atum 3D

OPERATOR STATION

User Manual

Version 11190124
Original Manual

For information about settings, maintenance and repairs not provided for in this document, please contact the technical department of your supplier.

atum3D accepts no liability for damage and/or problems arising from the use of spare parts not supplied by atum3D.

This document has been compiled with all possible care. atum3D assumes no responsibility for any errors in this manual and/or the consequences of an erroneous interpretation of the instructions.

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ATUM3D OPERATOR STATION SOFTWARE

atum3D Operator Station is the software that is developed by atum3D to create print jobs from digital models.

1. INSTALLING OPERATOR STATION

Minimal system requirements:

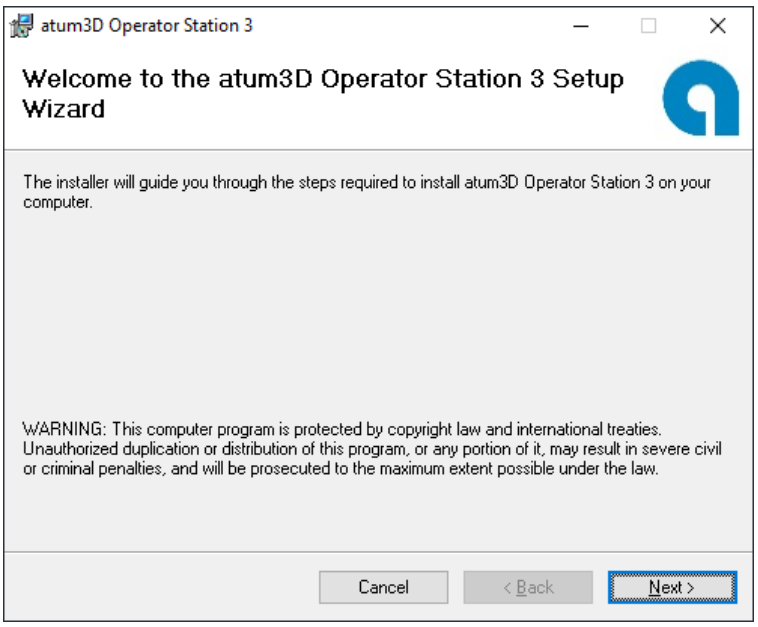
- Windows 10
- Processor: I5
- RAM: 8 GB
- OpenGL: 2.0
- Free space: 1GB
- Free USB Port

Recommended system requirements:

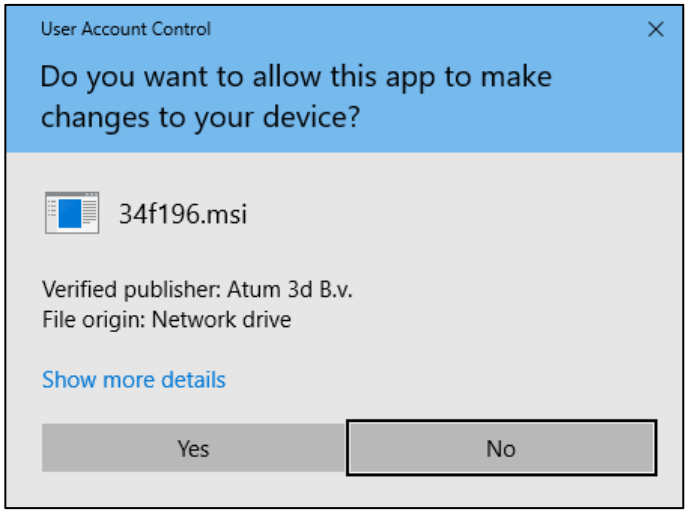
- Windows 10
- Processor: I7
- RAM: 16 GB
- OpenGL: 2.0
- Free space: 1GB
- Free USB Port

To install the atum3D Operator Station software on your computer, perform the following steps:

1. Insert the USB drive containing the Operator Station installer into your computer.
2. Navigate to the USB drive.
3. Open 'Setup.exe'.
4. Press [Next]



5. Follow the wizard instructions.
6. When User Account Control (part of Windows security) is active, a safety confirmation is displayed:

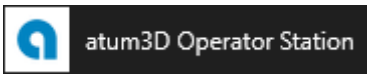


Press [Yes]

7. Close the installer after the installation is completed
8. Open 'atum3D Operator Station' by using the [Start Menu] short cut.

1.1 CONFIGURE OPERATOR STATION FOR FIRST USE

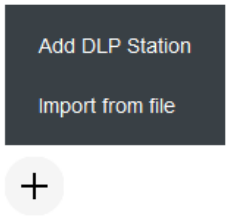
1. Start Operator station using 'Start menu' shortcut



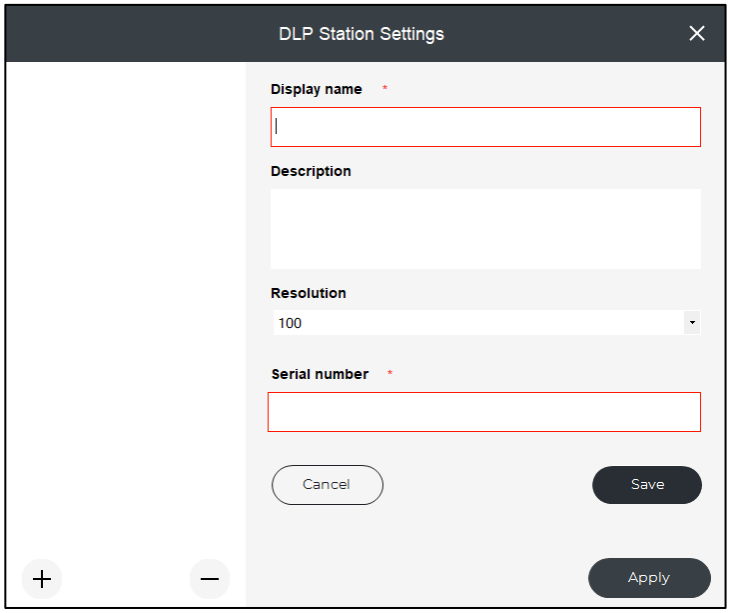
2. Press  (Launch Operator Station with a new project)

