#### Materialise Magics 27

What's new

(Latest) English Version Deutsche Fassung Versión en español Versione italiana

#### <u>Version française</u> 日本語版 <u>한국어 버전</u> 中文版



#### Materialise Magics 27 feature highlights

The additive manufacturing industry recognizes Magics as the ideal software for part and build preparation. In this release of Magics, we're providing the following updates:

#### Quality of life

- ► We addressed hurdles in ► Trace the progress of *your workflow* to improve your daily operations.
- In line with our roadmap, Keep control over your we continue to *expand* BREP functionality.

#### **Connect & trace**

your work through the integration with CO-AM.

build files through the integration with the Machine Manager.

#### Automate

Automate your workflow through our dedicated automation module.



#### Index

- BREP enhancements
  - BREP operations
  - BREP measurements
  - BREP utility improvements
- Scene improvements
  - Work with scenes
  - Edit mode
  - Platform scene
  - Part scene
- Import/export
  - Magics project template

- File loading
- File saving
- Drag and drop
- UI/UX improvements
  - UI improvements
  - UI customization
  - UX improvements
  - Lattice improvements
- CO-AM integration
  - Connect
  - Part preparation
  - Handle multiple parts



- Platform preparation
- Previously saved platforms
- Export-controlled orders
- Machine Properties for CO-AM Machines
- Workflow automation
  - Automation module
- Machine Manager integration
  - Connect
  - Select your machine
  - Assign your strategy

### BREP enhancements



#### **BREP** introduction





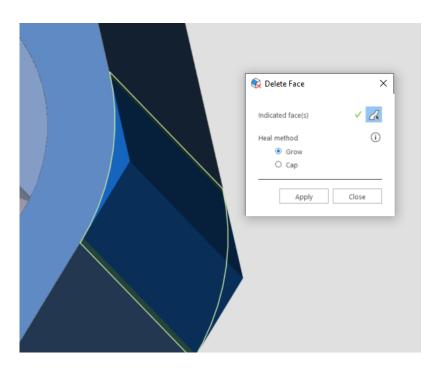
 BREP, or Boundary Representation, is a way of representing 3D parts.
 STEP and CAD native file formats are examples of BREP files.

- The end goal is to get an end-to-end BREP workflow, from loading to exporting, where conversion to mesh is never needed.
- Architectural changes, like those on part and platform scenes, have been implemented to enable this future development.



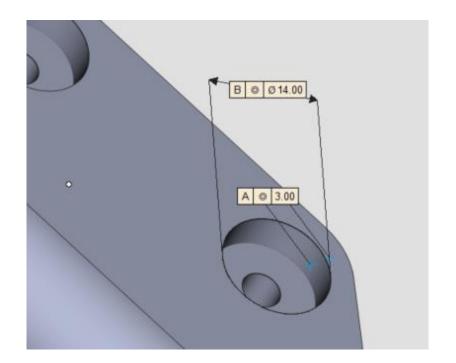
#### **BREP** operations

- Delete Face on a BREP to reconstruct the part without a certain face.
- Taper Face on a BREP to modify the faces to avoid support surfaces.
- Cut or Punch on a BREP to cut it in pieces along active or visible sections
- Create Torus, Tube and Tensile bar to enhance BREP primitive library
- Mirror BREP parts to produce symmetric copies.



#### **BREP** measurements





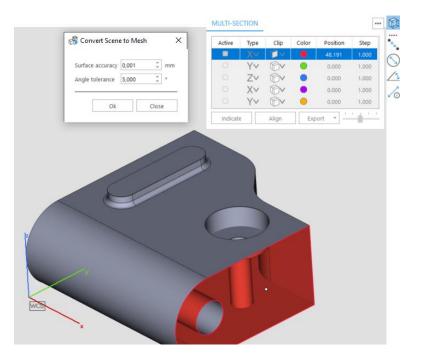
Additional BREP measurements are now enabled.

- Different types of entities such as points, lines, planes, circles can be selected to make distance, circle, bounding box or angle measurements.
- Measure the local thickness of BREP parts with the thickness measurement tool.



