PURDUE UNIVERSITY

The Dauch Center

Artec Eva-M 3D scanner manual

Model and specifications

Artec Eva-M 3D Scanner

- 3D point accuracy up to 0.1 mm
- Resolution up to 0.2 mm
- Accuracy over distance up to 0.1mm + 0.3mm/m
- Object size: small to medium

Output formats

- 3D mesh formats: OBJ, PLY, WRL, STL, AOP, ASC, PTX, E57, XYZRGB
- CAD formats: STEP, IGES, X_T
- Formats for measurements: CSV, DXF, XML

Artec Studio

Artec Studio is the software used to scan objects with the 3D scanner. The software is already installed in the lab computer: KRN-ENGAGE-M6.

Minimum computer requirements:
HD: Intel Core i7 or i9, 32GB RAM, NVIDIA GPU with CUDA 6.0+ and 2GB VRAM.
SD: Intel Core i5, i7 or i9, 12 GB RAM, GPU with 2 GB VRAM.

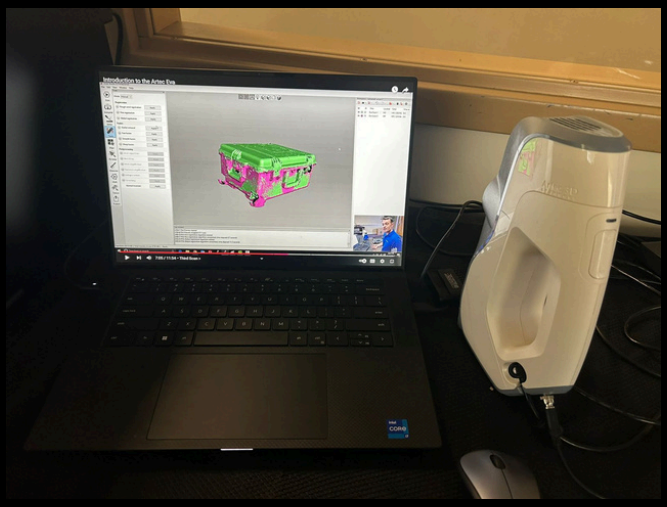

Figure 1. Lab computer

Start scanning: Object positioning

I recommend placing the object on a chair, as it is important that it is not surrounded by other objects. When the object you want to scan is surrounded, these items can interfere with the scan and create excessive noise. The object being scanned should remain stationary on a surface, while the person conducting the scan moves around it.

Click here to see an example

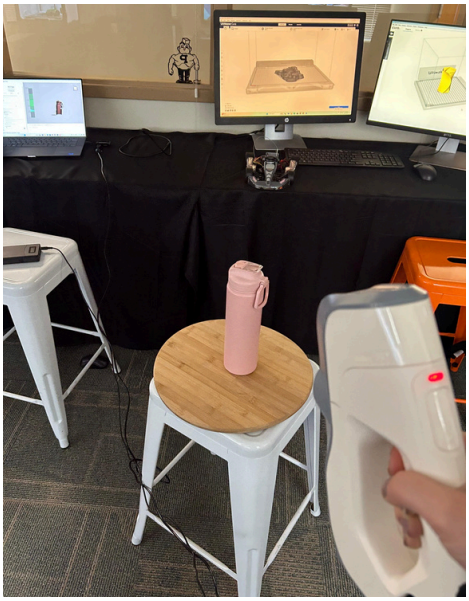

Figure 2. Scanning in progress

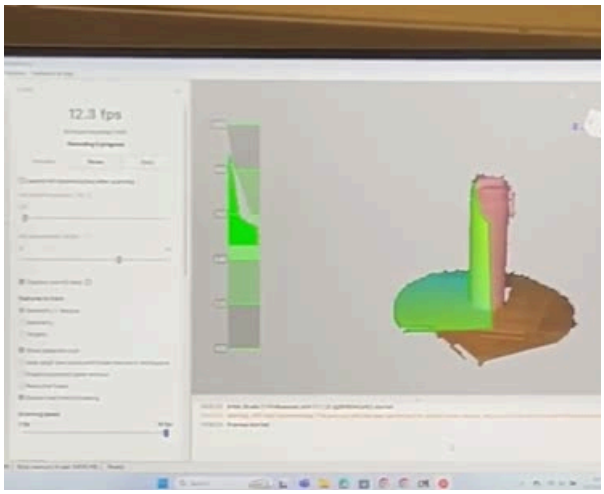

Figure 3. Scanning software

It is also better to scan the object while focusing and watching the screen rather than the object itself. This allows you to ensure that the object stays within the green square as you move around it.