1.1.1 Add DLP Station

1. On the initial launch, Operator Station will prompt you to add a DLP Station automatically.
2. Alternatively, click the currently selected DLP Station on the Project properties toolbar to open DLP Station Settings Dialog
3. Select '+' and click 'Add DLP Station'



4. Name the DLP Station, optionally add a description, select the DLP Station's resolution and enter the serial number for reference.



Tip: please refer to the DLP Station's documentation to find the preset printer resolution; selecting an invalid resolution will result in failed prints.

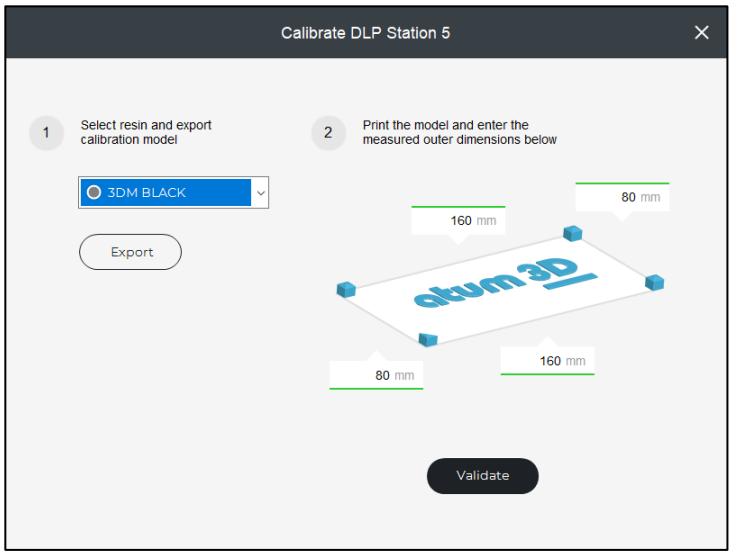
5. Press [Save]
6. Press [Calibrate] to start with the calibration sequence

   Continue with paragraph: Calibrate DLP Station

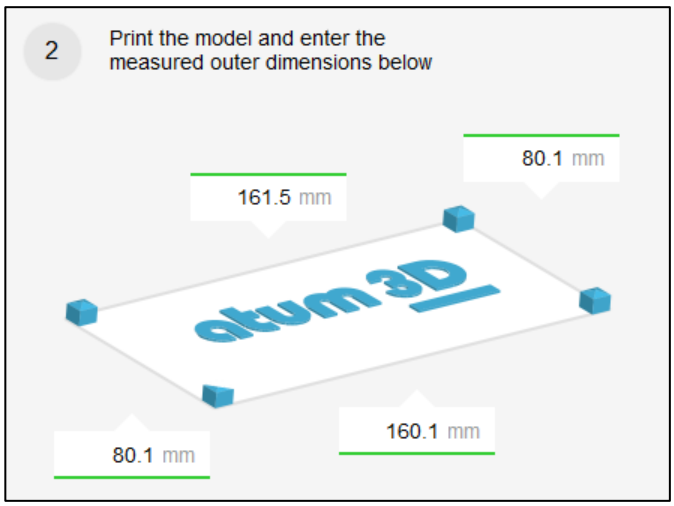
1.1.2 Calibrate DLP Station

Each newly added DLP Station needs to be calibrated. Recalibration is necessary after the Resin Tray and/or the Build Platform have been replaced. This calibration sequence will ensure that the manufactured parts are within specifications.

1. Select the resin you'd like to use to print the calibration model
2. Press [Export]



3. Insert an USB flash drive into the computer
4. Select the inserted USB flash drive
5. Press [Select]
6. Prepare the DLP Station for printing (please refer to the DLP Station User Manual for more information)
7. Insert to USB flash drive into the DLP Station and start the job 'Calibration'
8. After the job is finished, remove the Build Platform from the DLP Station (please refer to the DLP Station User Manual for more information) and measure the **outer** dimensions of the calibration model blocks on the Build Platform
9. Enter the measured **outer** dimensions into the calibration values

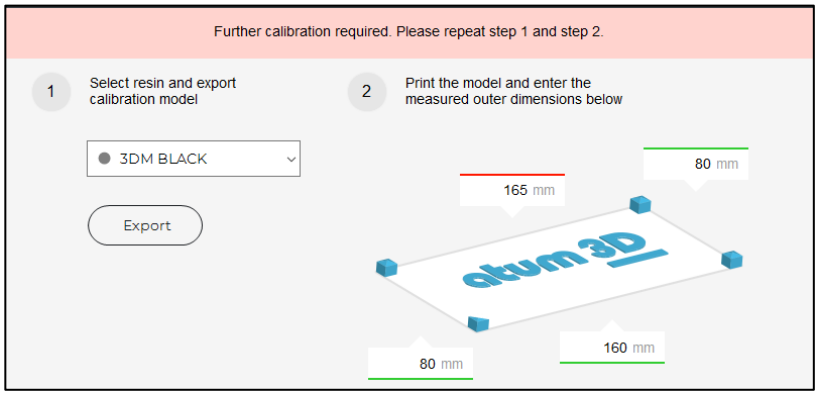


The values shown above are only used to indicate the text/measurement fields; entering inaccurately measured values will result in failed prints.