#### **BREP** utility improvements

- Control your BREP-to-mesh conversion parameters.
- Create custom multi-section views with BREP parts.
- Set custom translation, rotation, or rescale centers by indicating a point or line on BREP parts.
- Rescale BREP parts to match specific measurement values
- Select custom names for parts after applying Boolean operation (both BREP and mesh)

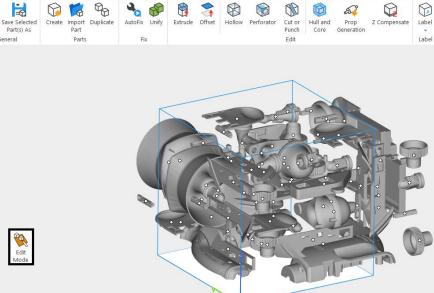


# Scene improvements



#### Edit Mode within the platform scene

- Introducing the **Edit mode**.
  - Quickly edit many parts within the platform scene.
  - Access tools specifically required for **build preparation**.
  - The part scene still focuses on indepth editing of parts.



**OPTIONS & HELP** 

VIEW





EDIT MODE

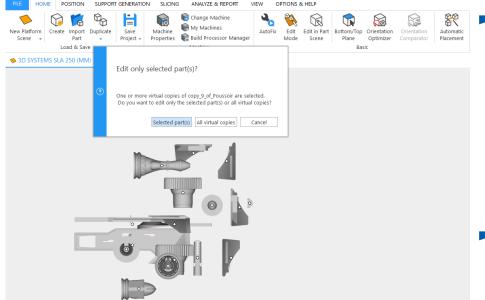
General

POSITION

FIX EDIT ANALYZE & REPORT



#### Platform scene improvements

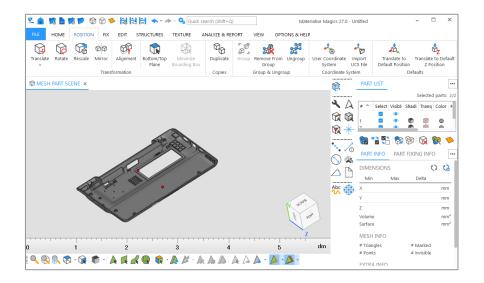


- Preserve the orientation of parts in the part scene and handle virtual copies better when using the Edit in part scene command.
  - Double-click on parts in the platform scene to edit them quickly.
- Drag and drop files from the part list to a platform scene tab to move parts to another platform scene.



#### Mesh part scene improvements

- Group your parts within mesh part scenes to handle parts together.
- Create and use a custom user coordinate system for advanced alignment and assembly workflows.
- Use additional part position and orientation commands in the mesh part scene to enhance editing workflows.
- Unload virtual copies from all active platforms along with the master part directly from the part scenes



## Import/export





#### Magics project template

RT SCENE		PLATFOR	RM SCENE			DEFAULT SCENES
<b>Mesh</b>	BREP	3D Sj	vste250 (mm)	Arcam EBde) (mm)	••• View all machines	New Project
Selecti Undo a History User p Langua Namin Warnin Report Fixing	re g rements quality on and Snapping and Recovery rocess Flow Impro ges g g g g mg Template	ovement	Set the p C:\Progr	ramData\Materialise\Ma ys use latest machine pr	ct file with default scenes igics/My Project Template operties from machine lib me new project command	s\default_machines 隊

- Start a New Project with default scenes and parts based on a Magics project template file
- Create own Magics project template with latest local machine properties from machine library



#### File loading improvements

- Load Magics files as projects through the Load Project command on the home screen or in Magics scenes.
  - Load Project allows you to replace the content in Magics, while Open lets you add content to the current project.
  - Click on a Magics project file in the recent list to load the file as a project.

aterialise Magics 27.0				-	
iterialise Magics					
₩y Machines	Create new				
😘 Settings	PART SCENE	PLATFORM SCENE		DEFAULT SCENES	
RLicenses		R	<b>e</b>		
Tutorials	Mesh BREP	3D Syste250 (mm) Ar	cam EBde) (mm) View all ma	chines New Project	
About Magics					
👱 Support Request	Recent files			📂 Open 🛛 🎁 Load project	
		NAME	FORMAT	LAST MODIFIED	
	Chassis		stl	16/03/2023	
	CATIAV5_demo_part		CATPart	16/03/2023	
	BpDemo		stl	16/03/2023	
A REAL PROPERTY.	Bad		stl	16/03/2023	
	Align2		stl	16/03/2023	
	Align1		stl	16/03/2023	
	3D_Nester_Example		magics	16/03/2023	
Discover what's new in version 27.0	50_Wester_Example				



