Artec 3D

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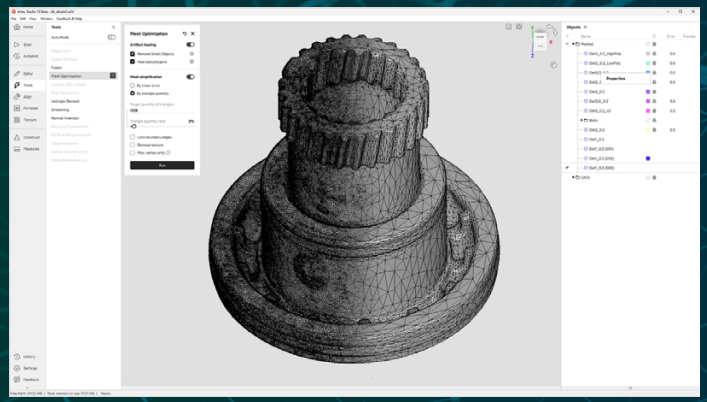
Artec STUDIO19



- Tips en Tricks
  Postprocessing of scans

English
Version 2025.04A

This document is a brief description of the steps you need to go through when you have finished scanning (collecting data) with one of the Artec scanners. The procedure is basically the same for all scanners. However, for a few scanners, several comments have been added at the end. This applies to the Ray II and the Point scanner, but also to the Eva and the Leo.

A detailed description of all functions can be found in the English manual that is installed on the computer during the installation of Artec Studio. You can open this with CTRL-F1. We strongly advise you to take time for this and especially to read the practical tips carefully.

Steps during post-processing of the scans

Please note! When editing the data, it must be edited on the **local PC/laptop** and not on a network location!

Step 1

Turn all scans **On**, so visible on the screen.

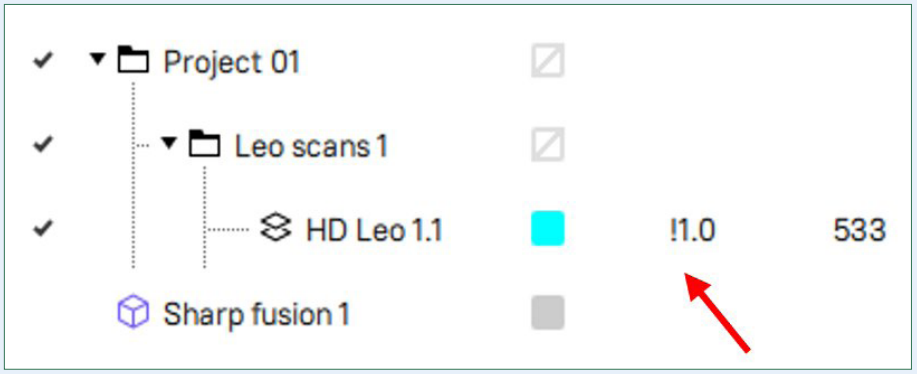
Step 2

Tools/3D Scans/Registration/Global and select **Features: Geometry and texture and at Registration mode: Separate**. Global is aligning all frames in the scans and is now done on the individual scans.

Step 3

It sometimes happens that parts of the scan (one or more Frames) cannot be aligned with Global. This is possible, for example, because frames contain too little information to align properly. In the list of scans, this is indicated by an exclamation mark.

In most cases, you don't have to pay attention to this at first.



Note
While calculating the Fusion, the software will **not** include all "Error Frames" in the calculation!

Step 4

Align: If multiple scans have been made, you can put them in the right place here, automatically or manually.

Step 5

Tools/3D Scans/Global but now with **Registration mode: Collective!** All frames are now aligned again but on all scans as a whole.

Step 6

Tools/3D Scans/Outliers Removal: Only use, if necessary, when there is a lot of "noise" around the data. **3D Resolution** must be equal to the value of the Fusion that will be used.

Step 7

Tools/3D Scans/Fusion: The software recognizes which scanner was used to scan and adjust the settings.
With Fusion, one object is calculated from all raw data.

At **Fill holes** we usually choose **All (watertight)**. This way you ALWAYS get a waterproof model. No more holes need to be filled! Other options depend on the situation.