10. Press [Validate]

11. When the dimensions are outside the normal range or deviate substantially from previously entered values an informational message will appear (red).

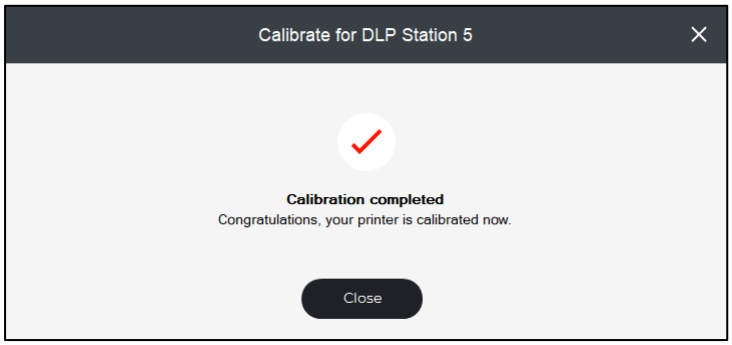
Further calibration is required. Start calibration process again at Step 1, select resin.



The values shown above are only used to indicate the text/measurement fields; entering inaccurately measured values will result in failed prints.

12. If there is a typo in the measurement fields use the 'revert to previous measurements' button to 'revert' the measurements. Enter the measurements again.

13. When the entered dimensions are within specifications, the dialog below is shown:

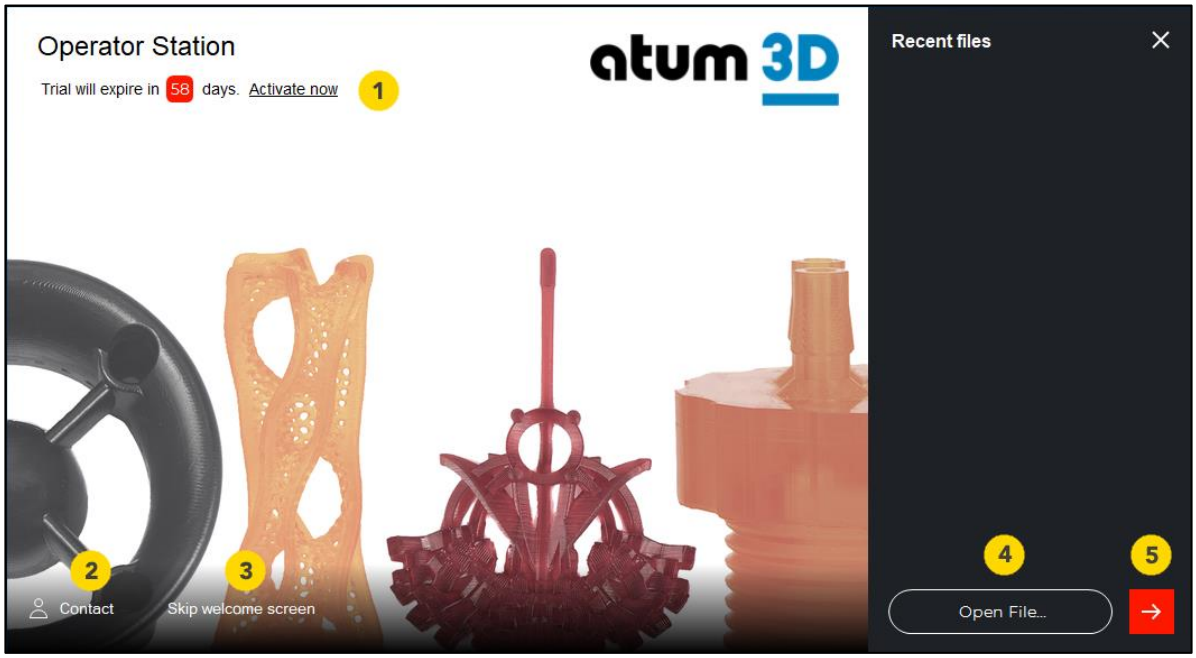


14. Press [Close] to close the calibration procedure

2. USING OPERATOR STATION

2.1 WELCOME SCREEN

After opening atum3D Operator Station, the welcome screen appears. This screen contains information about the current software license status, contact information and recently opened files.



