


# Image Stitching with Stacking Tool

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## What is Image Stitching with Stacking?

Image stitching with stacking allows creating "all-in-focus" high-resolution images combining several images, automatically taken at higher zooms. The tool is designed to work with objects with a flat surface (like coins) or with some deviations from the main surface plane (like printed circuit boards). In addition, the surface of the object can be located at an angle to the focusing plane

 Starting from DM version 1.4.12.52, you may use the [flat-field correction tool](#) with the image stitching to compensate for any uneven lighting

## GUI description

The GUI for the **Image Stitching** tool is located in the right panel of the **Processes** tab and looks like this (all data on the presented image is for informational purposes only):

Image stitching

Stitching Region

Start selection

Clear selection

Settings

Zoom settings

Current zoom: 7.811x

Scanning zoom: 15,62Factor: 2,00

Cameras

☐ Left

☐ Right

☒ Stereo

Multifocus settings

☒ Find the surface plane

☒ All in focus

☒ Compensate the slope

Focus fusion type

☒ GPU

☐ CPU

Deviation from the plane: ± 0,00 mm

Surface angle: 7.6°

Focus distance: 3.77 mm

Result resolution: 14592 (7296 + 7296) x 3672

Debug settings

☐ Show overlay over the DM layer

Adding threshold: 10 %

☐ Save images

Grid size: 5 x 4 x 23

Process

Process initialization...

23%

Start scanning and stitching

Details for each section are given below.

Stitching region

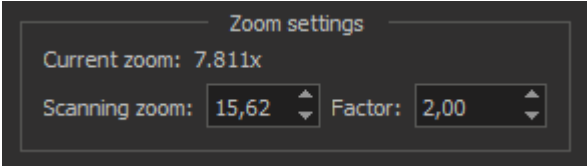
Stitching Region

Start selection

Clear selection

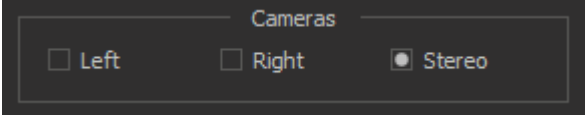
- The **Start selection** button for starting the selection of the scanning region (enabled only before selection)
- The **Clear selection** button for clearing the selected region (enabled only after selection)

Zoom settings (Settings box)



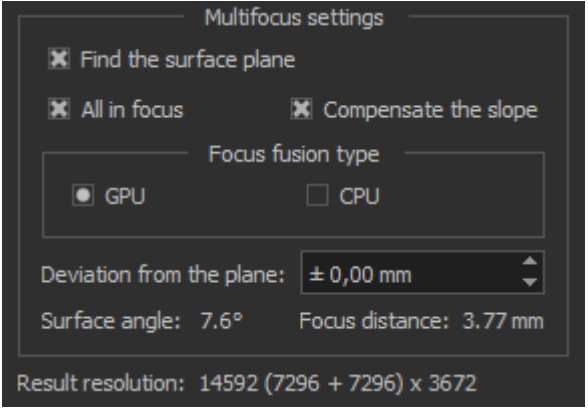
Here you can view the **Current zoom** and adjust the **Scanning zoom** or the scaling **Factor** (the **Scanning zoom** and **Factor** parameters are interrelated)

Cameras (Settings box)



Here you can choose which cameras will be involved when scanning: only left (**Left**), only right (**Right**) or both (**Stereo**)

Multifocus settings (Settings box)



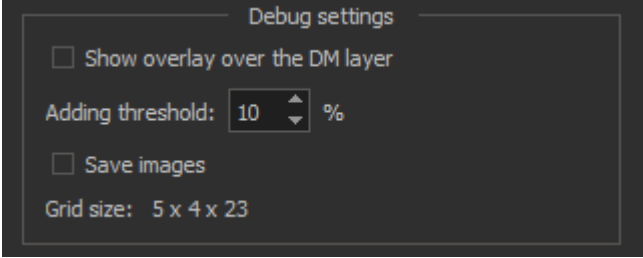
- The **Find the surface plane** flag. Select this check box if you want to run the surface plane analysis stage before stitching (determining the position of the surface and the angle of inclination relative to the focus plane)

 **Note!**  
For the correct operation of this step, you must manually focus on the object surface in the center of the selected region on the scanning zoom