#### File loading improvements

	📂 Open	📬 Load project
FORMAT	LAST	MODIFIED
cli	3/03/2023	
stp	2/05/2023	
magics	18/03/2022	
CATPart	Yesterday	
stl	27/04/2023	
step	27/04/2023	
magics	27/04/2023	
madics	1/09/2022	

Open slice files directly from the home screen.

- Add virtual copies from Magics, MatAMX, and 3mf files directly to a platform scene through the Add Part command, preserving their virtual copy properties.
- Load files from long file paths exceeding 256 characters.

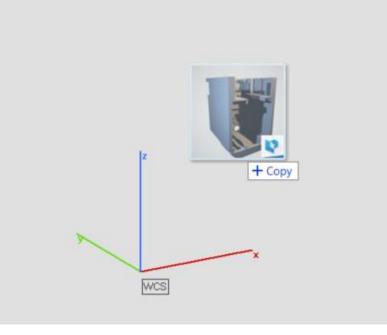


#### File saving improvements

- Save multiple parts in a single file with the Save Selected Part(s) As dialog.
- Save multiple VRML files more quickly by applying the export parameters only once.
- Export CLI slices in a higher resolution with new CLI (float) slice format option.

	VRML export par	ameters			$\times$
	Parameters				
	File units	mm			-
	Custom units	1,0000			
	Texture format	PNG			
	Apply to all	✓			
1					
	ОК		Cancel	Help	

#### Drag and drop improvements



Drag & drop all supported files into an active Part Scene to Import parts to the part scene.

materialise

innovators you can count on

- Drag & drop a single Magics file directly into the home screen to load the project.
- Drag & drop slice files directly into the home screen to open them.

### UI/UX improvements





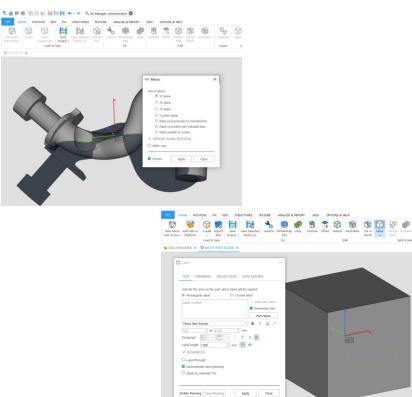
#### Easily work with scenes

- Immediately recognize a scene tab by its icon and meaningful name
- Easily close a scene by clicking an X on the scene tab.
- Keep an overview of your project by renaming part scenes.

Solution (1) (1) (1) (1) (1) (1) (1) (1) (1) (1)	Quick search (Shift+Q)
FILE HOME POSITION FIX EDIT STRUCTURES TE	TURE ANALYZE & REPORT VIEW
New Mesh Add Part to Part Scene Platform Load & Save Load & Save	AutoFix ShrinkWrap Part Fix Fix
MESH PART SCENE × SID SYSTEMS SLA 250 (MM) × (	) BREP PART SCENE ×



#### **UI** improvements



Find and use commands easily with improved command names and a consistent ribbon design across the different scenes and modes of Magics.

- Default ribbons are available for all scenes with frequently used commands.
- Get clearer input and feedback with the **new Mirror** and **Label dialogs**.



 $\times$ 

#### **UI** customization

- Smoothly transition to Magics 27 by importing your Magics 26 profile\*.
- Quickly assign shortcuts in all Magics modes through the new Shortcuts page in Customize UI.