1. Activate now — Request activated software license
2. Contact — Opens new dialog with contact/support information
3. Skip welcome screen — Skips this welcome screen next time Operator Station is launched. This setting can also be edited in the 'User Preferences' dialog.
4. Open File… — Open a previous project or STL model
5. → — Launch Operator Station with a new project

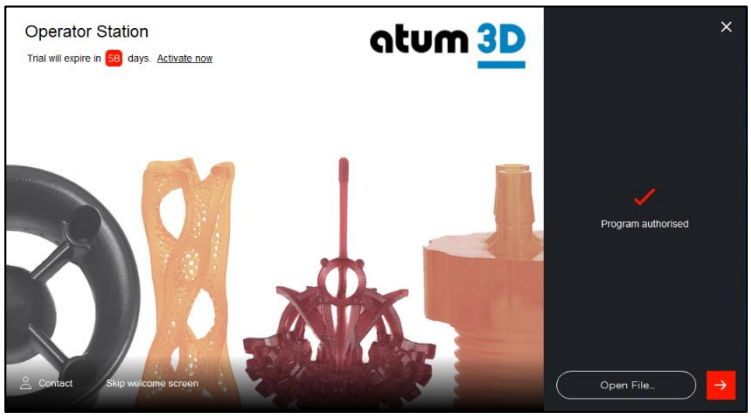
2.1.1 Activate software license

1. Press 'Activate now' to request a software license key
2. Press [Export] to save the license token file on the local system

3. Select a file location and save the license token file
4. Email the license token file to license@atum3d.com

   An activated license key will be sent within 5 minutes

5. Save the received license key file
6. Press [Import] and select the license key file
7. Your Operator Station license will be activated.



This license key file is only valid for this computer

8. Press → to launch Operator Station with a new project

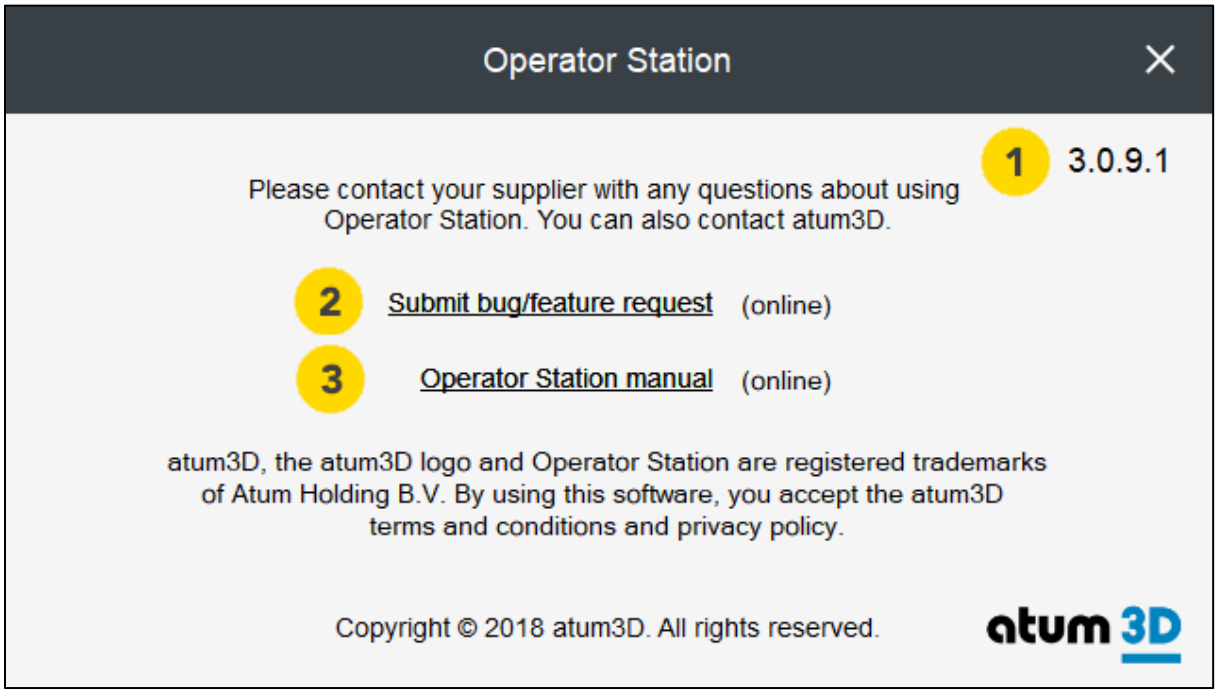
2.2 PREPARE SCREEN

1. Main menu toolbar	Paragraph: Main menu
2. Model actions toolbar	Paragraph: Model actions toolbar
3. Camera actions toolbar	Paragraph: Camera actions toolbar
4. 3D Workspace	Paragraph: 3D Workspace
5. Orientation gizmo	Paragraph: Orientation gizmo
6. View/Render actions toolbar	Paragraph: View/Render actions toolbar
7. Project properties toolbar	Paragraph: Project properties toolbar