Start scanning: Computer and software

1. To begin scanning, go to the computer and open the "Artec Studio" app by clicking on its icon (Figure 4).
2. A welcome page will appear on the screen, where you will have the option to start a new scan, open a previous project, or import a project from the cloud. Additionally, several tutorials will be available for you to explore.

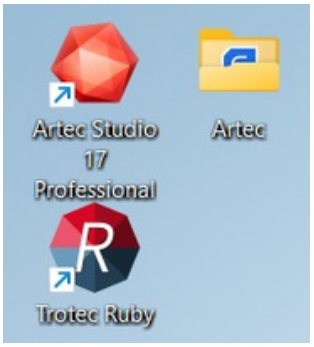

Figure 4. Artec Studio

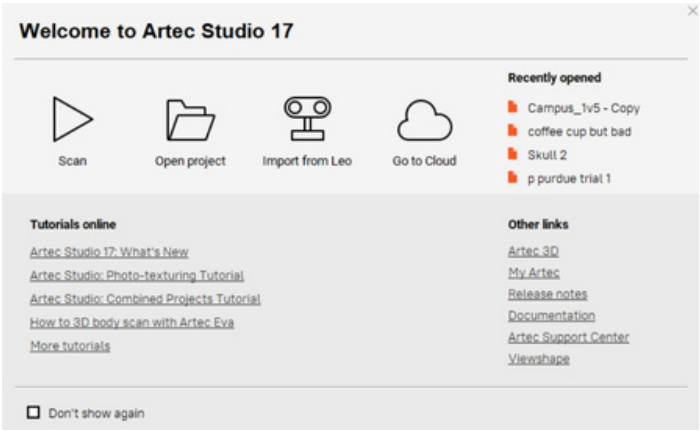

Figure 5. Artec studio welcome page

3. To start a new project, click on “Scan”. Then, the next screen will appear:

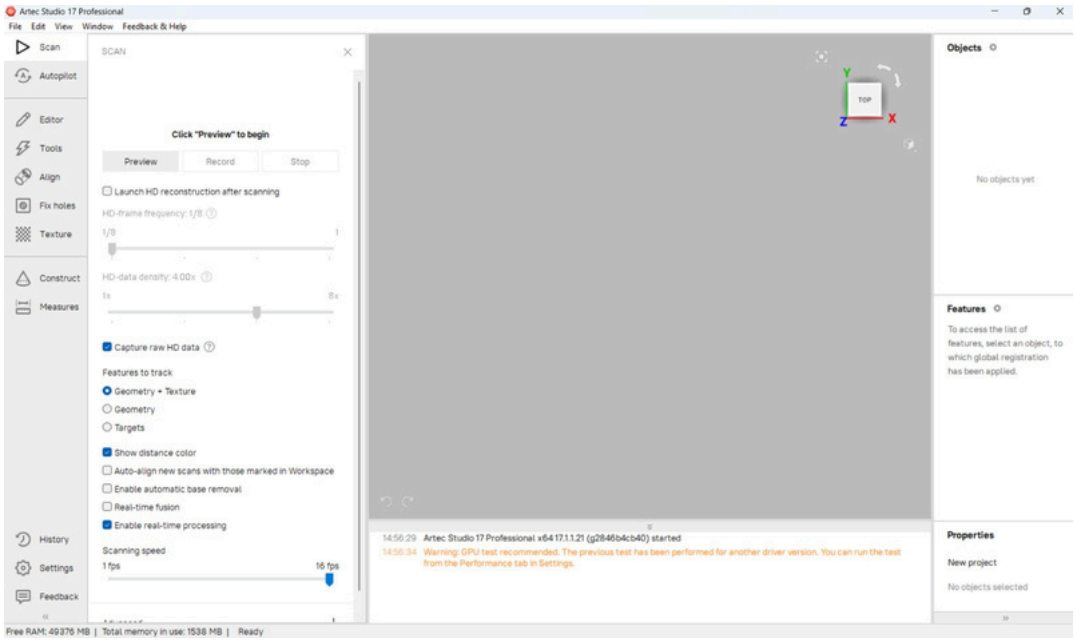

Figure 5. Artec studio main page

Start scanning: Scanning options

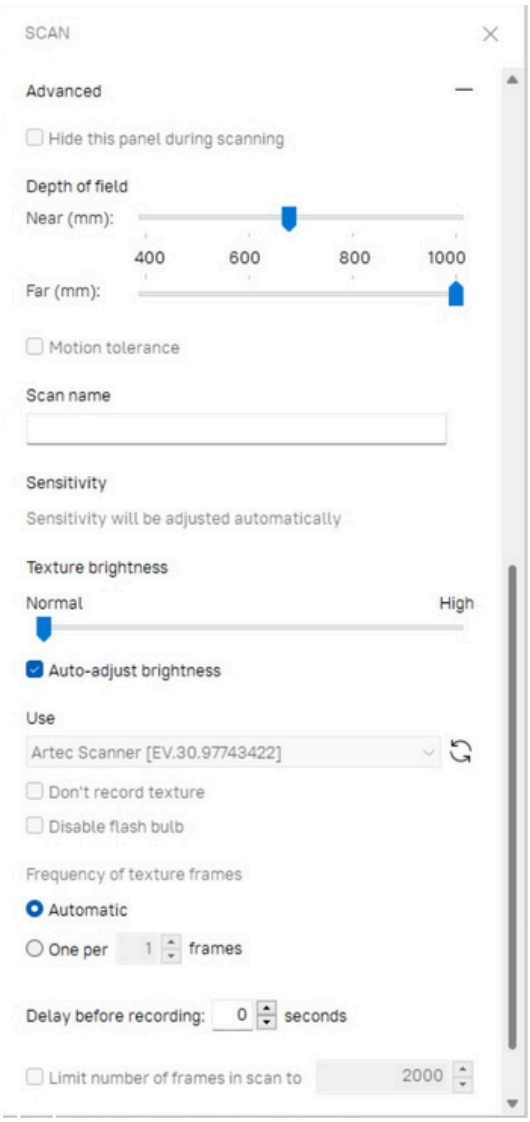

Figure 6. Advanced options

1. The main menu offers several customizable options. To optimize feature tracking, it is advised to employ the "geometry+texture" setting. As a general rule, it is recommended to maintain the default configuration. However, for larger objects or to increase detail capture, the scanning speed can be reduced. Refer to Figure 5 for the baseline scanning speed.
2. In the advanced settings, you can fine-tune parameters such as depth of field, sensitivity, texture, and others.
3. The texture brightness setting can significantly impact the scan quality, especially for different objects. Manual adjustment is often recommended for optimal results.
4. Before starting scanning you need to turn the scanner on. Make sure that the battery pack is connected to both the computer and the scanner. After you check the connections, press the start button located on the side of the battery pack.

Figure 7. Battery pack

Start scanning: Scanning process

1. Once you conect the scanner, you will be able to click on the preview button where you will have the following picture 9:

