

Artec Spider II



Advanced User Manual

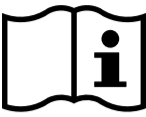
Version 1.4



Introduction

Purchase

Congratulations on the purchase of an Artec Spider II scanner.



This manual contains important safety directions as well as instructions for setting up the product and operating it. Refer to 1 Safety Directions for further information. Read carefully through the User Manual before you switch on the product.



The content of this document is subject to change without prior notice. Ensure that the product is used in accordance with the latest version of this document.

Product identification

The model and serial number of your product are indicated on the type label. Always refer to this information when contacting Artec 3D Support Team or Authorized Reseller.

Trademarks

Windows® is a registered trademark of Microsoft Corporation in the United States and other countries. All other trademarks are the property of their respective owners.

Artec 3D is a registered trademark of ARTEC EUROPE S.à r.l. in the European Union, the USA and other countries.

Customer support

If you have any question regarding the use of Artec Spider II, refer to the Artec 3D Support Team or fill out the question form available here.

Available documentation

| Name | Function |
|-----------------------------------|--|
| Artec Spider II User Manual | All instructions required in order to operate the product to a basic level are contained in the User Manual. Provides an overview of the product together with technical data and safety directions. |
| Artec Spider II Quick Start Guide | A brief overview of the product, including its technical specifications and the essential steps required to begin using it. |

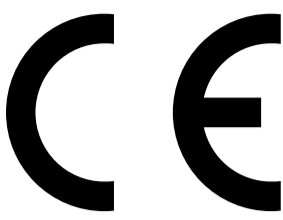
Working principle

Artec Spider II scanner is an instrument that operates on the principle of binocular stereo vision. The LED projector emits blue stripes that are captured by cameras. 3D points are obtained by triangulating camera observations. The optical system is factory-adjusted and calibrated, and individual parameters can be calibrated on the user side to achieve optimal performance. The positioning of the cameras is determined by the reconstruction algorithms' principles (which ensure unambiguous stereo matching of lines within the operational range), as well as the internal design features and ergonomics

In the center of the scanner is a texture RGB camera, surrounded by a ring of LEDs. The texture camera does not participate in 3D reconstruction, texture frames are captured immediately after the depth ones. The texture is applied to the 3D surface during processing. Artec Spider II does not need targets to align frames; it uses texture and geometric features, along with post-processing algorithms to reconstruct scenes based on multiple frames.

Regulatory information

Regulatory information



The European Union

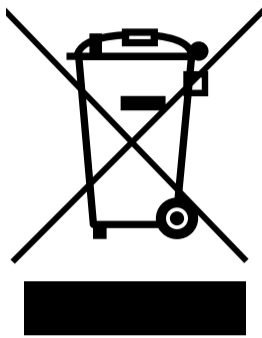
This product is in compliance with applicable EU regulations and **CE mark** is properly affixed to the scanner.

The applicable EU Directives are outlined in the CE declaration of conformity.

EMC Directive 2014/30/EU

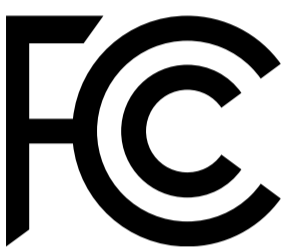
Low Voltage Directive 2014/35/EU

RoHS Directive 2011/65/EU



Disposal of Electrical and Electronic Equipment in Private Households

In the European Union, Norway, Iceland and Liechtenstein: This symbol on the product, in the manual, in the warranty, or on the packaging indicates that this product must not be treated as household waste. Instead, it should be taken to an appropriate collection point for the recycling of electrical and electronic equipment.



The U.S.

FCC Rules and Regulations

This equipment has been tested and found to comply with the limits for a **Class B digital device, pursuant to Part 15 of the FCC Rules**. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Other certifications and compliance information may be updated by Artec 3D from time to time. Please refer to [Artec 3D Support Team](mailto:support@artec3d.com) (support@artec3d.com) for more information.

Manufacturer

ARTEC EUROPE S.à r.l., 4 Rue Lou Hemmer, L-1748 Senningerberg, Luxembourg

Factory address

ARTEC EUROPE S.à r.l., 11 Breedewues, L-1259 Senningerberg, Luxembourg

U.K. representative

ARTEC 3D (U.K.) LTD, 71-75 Shelton Street, Covent Garden, London, WC2H 9JQ, United Kingdom

1 Safety directions

1.1 General introduction

The following directions enable the person responsible for the product, and the person who actually uses the equipment, to anticipate and avoid operational hazards.

The person responsible for the product must ensure that all users understand these directions and adhere to them.




Warning messages

Warning messages are an essential part of the safety concept of the scanner. They appear wherever hazards or hazardous situations can occur.

- Alert the user about direct and indirect hazards concerning the use of the product.
- Contain general rules of behavior.

For the users' safety, all safety instructions and safety messages shall be strictly observed and followed! Therefore, the manual must always be available to all persons performing any tasks described here.