2.2.1 Main menu toolbar

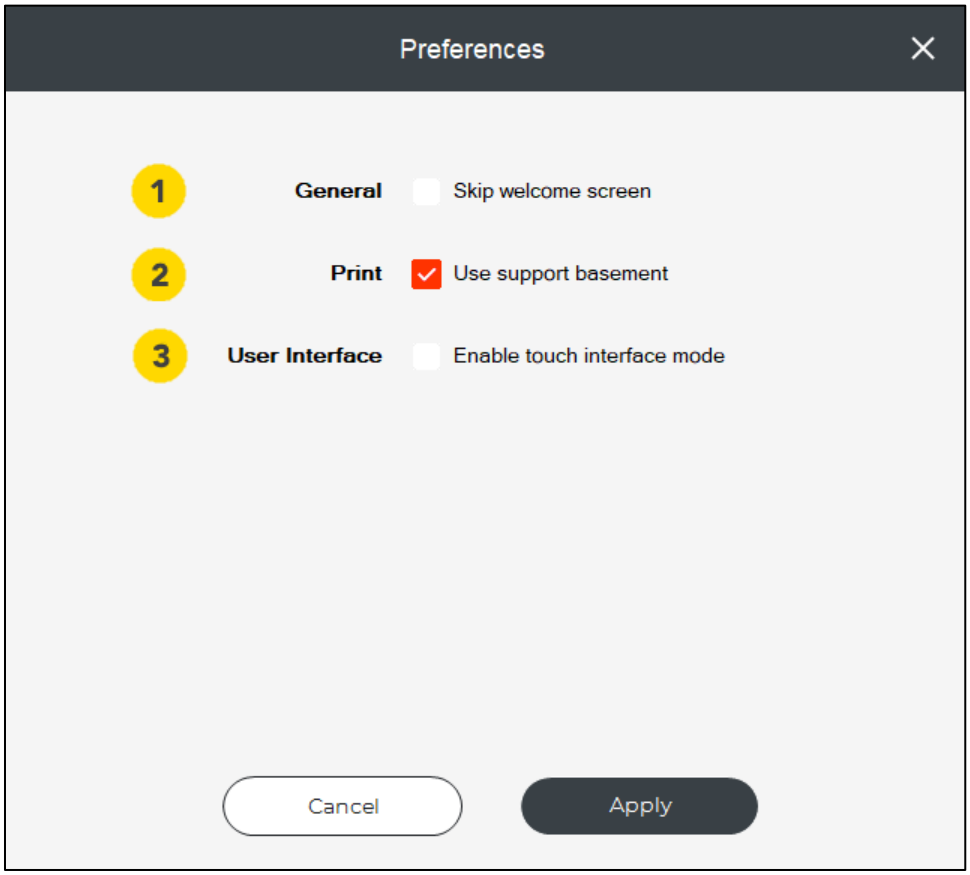
1.	New Project	Clean/Reset current project *All models in current workspace will be removed.*
2.	Open...	Open a previous project. *All models in current workspace will be retained.*
3.	Save	Save current workspace to project file *When project has not been saved yet the 'Save As' feature will be used.*
4.	Save As...	Save current workspace to project file *Save file dialog will be shown to define the file name.*
5.		Add STL model or project to current workspace
6.	Prepare Export	Prepare view. This will show the 3D environment/workspace in which the model(s) can be prepared for printing.
7.	Prepare Export	Export view (*shortcut key: CTRL + P*). This will show the job in slices. This view can be used to determine if there are issues with the job before the actual printing.
8.		Show Operator Station Information screen Refer to paragraph Operator Station Information Screen for more information
9.		Show User Preferences Refer to paragraph User Preferences for more information

Operator Station Information Screen



1. Operator Station version number	Use this version to identify the Operator Station version.
2. Submit bug/feature request	Use this webpage link to submit bug or feature request
3. Operator Station manual	Use this webpage link to get the latest version of Operator Station manual

User Preferences



1. General: Skip welcome screen	Check this option to skip the Welcome Screen. Uncheck to show the Welcome at launch.
2. Print: Use support basement	Check to automatically add a support basement. Uncheck to disable the use of support basement.
3. User Interface: Enable touch interface mode	Check to enable touch interface mode. Uncheck to disable touch interface mode. Refer to paragraph Operator Station Information Screen for more information.

Touch Interface Mode

Touch Interface Mode is designed to increase the user friendliness of Operator Station when using a touch system (like tablet).

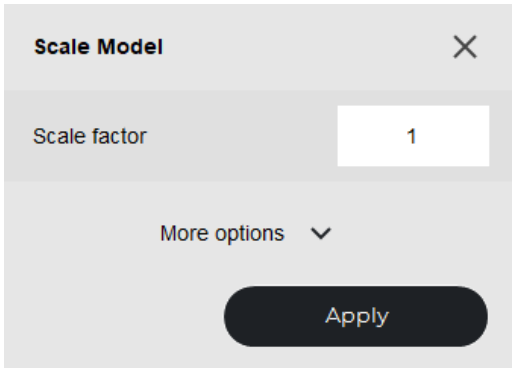
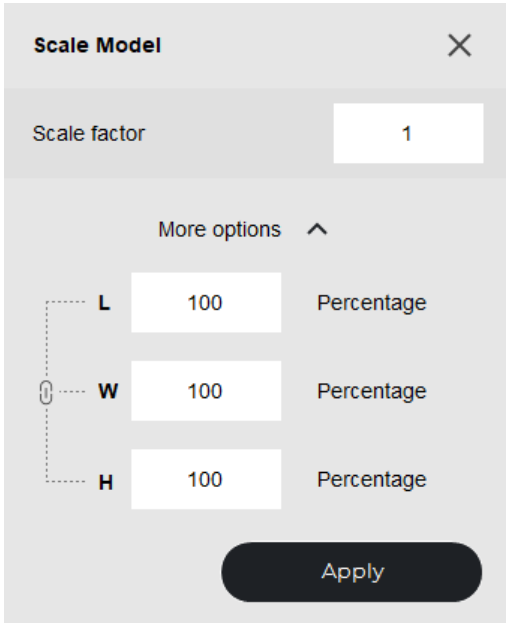
2.2.2 Touch action

1.	Single mouse click	Same behavior as normal mouse click
2.	Long mouse press	Show context menu to Undo or perform addional model/support cone actions
3.	Text field	Show 'Onscreen Keyboard'
4.	Export View	Change magnifier design to a touch magnifier design. This helps with selecting the proper section to magniffy