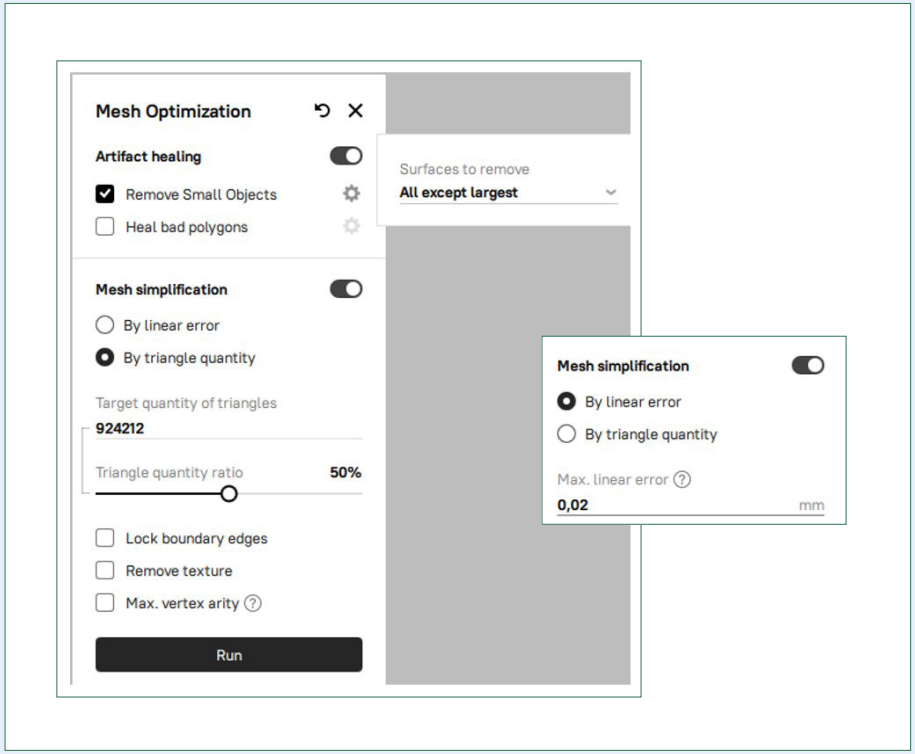
Max. mesh resolution, mm: Has a default value depending on the scanner type and whether HD scanning was done. Depending on the application, this value can be played with until a desired result is obtained.

Step 8

Tools/3D Models/Mesh Optimization: Turn on Artifact healing and then **Remove Small Objects.** In the settings of this (gear) **All except largest.** This filters out all loose small parts and only the desired model remains.

Step 9

Mesh Simplification: This can be enabled in the same window. **By triangle quantity Triangle quantity ratio** at 50% is almost always safe to do. Enable this operation as needed. The file size is drastically reduced, because the software will maximize the size of the triangles of the mesh within the specified tolerance.



Step 10

An alternative to triangle quantity is **By Linear error**. Specify a tolerance that is acceptable. In order not to lose too much detail, a tolerance of 0.02 is good.

Step 11

Fix holes: when holes need to be filled. Choose between **Flat** or **Smooth** for filling the gaps.

Step 12

Editor / Smoothing Brush:Smoothing out local imperfections (so *not* the Tools/Smoothing).

Step 13

File / Export Mesh: usually STL as the export format.
For color select Obj-format.

So in summary, the order is:

- Tools/3D Scans/Global/Separate: Global on the individual scans! (*)
- Align
- Tools/3D Scans/Global/Collective: Global on all scans together. (*)
- Tools/3D Scans/Fusion
- Tools/3D Models/Mesh Optimization Remove Small Objects (always!)
- Tools/3D Models/Mesh Simplification (optional)
- Smooth Brush
- File / Export Mesh

(*) When post-processing data from the Point scanner, Global can be omitted when you scan the object with markers ON the object. See the end of document!

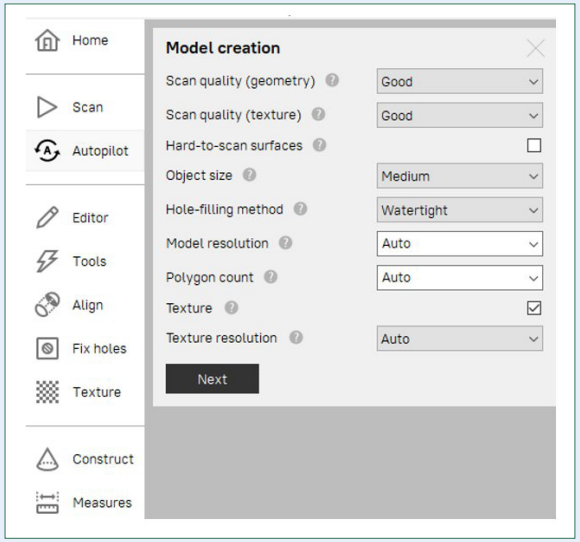
Auto pilot

This option is very useful for repetitive work that needs to be scanned and processed in the same way every time.

