V4.1

3DMAKERPRO

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MANUAL

Download latest **JMStudio** from

https://forum.jimumeta.com/home/help/download.html

Get latest **Manual** from

https://forum.jimumeta.com/home/help/manual.html

Software Installation

Operating System Requirement

Recommended Computer Configurations

Intel Core i7 8th, 16GB RAM, NVDIA1060 GPU with 4GB VRAM

Minimum Computer Configurations

Intel Core i5 8th, 16GB RAM, MX250 GPU with 2GB VRAM

How to Install

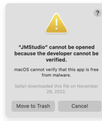
You can acquire the application file by visting our website.

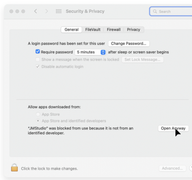
Follow the steps below to install the software.

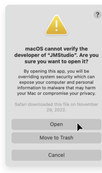
For macOS

①Double-click the application file and drag it to the Applications folder.

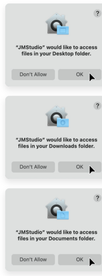
②When this erro occurs, please go into your Security & Privacy， check the App Store and Identified Developers radio button, and click Open Anyway.







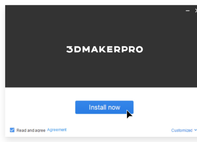
③Allow JMStudio to access files in your Desktop folder.

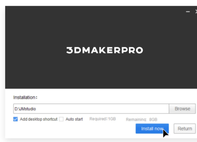


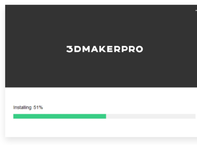
④Run JMStudio, allow it to access the camera, now the installation is completed.

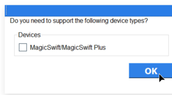
For Windows

①Click on the application file, follow the intallation wizard and click Next to install the software.









Software Upgrade

Please make sure you're running the lastest version of software.

