DIGITIZE DESIGNS

MANUAL PROCESSING GUIDE

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MANUAL PROCESSING GUIDE

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 11 each process will be found.

Scan

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

- Use Geometry + Texture feature tracking for most objects.
- Enabling automatic base removal will 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 to help scan difficult items such as hair, fur, or very dark surfaces.
- Scan objects from many different angles.
- Real-time fusion can be helpful to produce a quick, low resolution model without much manual processing and also works well as a quick preview of the final processed data.

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.
- If you had automatic base removal enabled, the base should be automatically removed when leaving the scan tab.
- You can also use the eraser to remove any other unneeded geometry that was captured during the scan process.

Align

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

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

Global Registration

Global registration fine tunes captured data across all scans.

- Select "Geometry" processing unless you have trouble performing Global Registration. "Geometry + Texture" is much slower.
- Look at your Max Error number after performing Global Registration. Lower numbers are better.
- Space Spider scans should be 0.1 - 0.3.
- Eva scans should be 0.3 - 0.7.
- For people, a quality of 1.0 - 1.3 can be common because of body movement.

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Outliers Removal

(Space Spider Scans) Outliers Removal cleans up edge noise that can mess up fine details.

- Use a threshold of 2 for very noisy scans. Use 3 for less noisy scans. The default is 2.
- Resolution should be the same as what you plan to use for Fusion later on.
- Do not use this for high sensitivity scans that will require outliers to rebuild difficult to scan surfaces such as hair or fur.

Fusion

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

- Fast Fusion can be used for a preview.
- Smooth Fusion works well with Eva scans.
- Sharp Fusion is always used for Space Spider scans, but can be used with the Eva as well.
- Always make sure your resolution number is the same or higher than the worst Max Error number on your scans.
- The lower the resolution number, the more detail will show in your resulting fusion.

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.

Mesh Simplification

Many programs cannot handle millions of polygons like the models produced by Artec Studio have.

- Reduce by Accuracy for mechanical items where accuracy is key.
- 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.
- 100k triangles works well for a bust scan.
- 500k triangles works well for a full body scan.

Edges

The edges tab allows you to fill holes and smooth edges.

- If you chose "watertight" for your fusion, this step may not be necessary unless you edited the model after fusion.
- Edge smoothing works well for cleaning up rough edges of partial scans.

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Texture

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

- Triangles map is good for a quick preview.
- Texture atlas is used for final texturing.
- The default 4096 resolution works well for most 3D printing applications.
- Texture Normalization evens out the brightness of the captured texture frames.
- Texture adjustments can be made immediately after applying texture. General guides:
  - Brightness: 1.6 - 1.8
  - Hue: May need to adjust to .01 - .03 if objects have a green tint
  - Contrast: Adjust up if needed.
  - Gamma: .85 - .9

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).
- STL is accepted by most programs but does not carry color info.
- OBJ carries color info in a separate image file and is accepted by many programs.
- VRML 2.0 works well for many full color 3D printing systems.