2.2.3 Model actions toolbar

1.		Move 3D model in X, Y or Z direction *Shortcut key: M*
2.		Rotate 3D model in X, Y or Z direction *Tip: after selecting the axis to rotate on by clicking the respective orbit, hold the left mouse button and move the mouse in the **vertically** to rotate the model* *Shortcut key: R*
3.		Scale 3D model using uniform or non-uniform scaling *Shortcut key: X* Refer to parargraph: Scale 3D Model for more information.
4.		Generate a support structure using MAGS AI or manually add supports *Shortcut keys:* - *MAGS AI: F* - *Single support: Q* - *Grid support: G* Refer to paragraph: MAGS AI for more information.
5.		Duplicate model or fill build platform *Shortcut key: D*

Scale 3D Model

1.		Uniform scaling. Change the scale factor and click [Apply] to (re)scale the model. Use [more options] to show the non-uniform scaling options
2.		By default, the scaling percentages are 'linked' (uniform scaling). Click the button to unlink the scaling percentages. This enables scaling of individual model dimensions (non-uniform scaling)

2.2.4 Camera actions toolbar

1.		Pan camera position. Click and hold the left mouse button and move the mouse to pan the view in the direction of the mouse movement *Shortcut key: P*
2.		Rotate camera position in X, Y and Z direction *Tip: When mouse cursor is on model part, this position will be used to center the model on screen* *Shortcut key: O*
3.		Zoom. Click the left mouse button and move the mouse vertically to zoom in and out *Tip: When mouse cursor is on model part, this position will be used to center the model on screen* *Shortcut key: Z*

2.2.5 3D Workspace

The 3D workspace is the area in which the print job is displayed. Use the workspace to:
- Move, rotate, duplicate models on the build platform
- Add, modify and/or remove support cones

2.2.6 Orientation gizmo

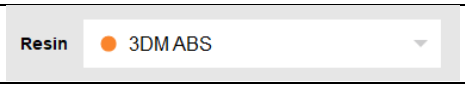
The orientation gizmo is a tool that helps with defining a camera position.

1.		Default view. Move cursor on top of a viewport to highlight a viewport. Click to select and change the camera position
2.		Front highlighted (white marking)
3.		Edge highlighting and selection is also supported
4.		Click and hold the left mouse button on any viewport to move the gizmo and select a custom view

2.2.7 View/Render actions toolbar

1.		Model rendering. Clicking cycles between: - Solid mode rendering - Wireframe rendering - No renderering
2.		Supports rendering. Clicking cycles between: - Solid mode rendering - Wireframe rendering - No renderering
3.		Workspace rendering. Clicking cycles between: - Solid mode rendering - No renderering

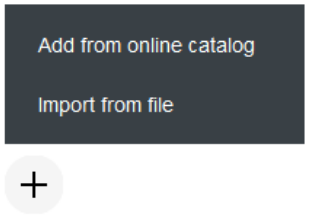
2.2.8 Project properties toolbar

1.		Selected model bounding box dimensions
2.		Currently selected DLP Station
3.		Currently selected resin

2.3 RESIN MANAGEMENT

2.3.1 Add predefined resin from Online Catalog

1. Click the currently selected resin on the Project properties toolbar to open Resin Settings Dialog
2. Select '+' and press 'Add from online catalog'

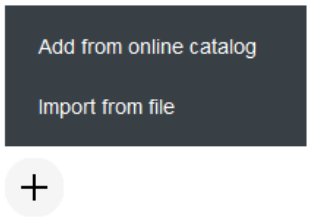


3. Wait for the Online Catalog be accessed
4. Select the resin(s) of choice and click [Add]
5. The selected resin(s) are now available on the local system

2.3.2 Import resin from file

Use 'import from file' to add resin settings that have been exported from another computer.

1. Click the currently selected resin on the Project properties toolbar to open Resin Settings Dialog
2. Select '+' and press 'Import from file'



3. Select the file containing the resin settings
4. Select the resin and click [Add]
5. The selected resin(s) are now available on the local system

2.3.3 Export resin

Export resin settings can be used to transfer resin settings to a different computer running Operator Station.

1. Click the currently selected resin on the Project properties toolbar to open Resin Settings Dialog
2. Select the resin to export
3. Click [Export]
4. Select an export file location
5. Click [OK]
6. An export file containing the resin settings is created in the selected file location

2.3.4 Remove resin

1. Click the currently selected resin on the Project properties toolbar to open Resin Settings Dialog
2. Select the resin to remove
3. Click ' - ' to remove the selected resin
4. Confirm removal
5. The selected resin is removed

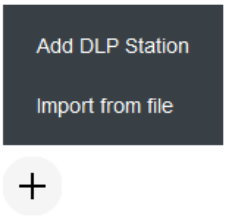
2.4 DLP STATION MANAGEMENT

2.4.1 Import DLP Station from file

Use 'import from file' to add DLP Station settings that have been exported from another computer.