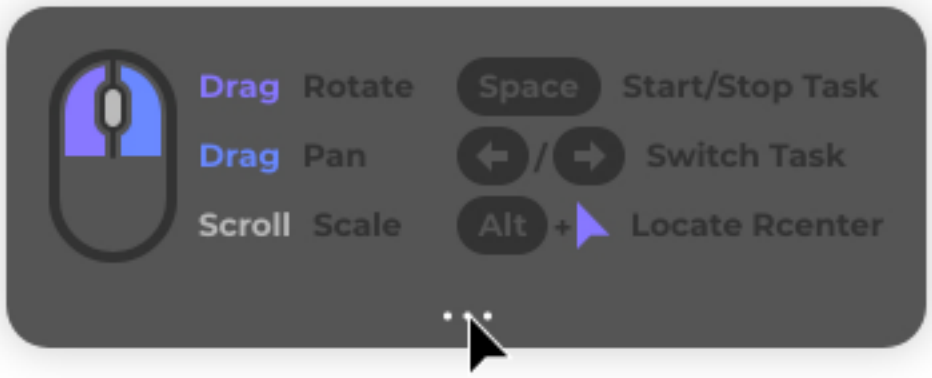
User Interface

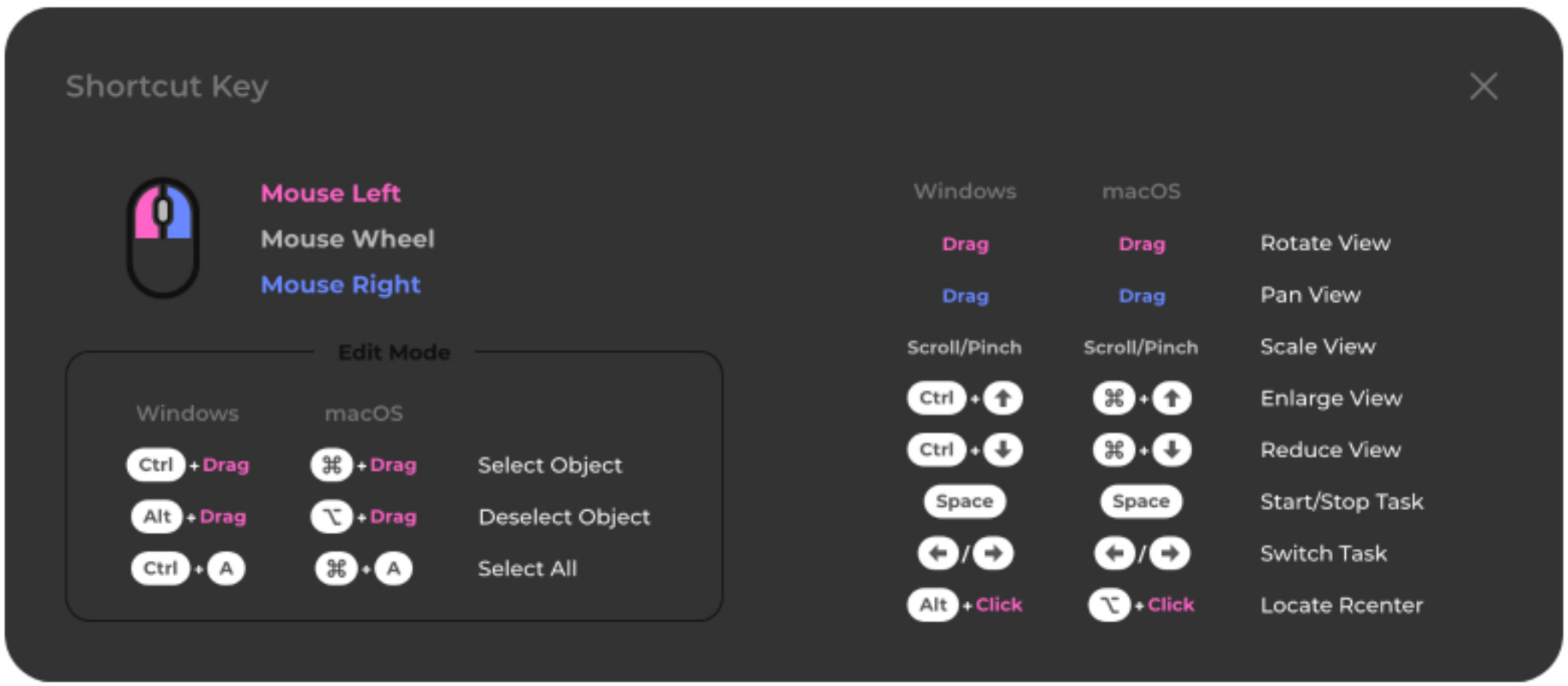
The user interface consists of the following parts:

①Title Bar ②Tool Bar ③Work Mode ④3D Viewer ⑤Work Panel ⑥Data Panel ⑦Status Bar

Shortcut Key

The upper-left area in the 3D Viewer shows you the commonly used mouse and keyboard shortcuts; check all the shortcuts by hovering over this area and clicking the ellipsis below. You can also view or modify more shortcuts by going Settings_Shortcut Key.





Scanning Workflow

Import the Calibration File

The first time scan requires you to calibrate the scanner by importing the calibration file. Before that, please refer to Connect the Cables to ensure the scanner is well-connected.

Make sure your PC is networked to download the calib file. For Windows, JetStudio can automatically identify your scanner and download the calib as well; for macOS, it requires you to set the scanner type first that download.

Follow the steps below to calibrate your scanner:

Far mode5D

On the Work Mode panel, click "Settings" to open the menu and choose the corresponding scanner type.

On the Title Bar, click File_Import calib and go into Network Download, then input the device SN and click "Import".

The device SN can be found at the bottom of the scanner body, then input the letters and numbers and apply to await the prompt "Import successfully".

Note: Please input the last 7 numbers if you are using CR-Scan Lizard.