\*Only UI profiles from Magics 26.0 or later can be imported into Magics 27

Toolbars								
	Basic commands	<enter sea<="" text="" th="" to=""><th>rch&gt;</th><th></th><th>Assign Shortcut</th><th></th><th></th><th></th></enter>	rch>		Assign Shortcut			
Shortcuts	Off Color Adjustment				Note: existing shortcuts	will be replaced.		
Toolpages					All Layouts	Press shortcut		
Toolpages Visual style	Color Surfaces Combined Boundia Convert Marked Convert Nearked Convert inch to ma Convert mm to inc Convert mm to inc Copy Copy Copy Copy Copy Copy Copy Copy	Mesh n h		_	All Layouts Part preparation (mesh) Platform preparation Mass Edit			
	Create Base Create From Image							
	Create From Image							
	Creaté Néw Comp	osed Part			1			
Restore Defaul	Import UI Settings	Export UI Settings	Product Editor 🔻				ОК	Discard

🗔 Customize UI commands

#### UX improvements



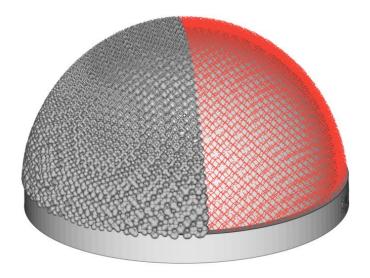


- Quickly deselect parts in the 3D view with CTRL + left click on selected parts.
- Keep the part selection unchanged when only a single part exists in the scene.



#### Lattice improvements

- Visualize the actual thickness of lattice structures as defined in 3-matic or the 3mf file.
- Toggle the lattice thickness rendering with a Toggle Graph Rendering button in the View ribbon.
- Load complex graph set types from 3matic files directly into Magics.



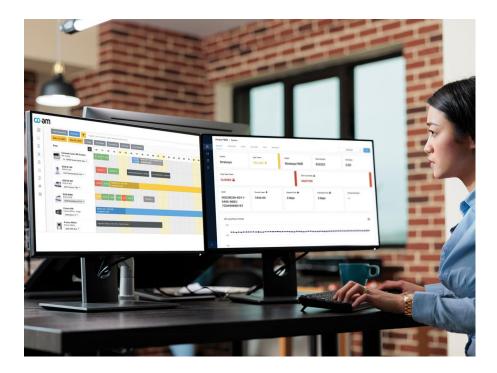
### **CO-AM** integration



#### **CO-AM Software Platform**



- The CO-AM Software Platform is a cloud-based solution that allows manufacturers to scale their digital supply chain with:
  - Modular solutions (e.g., order management, MES, quality module, Materialise apps)
  - A partner ecosystem of 3rd party software and hardware systems
- Improve collaboration, manufacturing repeatability, quality compliance, and end-to-end data security.



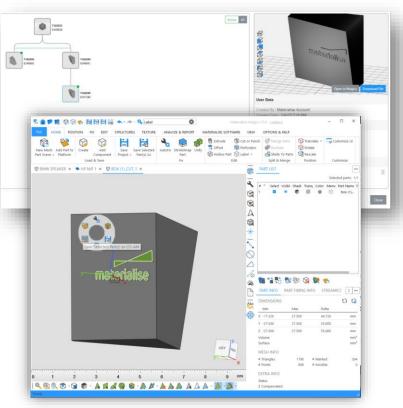


#### Connect to CO-AM

- Log into your CO-AM account in the Settings when opening your first part or platform from CO-AM.
- Change to another CO-AM account or use Magics with multiple CO-AM accounts at the same time if needed.

Settings	Jules Materialise CO-3M Materialise MatConvert Rapid Pt Support Gen_ alzaton //0 yze	Connect your account Use your for <u>three/7/d additiveness</u> courd to be able to seminisary use the full functionality Email example@email.com	
Tutorials Visu File About Magics Ana Net	alization /O yze	Use your login for https://3d.additivemes.com/ to be able to seamlessly use the full functionality	
		Email example@email.com	
		Password Enter password Enter password	
		CONVECT	
Contraction of the second seco			
	current page		
version 27.0	eset all	Ok Close	2

# CO-AM part preparation with Magics



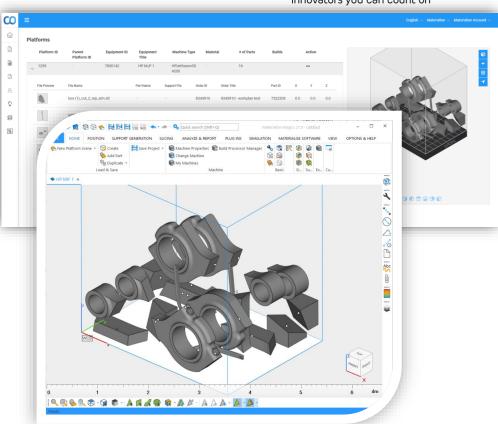


- Open individual parts from CO-AM orders for the initial part preparation or as needed.
- Save the updated part to CO-AM and trace part changes in the CO-AM part revision tree based on the Magics part history.