1. Click the currently selected DLP Station on the Project properties toolbar to open DLP Station Settings Dialog

2. Select '+' and press 'Import from file'



3. Select the file containing the DLP Station settings (including the calibration information)
4. Select the DLP Station and click [Add]
5. The selected DLP Station is now available

2.4.2 Export DLP Station

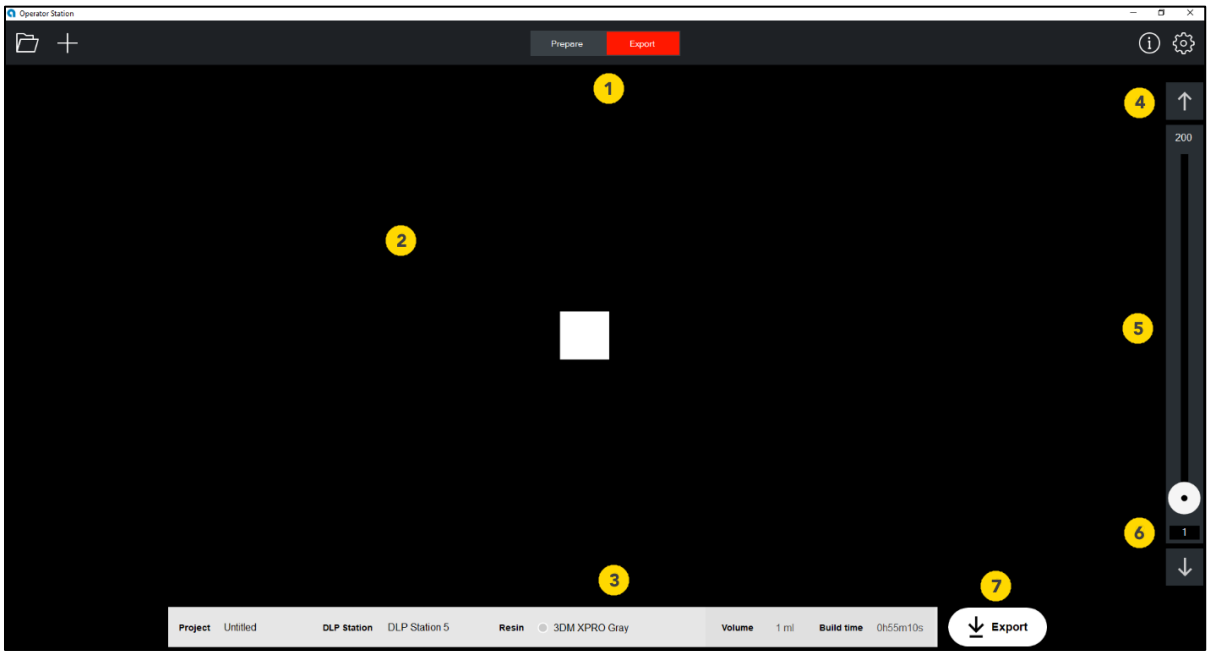
Export DLP Station settings can be used to transfer DLP Station settings to a different computer running Operator Station.

1. Click the currently selected DLP Station on the Project properties toolbar to open DLP Station Settings Dialog
2. Select the DLP Station to export
3. Click [Export]
4. Select an export file location
5. Click [OK]
6. An export file containing the DLP Station settings is created in the selected file location

2.4.3 Remove DLP Station

1. Click the currently selected DLP Station on Project properties toolbar to open DLP Station Settings Dialog
2. Select the DLP Station to remove
3. Click ' - ' to remove the selected DLP Station
4. Confirm removal
5. DLP Station is removed

2.5 EXPORT SCREEN



1. Main menu toolbar	Paragraph: Main menu toolbar
2. Slice viewer	Paragraph: Slice viewer
3. Job properties	Paragraph: Job properties
4. Up/down navigation	Paragraph: Up/down navigation
5. Index slider	Paragraph: Index slider
6. Manual index field	Paragraph: Manual index field
7. Export button	Paragraph: Export button

2.5.1 Slice viewer

The slice viewer will show each slice as an image. This what-you-see-is-what-you-get viewer helps you to detect model inconsistencies or other print job issues before starting the actual print.

2.5.2 Job properties

The job properties toolbar shows the following information:

- Project name: print job name
- Selected DLP Station for the print job
- Selected resin for the print job
- Estimated amount of resin ml required for the print job
- Build time of the print job

2.5.3 Up/down navigation

Use the up and down buttons to navigate through the slices one by one.

2.5.4 Index slider

Use the index slider to navigate or jump through the slices. This control can also be triggered by using the mouse scroll wheel.

2.5.5 Manual index field

Use this field to enter the exact slice index which you want to validate.

2.5.6 Export button

Use this button to save the job on an USB flash drive. After the export (saving on USB) is completed the 'Export Screen' switches to the 'Prepare Screen'

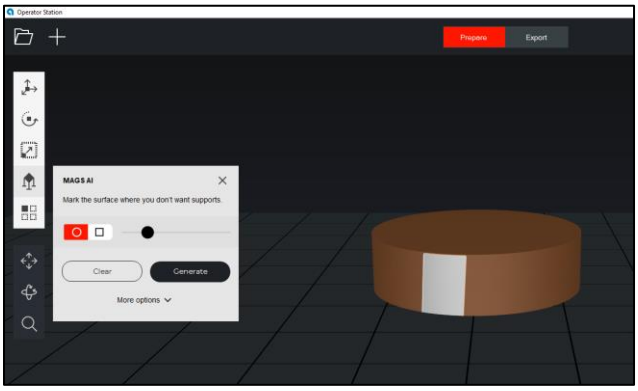
2.6 SUPPORT MODEL

2.6.1 MAGS AI

MAGS AI is an algorithm that determines the orientation and required support structure and of a model based on user input marking the most important surface. MAGS AI will keep the marked surface free of supports.

Follow these steps to support a model using MAGS AI intelligence:

1. Open or select a model
2. Click the 'Support model' button on the 'Model actions toolbar' (automatically opened when adding a new model)
3. Mark (holding the left mouse button and dragging) the most important surface(s), where you don't want to have supports added



Hold the right mouse button and drag to remove previous marking(s)

4. Press [Generate] and wait for the red status bar on top of the 'Project properties toolbar' to fill. The model is automatically rotated, and the required support structure is created.
5. After the support structure has been generated 'Duplicate' will be automatically opened.