Preparation

Preparation for special objects

Lynx: With 400mm wide capture range, lynx is capable of capturing as many as details, and scanning large sized objects in a smooth and fast manner.

Mole: Mole has a standard format of 200mm and an accuracy of 0.05mm, which can capture more target features and is suitable for fine scanning of small objects.

Whale: With two modes both in one, Whale is able to scan large-sized objects by activating its wide view, while captures the greatest details of small-sized objects with the micro view at work.

MagicSwift Plus: With 400mm wide capture range, MagicSwift Plus is capable of capturing as many as details, and scanning large sized objects in a smooth and fast manner.

CR-Scan Lizard: CR-Scan Lizard has a standard format of 200mm and an accuracy of 0.05mm, which can capture more target features and is suitable for fine scanning of small objects.

Please choose the right scan mode according to the size of the object, for more information: Scan Mode.

Objects needing special treatment

In order to get a better scanning result, please use spray, dry shampoo, powder, etc. on the following types of objects before scanning:

Preview and Adjustment

Click "Start Scanning" in the Update screen and will go into scanning preview. In the preview, the Work Panel will switch into "Adjust" panel.

In order to get a best scanning result, please carefully read through the following instructions.

Scan Mode

In Easy Scan, you can operate the scanner flexibly to scan large sized objects in irregular shapes. In Table Scan, the scanner works with tripod and turntable to scan small sized objects and free your hands.

Please choose the right scan mode accordingly, and keep a proper working distance as follows.

unit: mm	Working Distance	Object Size	
		Easy Scan	Table Scan
Lynx	400-900	100-2000	100-500
Mole	200-400	15-1000	15-300
Whale	wide-view micro-view	400-900 200-400	200-2000 15-2000	200-500 15-300
MagicSwift Plus	400-900	100-2000	100-500
MagicSwift	400-900	200-2000	200-500
CR-Scan Lizard	400-900	15-1000	15-300
CR-Scan 01	400-900	200-2000	200-500

Choose "Easy Scan" or "Table Scan" in the Work Mode.

Far Whale

We suggest you scan an object of around 20x20x20cm at your first attempt.

If the data cannot be captured or the software says "tracking lost", please follow the above sheet to adjust the distance between the scanner and the object, and make sure the latter is clear of clutter. If the scanning goes well, please continue.

Choose "Wide" or "Micro" for the Work Mode in the Work Panel_Adjust.

SLAM Mode

Choose "Geometry Model" if the scanned object is bumpy and has great geometric features, while choose "Texture Model" when scanning objects with vivid colors, patterns and textures.

Please choose the right SLAM mode for your target objects.

Working Distance

The distance indicator on the left side of the 3D viewer can help you find the optimal working distance.

Set the depth range of data aquisition in the Work Panel_Adjust_Depth of Field.

Locate the Object

The preview window on the top right of the 3D viewer helps you locate the object. Make sure it fully exposed in the preview window.

Brightness

Use the slider to adjust the brightness to a proper level in the Work Panel_Adjust_Brightness.

Sensitivity

Use the slider to adjust the Sensitivity to a proper level in the Work panel_Adjust_Brightness. Sensitivity is a parameter to control how sensitive the scanner is to light, affecting the quality of the scan data. Normally set high sensitivity when scanning dark objects, as it allows the scanner to pick up more details while also making the scan data noisier; it's often the opposite at low sensitivity. We can adjust this parameter to balance the data quality and noise reduction according to the type and color of the target object.

Easy Scan

Scan

Adjust the scanner's position and angle to centre the target object in the preview window, check if they're kept in a proper distance by focusing on the distance indicator.

For more information: Working Distance_Locate the Object_Brightness.

Click "Scan" on the work panel, hit the spacebar or press the start/stop button on the scanner(supported on specific models) to start scanning.

Stop

Click the red counter, hit the spacebar or press the start/stop button on the scanner(supported on specific models) to stop scanning.