Within Auto Pilot, you can preset how the postprocessing should proceed by answering a few simple questions.

Calculating the colors on the final Fusion can also be set here.

With the manual way of working as described, there are more functions available to guide the process.

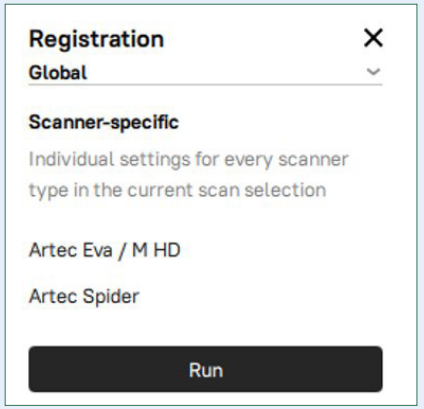


Combining data from different Artec scanners

If multiple Artec scanners are in use, the scan results can be used interchangeably. So there may be a scan of an object that was made with the Leo scanner and then details were scanned with the Spider.

Tools/3D Scans/ Registration/Global for multiple scanners

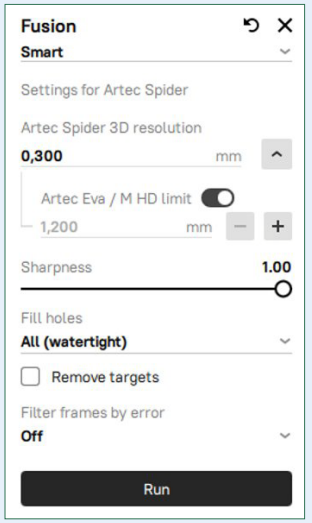
Depending on the scanners used, you will get the following window. If you click on the scanner, you can set the specific parameters for that scanner.



Tools/3D Scans/Fusion for multiple scanners

Always choose **Fusion/Smart.**

Expand the window by clicking the checkmark below the cross. In this case, you can set the settings for the EVA and the Spider separately.



Condition

Make sure the scans are properly aligned and the Global is done. Artec Studio understands which data to use if there are two types of data available. The software then always automatically chooses the data with the most detail – in this case, the Spider data.

Note

You never have to wipe out data to only want to use Spider data locally. The software does this 100% automatically!

SAVE file

All data is automatically stored in the user folder C:\users\xxxx\AppData\Local\Temp. You can save this data in a different place with File/Save or CTRL-S. Once that is done, the data will be removed from the user folder.

Artec Handbook: Read through it!

This document claims to be incomplete!

All information can be found in the manual of the Artec software. This can be activated at any time by pressing CTRL-F1 in the software. You can also print it out!

We strongly advise you to take the time to read this manual from time to time because this manual is also supplemented with software updates. This gives you an (even) better understanding of all the possibilities of the Artec scanning technology in different scanning situations!

Scanner specific settings during post-processing

Artec Ray II

The RayII provides a point cloud, and it can calculate a Fusion in two ways. The first way is as described above, and the second way you can find here: **Tools/Miscellaneous/Ray Scan Triangulation**

Advantage Ray Scan Triangulation: Computing speed.
You quickly come to a result.

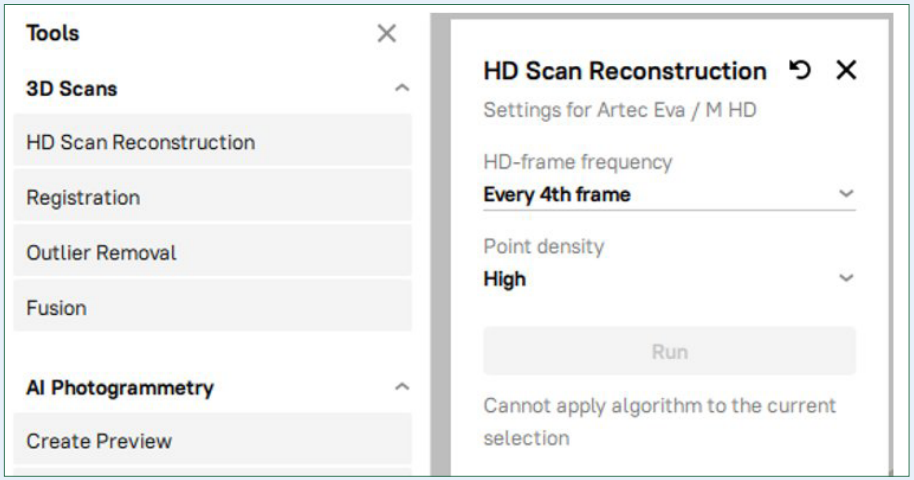
Disadvantage Ray Scan Triangulation: Limited functionality.