2.6.2 Clear MAGS AI markings

Use the following steps to remove the current MAGS AI markings:

1. Select the model
2. Select 'Support model' button on 'Model actions toolbar'
3. Select 'Clear'

2.6.3 Manual Supports

Manual support generation is also possible. You can add ‘single support cone(s)’ or ‘grid support’. Single support cones can be individually defined and specified. Grid support is used to create a support structure for larger areas with a single click.

Add manual ‘single support cone’:

1. Select the model
2. Select ‘Support model’ button on ‘Model actions toolbar’
3. Select ‘More options’
4. Add ‘single support cone’ is selected by default. Use your mouse to mark the model intersection point where the support needs to be created
5. Click the left mouse button to create the support cone

   Tip: Use shortcut ‘Q’ to quickly add a support cone without selecting the ‘Model actions toolbar’ buttons

Add manual ‘grid support’:

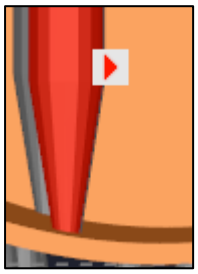
1. Select the model
2. Select ‘Support model’ button on ‘Model actions toolbar’
3. Select ‘More options’
4. Select ‘grid support’. Use your mouse to mark the model surface where the supports need to be created
5. Click the left mouse button to create the grid support

   Tip: Use shortcut ‘G’ to quickly add grid support without selecting the ‘Model actions toolbar’ buttons

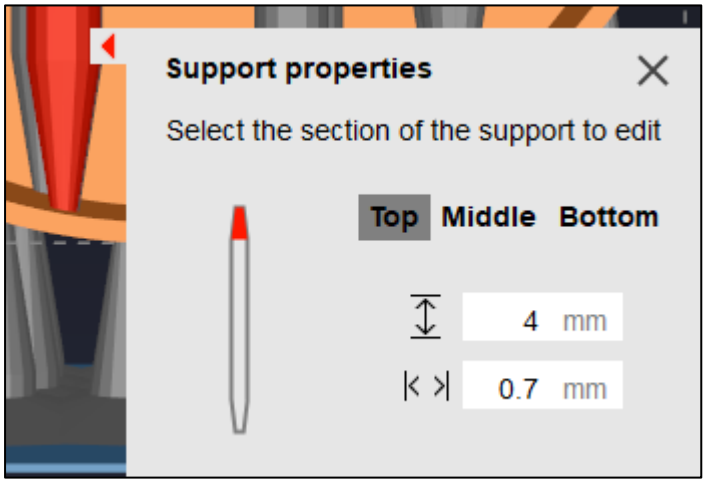
2.6.4 Change support cone properties

Use the following steps to change the properties of a support cone:

1. Select the support cone to change with a single click
2. A support cone tooltip (>) will be shown



   Click the tooltip (>) to expand the support cone properties dialog
3. Use the 'Support cone properties' context menu to change the 'support cone'; you can specify the properties for the top, middle and bottom part of the support cone separately.



2.6.5 Remove single support

Use the following steps to remove a support cone:

1. Select a support cone or grid support with a single click
2. Press [Del]
3. The support cone or grid support is removed

2.6.6 Remove all supports

Use the following steps to remove all support cones from the selected model:

1. Select the model
2. Select 'Support model' button on 'Model actions toolbar'
3. Select 'More options'
4. Select 'Clear all' to remove all support

2.6.7 Tutorial: Print your first job using MAGS AI

This tutorial will help you to create, verify and manufacture your first job using:

- MAGS AI
- Duplicate
- Export Screen

Requirements

- Calibrated DLP Station (paragraph Calibrate DLP Station)
- Resin settings (paragraph Add predefined resin from Online Catalog)

Steps:

1. **Open** a 'STL file'. The model will be shown in the '3D workspace' and the 'MAGS AI' dialog will be automatically opened
2. Click and hold the left mouse button while dragging to **mark surface(s)** where no support is allowed
3. After all markings are done click [Generate]
4. When MAGS AI support generation is completed, the model will be on a support structure and 'Duplicate' dialog will be opened
5. If needed, the generated support cones can be changed by selecting the support cone with a single click and clicking the tooltip. This will expand the support cone properties context menu which allows you to adjust the support cone as desired.
6. Use 'Duplication' to duplicate the model according to a **fixed value** or use **[Fill Platform]** to maximize the number of duplicates on the Build Platform
7. Change the Project name (Project properties toolbar) to: **Tutorial1**
8. Press **[Export]** (*shortcut key: CTRL + P*) to slice and generate the print job
9. After export generation is completed the slices will appear and you can use the slider/scroll functionality to verify the slices

10. Press **[Export]** button to save the job to a USB flash drive
11. **Prepare** the DLP Station for printing (please refer to the DLP Station User Manual)
12. **Insert** the **USB flash drive** into the DLP Station
13. **Select** the **'Tutorial1'** job and start manufacturing the job

3. CONTACT DETAILS

In case you have any questions, suggestions or remarks regarding this Operator Station User Manual, please contact us!

atum3D
Marconistraat 66a
2809 PE GOUDA
Netherlands

T +31 (0)85-4882660
E info@atum3d.com
W www.atum3d.com