"*" - Frame is used to measure the pictures. The more frames you've collected, the larger and more complete data you'll get, while it requires more time and a stronger PC to process the data. It's suggested to limit the single scan within 2000F.

Append

If you want to scan at a different angle and add a new scan, click "Append", hit the spacebar or press the start/stop button on the scanner(supported on specific models).

Process

Click "Process", hit the spacebar or press the start/stop button on the scanner(supported on specific models) to go into the Edit Mode and process the scan data. On Alt right or left arrow keys to the next or last step.

Table Scan

Initial

Adjust the scanner's position and angle to centre the target object in the preview window, check if they're kept in a proper distance by focusing on the distance indicator.

For more information: Working Distance_Locate the Object_Brightness.

Remove the object from the turntable when scanner is well positioned.Click "Initial", hit the spacebar or press the start/stop button on the scanner(supported on specific models) to scan the empty turntable until it turns red.

Stop Initializing

Click the red counter, hit the spacebar or press the start/stop button on the scanner(supported on specific models) to stop initializing.

"*" - Frame is used to measure the pictures. The more frames you've collected, the larger and more complete data you'll get, while it requires more time and a stronger PC to process the data. It's suggested to limit the single scan within 2000F.

Scan

Leave the turntable there and place the target object in the centre of it. Click "Scan", hit the spacebar or press the start/stop button on the scanner(supported on specific models) to start scanning.

If you find the initialization result unsatisfactory, can also hit right or left arrow keys to the next or last step. Click the button "1" hit the spacebar or press the start/stop button on the scanner(supported on specific models) to re-initialize.

Stop

Click the red counter, hit the spacebar or press the start/stop button on the scanner(supported on specific models) to stop scanning.

"*" - Frame is used to measure the pictures. The more frames you've collected, the larger and more complete data you'll get, while it requires more time and a stronger PC to process the data. It's suggested to limit the single scan within 2000F.

Append

If you want to scan at a different angle and add a new scan, click "Append", hit the spacebar or press the start/stop button on the scanner(supported on specific models).

Process

Click "Process", hit the spacebar or press the start/stop button on the scanner(supported on specific models) to go into the Edit Mode and process the scan data. On Alt right or left arrow keys to the next or last step.

Reset

Click "Reset", hit the spacebar or press the start/stop button on the scanner(supported on specific models) to initialize again. Or hit right or left arrow keys to the next or last step.

Editing

Data Editing

Before meshing the point cloud data, you can do simple editing on it to delete excess data and ensure the quality of the model.

①Select Tools

Hover your mouse over the Tool Bar on the left side of the interface, here are a few selection tools available.

②Select the Data

Hold Ctrl and press left mouse button in the 3D Viewer to select an area, the selected place will turn red.

③Process the Data

Hover your mouse in the 3D Viewer and right click or click on "Edit" in the Title Bar to show the menu then edit your data.

Select All: Select all visible data.

Reverse Selection: Select the data outside the selected area.

Boundary Selection: Select an area that falls with a given region or boundary.

Plane Selection*: Select all the data on one fitting plane.

Clear Selection: Deselect the data.

*Plane Selection can be used to select a plane such as the turntable, floor, wall and have them deleted. Watch the tutorial below to learn more:

https://forum.jimumeta.com/home/tutorials/41bad37d6ce7d4aef0bfccfa90abde0e18.html

Align

Watch the tutorial below to learn more about Align:

https://forum.jimumeta.com/home/tutorials/d11d93894004ba7a618ac0e7b309d04.html

Go into "Align" in the Work Panel and select the align mode.

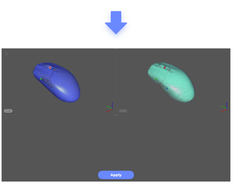
Auto Align

Select the scans that need to be aligned to in the "Work Panel". Drag one in the above highlighted box as the reference, another in the box below as the floating scan. Click "Align" to merge them together.

Manual Align

Select the scans that need to be aligned to in the "Work Panel". Drag one in the above highlighted box as the reference, another in the box below as the floating scan.