#### Opening multiple parts from CO-AM

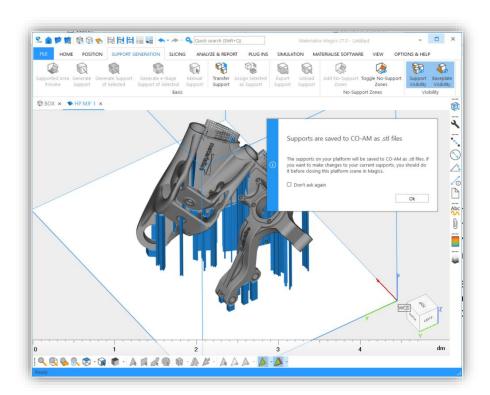


- Select and open multiple parts in separate Magics part scenes to complete part preparation faster.
- Create a platform with the machine parameters and parts that you select on the CO-AM production planning page.
- Select a Magics instance and scene when opening CO-AM parts and platforms.



# Prepare and save a platform to CO-AM



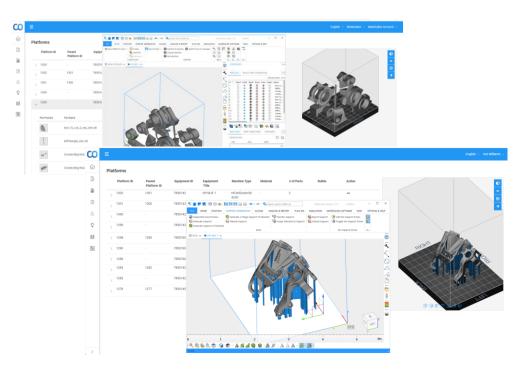


- Prepare a CO-AM platform by using Magics orientation, positioning, and support generation tools, and then save your prepared platform to CO-AM Machine Platforms.
- Automatically save any changes to the parts on the platform when you save the platform.

#### Open previously saved platforms

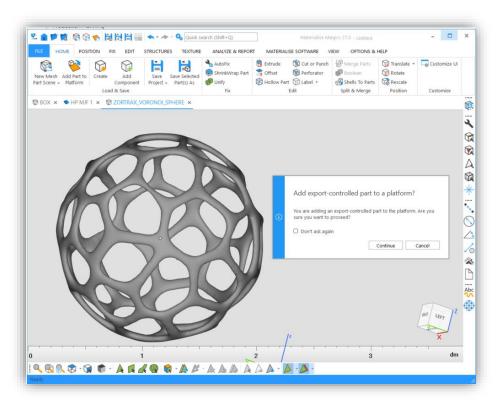


- Reopen previously prepared platforms from the CO-AM Machine Platforms.
- Add more CO-AM parts to your opened CO-AM platforms as needed.
- Save a new revision of the updated platform in CO-AM for traceability.



# Working with export-controlled orders





Get notified in Magics when working with parts from exportcontrolled orders to stay compliant.





- Use Machine Properties in Magics to set up build preparation parameters and save them to CO-AM.
- Each time, reopen the machine from CO-AM with latest saved properties.

Default Parts UPerauit value Z Compensation Wild Time Estimation Cost estimation Support Generation parameters O Point based O Point based	0,0000		
Build Time Estimation Cost estimation Support Generation mode Data	0,0000		
Support Generation parameters			‡ inch
Materialise e-Stage support para Remove self-inte			
Export slice Add Z compensation			
Post-process slices Use angle based cor Materialise e-Stage export			
0° 1,000	* x 0.0039 =	0.0039	inch
15° 👱 Progress	[91%]	×	inch
30°	in Branchineta CO 414		inch
45°, Saving Macr	ine Properties to CO-AM	91%	inch
60° Time elapse	: 1 seconds		inch
75°			inch
90° <sup>1</sup> 0,0000	* X 0.0039 =	0.0000	inch
Filter sharp triangles			

### Workflow automation





#### Workflow automation

- Decrease the time spent by your highly skilled team on manual, repetitive tasks.
- Spend less time on the data preparation phase and decrease the lead time.
- Use of the shelf scripting to reduce the number of manual errors, improving the quality of parts and process.
- Scale your production with no or limited intervention in the processes.