- All scans are calculated **Separately** as a Fusion.
- No Hole filling.

Artec Eva

When you have scanned with the EVA in HD quality, you will see **Eva 1** twice on the right side. **Eva 1** with the red dot is the HD version of the scan and the second **Eva 1** is **the same scan** in SD quality.

As it is, this scan is NOT visible on the screen. You now must calculate the **Tools/HD Scan Reconstruction** with the settings as shown in the image.



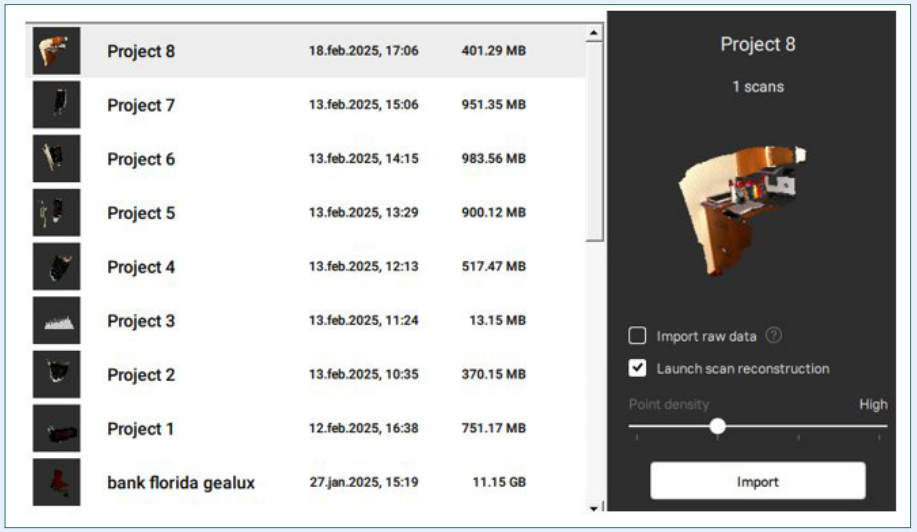
We now see **HD Eva 1** added in the list and the number of Frames is about 25% of the **SD Eva 1**. So, less information but a (much) higher quality.

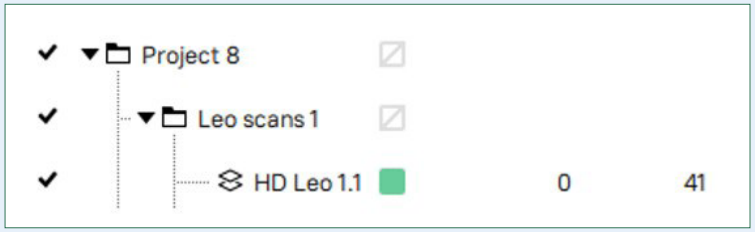
Continue the **HD Eva 1** scan according to the previous instructions.

Artec Leo

You can also scan in HD with the Artec Leo. You must import each project into Artec Studio with File/Import/Leo Project (connect to scanner).

Then the import screen opens in Artec Studio and here Project 8 is retrieved, and we choose to automatically convert the HD data by checking **Launch scan reconstruction**.





When the calculation is complete, Project 8 will be listed on the right as follows. Then finish according to the previous instructions.

Artec Point

The data from the Artec Point uses points and therefore has no Frames. The alignment of the data is done immediately after scanning, so the **Global can be skipped** and you can do a Fusion immediately. This is **only** true when the markers are placed **On** the object to be scanned. The software then "knows" where the markers are in relation to each other and Global is not needed.

If you can't/**may Not place markers On the object**, you are dependent on markers on the surface. In that case, you do have to manually align the individual scans, and **you also have to do a Global** for the Fusion!

Fusion / Remove Targets

While the Fusion is calculating, you can activate the Remove Targets option and they will then be automatically removed from the result, the Fusion.

Have fun scanning with
ARTEC STUDIO!

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Artec 3D Gold Certified Partner

4C Creative Cad Cam Consultants

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