Click "+" in the mark point box to automatically generate three pairs of mark points in the 3D Viewer. Right-click to pick up the points then reposition them, and drag each pair to the place you want until they are matched.Click "Align".



Process

Check the processing steps needed for your point cloud data in the Work Panel_Process:

[Fusion] Mesh the point cloud data by connecting the dots to produce a complete model.

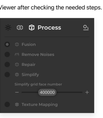
[Remove Noises] Clean up the mesh by removing the floating noises from the scans.

[Repair Gaps] Fill the holes on the mesh to produce a watertight model.

[Simplify] Narrow down the amount of mesh faces to reduce the data size.

[Texture Mapping] Apply the texture or color information onto the mesh surface.(Colors only available for some of 3DMakerpro models.) Note: here "Texture Mapping" refers to the texture capturing by the scanner itself. If you need to do "External Texture Mapping", please uncheck this step.

Click "Process" in the 3D Viewer after checking the needed steps.



Select the scans in this pop-up window and click "Apply" to start the data processing.

You can further edit on the mesh model to delete excess data with the selection tools available. For more information: Data Editing

Watch the tutorial below to learn more:

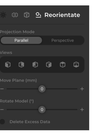
https://forum.jimumeta.com/home/tutorials/fee6fafaef70e41a1b251ed0c555a8496.html

Reorientate

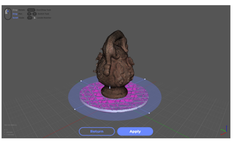
Adjust the model's posture, align its base to XY axis of the coordinate system for further model editing and 3D printing.

Reorientate your 3D model by going into the Work Panel_Reorientate. Three mark points will be automatically created to generate a plane; right-click to reposition them but not make them in a line; flip directions of the normal line in the Work Panel_Reorientate; click "Reorientate"to execute it.

In the Work Panel_Reorientate, there are other settings such as changing the view types, moving the plane, rotating the model and deleting the highlighted excess data below the plane.

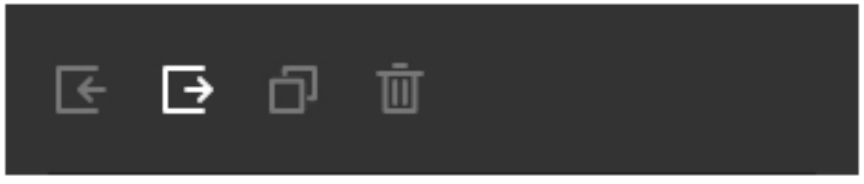


Drag four anchor points to reposition the plane, and drag the arrow in the middle to move the plane vertically; click "Apply" if you are satisfied.

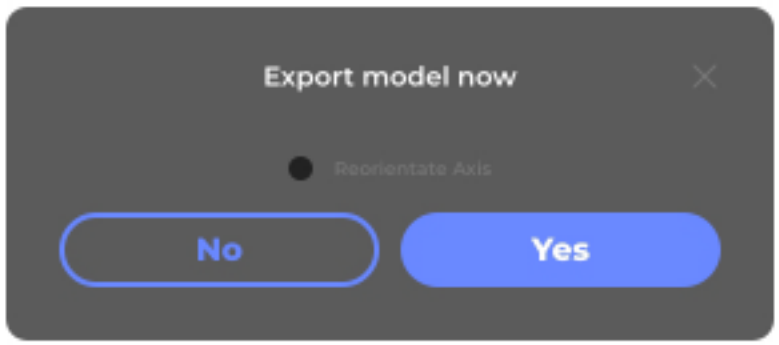


Export the Model

Click “Export” in the Title Bar_File or the export icon in the Data Panel to export the model.



Click “Yes” in the pop-up, will go to reorientate the model if checking “Reorientate Axis”. For more information: **Reorientate**



JMStudio now supports model exported in obj, stl and ply format, stay tuned for more available formats. Thank you for your time!