- The **All in focus** flag. Select this check box for obtaining "all-in-focus" result. Enabled only when checked the **Find the surface plane**
- The **Compensate the slope** flag. Select this check box for obtaining result with compensation of the surface plane slope (as if we were looking at the object surface at right angle). Enabled only when checked the **Find the surface plane**
- The **Focus fusion type** group. Here you can choose the type of focus fusion algorithm: by using **GPU** (default) or **CPU**
- The **Deviation from the plane** to set the deviation from the object plane in millimeters

Also here you can view the found **Surface angle** of the object plane, the **Focus distance** which will be passed in the process of stacking, and the **Result resolution** of the stitched image

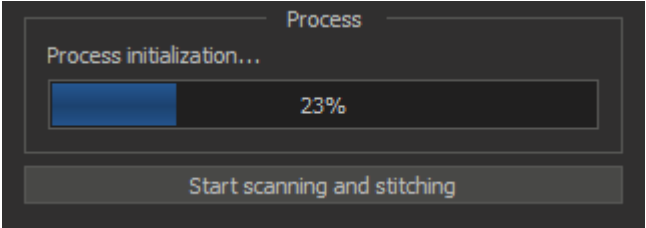
Debug settings



- The **Show overlay over the DM layer** flag to toggle of the sketch overlay showing over/under the DM stream layer
- The **Adding threshold** parameter to change the threshold (in percentage of frame size) of adding new frame to the sketch
- The **Save images** flag for enable/disable saving source frames during scanning

Also information about the **Grid size** is displayed here (**Number of frames horizontally** x **Number of frames vertically** x **Number of stacking frames**)

Process



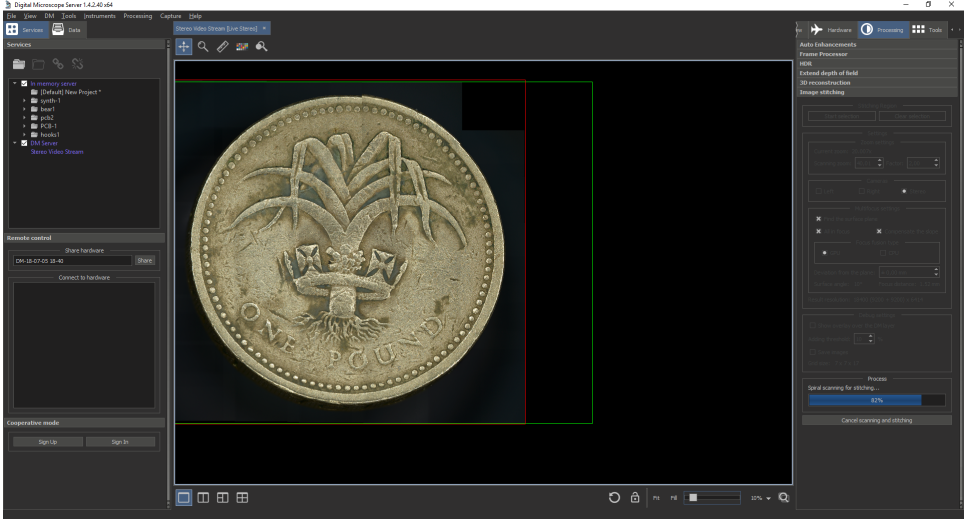
Here you can view the processing status, current progress and start or cancel the process using the **Start/Cancel scanning and stitching** button

How to use (Step-by-Step Guide)

- 1. Set the object to be scanned
- 2. Set the **Scanning zoom** or **Factor**
- 3. Select **Cameras** for scanning
- 4. Push the **Start selection** button
- 5. Select the scanning region via joystick or others tools. The selected area is represented by a green frame in the view area



- 6. Set the scanning zoom and focus to the object surface plane in the center of selected area. Change zoom back
- 7. Set all the **Multifocus settings** you need
- 8. If something is wrong, reset the selected area with the **Clear selection** button. Otherwise, start the scan with the **Start scanning and stitching** button
- 9. Wait for the process to finish



- 10. If everything is successful, new stitched image data will appear in the **Services** list. This data can be opened for viewing or saved to disk

Result stitched image with scale 13%	Result stitched image with scale 100%
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