

Artec 3D STUDIO 12



MANUAL PROCESSING GUIDE

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Artec Studio offers Autopilot for automatic processing of scan data. While this works very well, sometimes manual processing may be desired or needed. This guide describes the order of steps along with settings for manual processing. The icons on the left note the section of Artec Studio 12 where each process will be found.



SCAN

Multiple scans may be needed depending on the object you are scanning.

- / Always keep as much surface area as possible visible in the scanner's field of view. Avoid scanning edges and thin objects without any background visible to the scanner.
- / Use Geometry + Texture feature tracking for most objects.
- / Enabling automatic base removal, particularly when scanning large objects, can save editing time later on.
- / Make sure to check texture brightness before scanning.
- / Keep your eyes on the screen while scanning.
- / Watch your distance meter. Keep within the three green middle sections for the best scan results.
- / Increase scanning sensitivity (Spider/Space Spider) to help scan difficult items such as hair, fur, very dark, or translucent surfaces.
- / Scan objects from many different angles.
- / The Auto Align checkbox aligns new scans to existing ones. Just point the scanner at any part of the object that you have already scanned.



ERASE

The erase tool allows you to remove unwanted data from your scans.

- / If there is an unwanted flat surface or pedestal under the object that was captured during the scan, you can remove this in the editor before aligning multiple scans.
- / If you had automatic base removal enabled, the base should be automatically removed when leaving the scan tab.
- / When scanning small objects with little surface area, avoid erasing flat background before global registration is complete.
- / You can also use the eraser to remove any other unwanted geometry that was captured during the scan process.

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ALIGN

If you only have a single scan, you may skip this step.

- / If you have multiple scans, you must align them before performing global registration.
- / Pick three common points far apart from one another when using the full manual alignment process.
- / The auto-align works well and can save time.
- / Select “Enable texture align” if you have difficulty aligning scans that don’t have a lot of geometry features.



GLOBAL REGISTRATION

Global registration fine-tunes captured data across all scans.

- / The default setting of “Geometry + Texture” works for most objects.
- / Select the “Geometry” setting if the object is monochrome and/or has rich, unique geometry.
- / Look over the scans after performing Global Registration and make sure that all of the frames are positioned correctly and that none are sticking out. If any are incorrectly positioned, check your settings, consider adding extra features to your object and scan again.
- / Note the Max Error number for each scan after Global Registration. These numbers will be needed for Fusion later on.



OUTLIER REMOVAL

Use Outlier Removal on scans with a lot of noise so as to make fine geometry sharper. Often useful for Space Spider scans.

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FUSION

Fusion takes all the scans and fuses them together into a single object.

- / Fast Fusion can be used for a quick preview with no hole filling.
- / Smooth Fusion works well with objects that contain noise and no fine geometry, and works especially well on hair.
- / Sharp Fusion is recommended for most objects and scanner types, and works especially well with fine geometry.
- / The resolution number defines the sharpness of the geometry on the model. The lower the number, the more detail will be visible after Fusion.
- / Before setting the resolution, look at the Max Error of the scans. The smaller the number, the better resolution you will be able to set.
- / For Eva scans, the resolution should be 1.0 for most objects, but can be reduced to 0.5-0.7 if Max Error is 0.4 or lower.
- / For Space Spider scans, the resolution should generally be the same as the Max Error, but no higher than 0.3 and no lower than 0.15
- / Sharp and Smooth Fusions have hole filling settings. If you need a model with no holes, select Watertight setting.
- / If the object was scanned from limited sides and has blank spots, set the hole filling to "by radius" and select the radius of the holes in millimeters. Holes with a radius equal to the setting or smaller will not be filled.



SMALL OBJECT FILTER

Small-object filter removes disconnected objects and noise floating around your fused model.

- / This should be run after every Fusion, even if there aren't any visual objects or noise.
- / "Leave biggest object" works best in most cases.
- / If you have multiple disconnected pieces that you want to keep, use "filter by threshold." Tweak the value until you are left only with the pieces you want.

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MESH SIMPLIFICATION

Mesh simplification reduces polygon counts for programs that cannot handle the full resolution of models.

- / Reduce by Accuracy for mechanical items where accuracy is key.
- / 100k triangles works well for a bust scan.
- / Fast Mesh Simplification is quick and can work well for organic objects such as people. It is not as good for scans with fine details.
- / 500k triangles works well for a full body scan.



TEXTURE

If the scanner captured color texture during the scanning process, you can now apply that to your model.

- / The “Preview” setting can be used for a quick texture application, but isn't mandatory.
- / The default 4096 resolution works well for most 3D printing and rendering applications.
- / The “Export” setting is used for final texture application for exporting models.
- / Artec Studio automatically makes adjustments to the texture, but this can still be manually adjusted after texture application.



EXPORT

Your scanned model should now be ready to export for use with other 3D programs.

- / File → Export Mesh will export the currently selected (eye symbol) workspace item(s).
- / OBJ carries color info in a separate image file and is accepted by many programs.
- / STL is accepted by most programs but does not carry color info.
- / VRML 2.0 works well for many full color 3D printing systems.