#### Automation module

Script available	🎼 Manage	e Scripts
Labeling		
Recently Selected	Scripts	~
Selected script     Labeling	Edit Par	ameters
Labels-Folder(*)	\\storage1\sam\D&C_Sales_Team\/	C Reset a
Labels file extension(*)	CSV *	С
Results-Folder(*)	\\storage1\sam\D&C_Sales_Team\/	С
New MatAMX file name(*)	labelled_platform	ວ ວ
Close Magics when finished	False *	С

- Activate automation scripts directly in Magics.
- Visualize your results.
- Keep an overview of all your automation scripts.

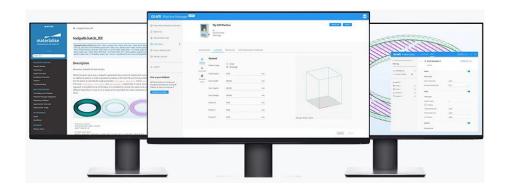
### CO-AM Machine Manager integration





#### **CO-AM Machine Manager**

- The CO-AM Machine Manager is the home for the next generation of Build Processors.
- A cloud-based solution to manage machines, process parameters, and build jobs.
- Increasing the versatility and scaleability of your Build Processors and the productivity of your applications.



#### **CO-AM** Machine Manager



	n
 9	

Username or email

example@email.com

Password <sup>®</sup>	
Enter password	$\odot$
LOG IN	
materialise	
Contact us • End-User License Agreement	

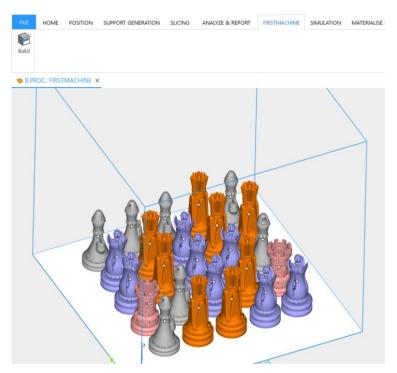
#### Connect to the CO-AM Machine Manager

- Log into your Machine Manager account through the Settings to connect to the server.
- Change to another Machine Manager server if needed.



#### Select your machine

- Select your machine on the home screen or by adding a new platform scene.
- Visualize your machine and its attributes as configured in the machine manager.
- Manage basic parameters of your machine in the Machine Manager.
   Other parameters, such as those for support, are available in the Magics Machine Properties.





#### Assign your strategy

STR	ATEGIES	_			•••
Platf	orm stra	tegy 🖌	SliceThickne	ss2mm	*
Part	strategy	ci	hessFilling		+
DAR	T LIST	BUILD TIME ESTIMATIO	ON		
1 AN		boleb lille ebilitikite			
# ^	_			Selected parts:	9/2
# ^	Select	Name	FixInfo	Strategy	
# ^ 1	_	Name Bishop	FixInfc n/a	Strategy Strategy part 1	9/2
# ^	_	Name Bishop King	FixInfc n/a n/a	Strategy Strategy part 1 Strategy part 2	*
# ^ 1 2	_	Name Bishop	FixInfc n/a	Strategy Strategy part 1	•
# ^ 1 2 3	_	Name Bishop King Queen	FixInfc n/a n/a n/a	Strategy Strategy part 1 Strategy part 2 New strategy	*
# ^ 1 2 3 4	_	Name Bishop King Queen Bishop	FixInfc n/a n/a n/a	Strategy Strategy part 1 Strategy part 2 New strategy Default	*

- Assign your default build strategies in the Strategies toolpage.
- Assign specific strategies to a part or support in the Strategy column in the Part List.
- Send the platform for processing with the Build function in the dedicated machine ribbon.

# For more information, contact your local Materialise office.

mtls.me/magics-contact