it?**

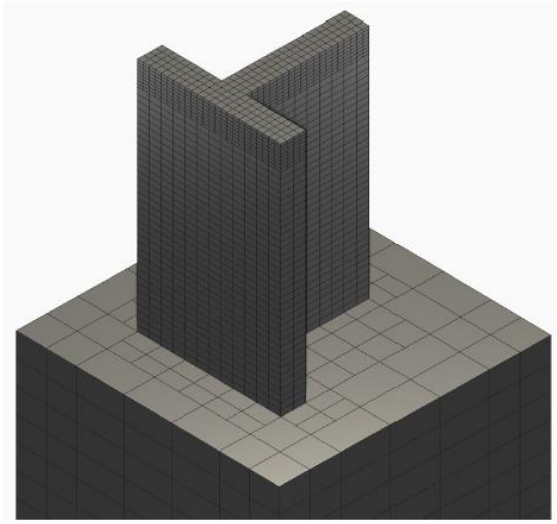
- Home: Libraries: Processing Parameters

# Netfabb Simulation 2021.0 Highlights

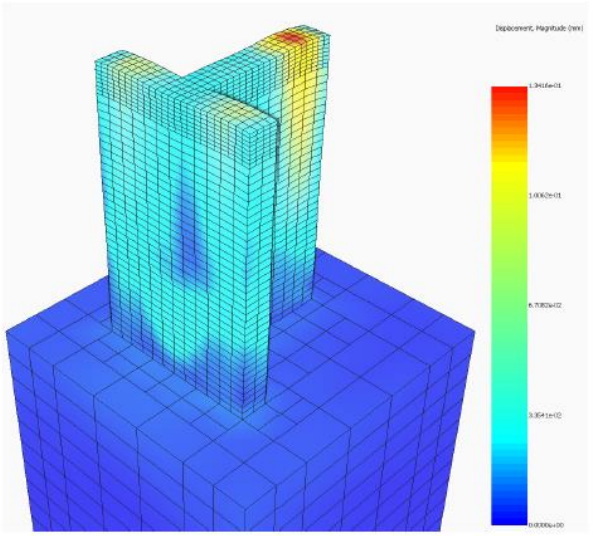
Ability offset the geometry preform to compensate for predicted distortion for a DED simulation.



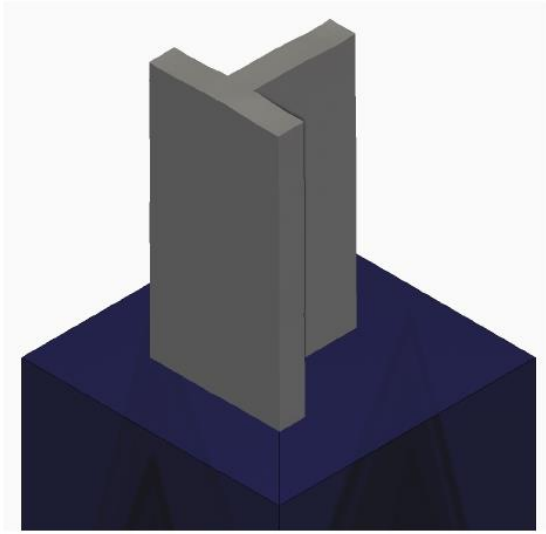
Laser path



Mesh



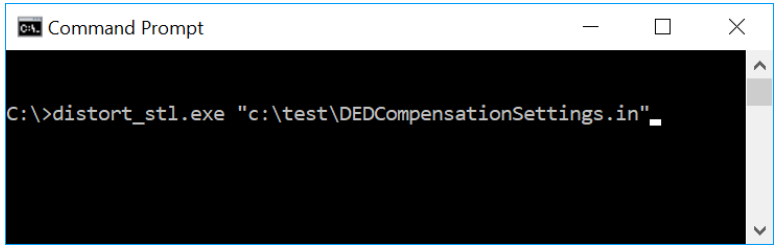
Simulate distortion



Compensated STL

**Where to find it?**

- Run 'distort_stl' executable from the command prompt.

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