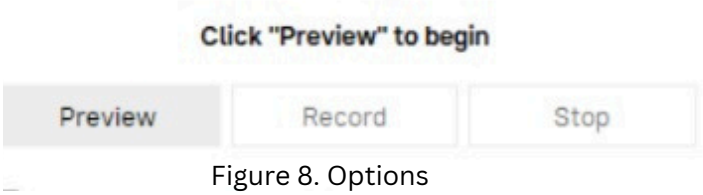

Figure 8. Options

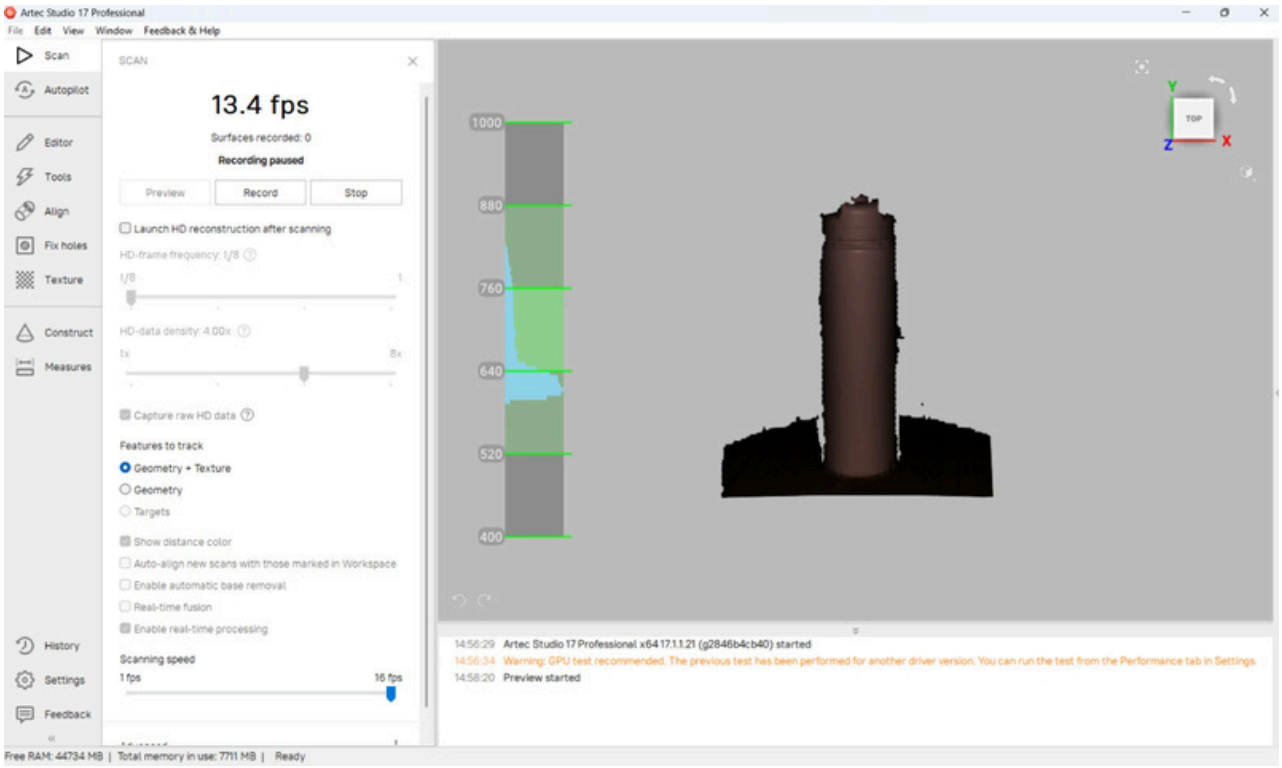

Figure 9. Scanning view when clicking on preview

2. When you are ready, you can click on “Record” to start scanning.
3. The first thing to check is the distance meter on the left side of the screen (Figure 10). At this point, adjust the position of the object to achieve the correct distance between the scanner and the object. As you move farther away, the distance meter will approach 1000. When the object is closer, the waveform (light green in the image) will move closer to 400 on the meter. It's important to keep the waveform within the central range of 640 to 880.

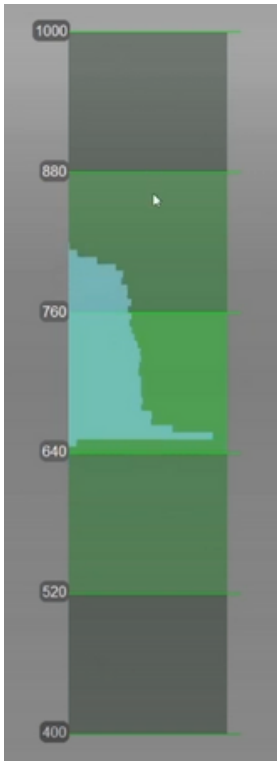

Figure 10. Distance meter

4. A helpful tip is to focus on the screen while scanning, rather than the object itself, to ensure that the scanning process is accurate.

Click for further explanation

5. For the best results, scan from a variety of angles. Avoid locking your arm or wrist; it's better to keep them relaxed and move them freely. Think of it as taking pictures of every detail from different positions and angles. Make smooth motions and ensure the object stays within the scanner's field of view. The scanner works best when it is perpendicular to any specific detail you want to capture.

6. If you move the scanner too quickly, you may receive a warning, such as "object is out of sight" or "tracking lost." If this happens, the best course of action is to move the scanner gently until the object comes back into view and tracking is restored.

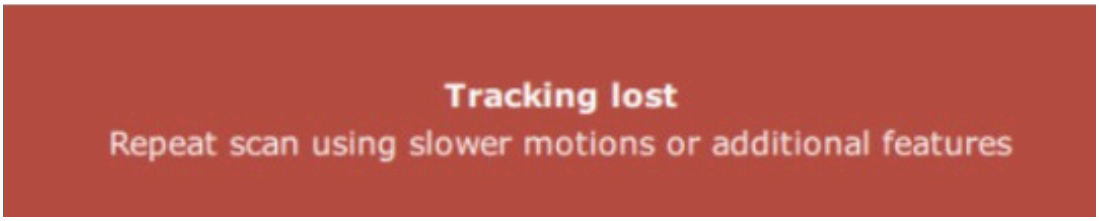

Figure 11. Warning

Post production... (in progress)

Creator

Janny Torres - December 2024