DANGER, WARNING, CAUTION and **NOTICE** are standardized signal words for identifying levels of hazards and risks related to personal injury and property damage. For your safety, it is important to read and fully understand the following table with the different signal words and their definitions! Supplementary safety information symbols may be placed within a warning message as well as supplementary text.

| Warning symbol | Description |
|--|---|
|  WARNING | Indicates a potentially hazardous situation or an unintended use which, if not stopped, could result in death or serious injury. |
|  CAUTION | Indicates a potentially hazardous situation or an unintended use which, if not stopped, may result in minor or moderate injury. |
| NOTICE | Indicates a potentially hazardous situation or an unintended use which, if not stopped, may result in appreciable material, financial and environmental damage. |
|  | Important paragraphs which must be adhered to in practice as they enable the product to be used in a technically correct and efficient manner. |

1.2 Definition of use

| | |
|-------------------------------|---|
| Intended use | <ul style="list-style-type: none">Measuring horizontal and vertical anglesMeasuring distancesScanning objectsCapturing and recording imagesRecording measurementsComputing with software |
| Reasonably foreseeable misuse | <ul style="list-style-type: none">Use of the product without reading and understanding this user manualUse outside of the intended use and limitsDisabling of safety systemsRemoval of hazard noticesDo not open the product with tools (e.g., a screwdriver) unless specifically permitted for certain functions, and avoid any modification or conversion of the product.Use after misappropriationUse of products with recognizable damage or defectsUse with accessories from other manufacturers without the prior explicit approval of Artec 3DInadequate safeguards at the working siteDeliberate blinding of third parties |

1.3 Limits of use

| Warning symbol | Description |
|--|---|
| Environment | <p>Suitable for use in an atmosphere appropriate for permanent human habitation. Not suitable for use in aggressive, explosive, hot, or wet environments.</p> <p>Precaution:</p> <p>Do not change the temperature suddenly during product use, as this may cause condensation and lead to equipment failure.</p> |
|  WARNING | Working in hazardous areas or close to electrical installations or similar situations is a life risk. |
|  CAUTION | Local safety authorities and safety experts must be contacted by the person responsible for the product before working in such conditions. |




1.4 Responsibilities

Artec 3D (manufacturer) is responsible for supplying the product, including the User Manual, other documents listed in the Introduction, and original accessories, in a safe condition.





The person responsible for the product has the following duties:

- To understand the warning labels on the product, as well as the instructions in the User Manual and Quick Start Guide
- To ensure that the product is used in accordance with the instructions
- To be familiar with local regulations relating to safety and accident prevention
- To stop operating the system and inform Artec 3D immediately if the product and the application become unsafe
- To ensure that the national laws, regulations and conditions for the operation of the products are respected.





1.5 Hazards of use

| Warning symbol | Description |
|--|---|
|  WARNING | <p>Distraction or loss of attention. During dynamic applications there is a danger of accidents occurring if the user does not pay attention to the environmental conditions around.</p> <p>Precaution:</p> <p>The person responsible for the product must make all users fully aware of the existing dangers.</p> |
| NOTICE | <p>Dropping, misusing, modifying, storing the product for long periods or transporting the product. Watch out for erroneous measurement results.</p> <p>Precaution:</p> <p>Periodically carry out test measurements, particularly after the product has been subjected to abnormal use and before and after important measurements.</p> |
|  WARNING | <p>Short circuit caused by water or foreign objects</p> <p>Precaution:</p> <p>If water or foreign objects penetrate the housing through the ventilation openings, it may cause a short circuit. Ensure that the scanner is kept in a dry and clean environment to prevent damage.</p> |
|  WARNING | <p>Risk of Damage from High Voltage</p> <p>Precaution:</p> <p>Connecting the scanner to a power socket with a voltage outside the range of 100-240VAC, 50/60Hz may result in permanent damage or malfunction. Always verify that the power supply voltage matches these requirements before plugging it in. Use a voltage converter if necessary to prevent electrical issues.</p> |

1.5 Hazards of use

| Warning symbol | Description |
|--|--|
|  WARNING | <p>The limits of use for the scanner are restricted as follows:</p> <ul style="list-style-type: none">• To be operated indoors only. Using the device outdoors is at your own risk and is not covered by the warranty.• Ambient temperature: 18 °C to 35 °C (64 °F to 95 °F)• Relative humidity: at temperatures up to 31°C (81 °F) 20 % - 80 %, up to 35°C (95 °F) maximum 20-50% linear decreasing - not suitable for humid rooms, non-condensing• Avoid direct sunlight in the scanning area• Clean and dust-free environment |
|  WARNING | <p>If the product is improperly disposed of, the following can happen:</p> <ul style="list-style-type: none">• If polymer parts are burnt, poisonous gasses are produced which may impair health.• By disposing of the product irresponsibly you may enable unauthorized persons to use it in contravention of the regulations, exposing themselves and third parties to the risk of severe injury and rendering the environment liable to contamination. <p>Precaution:</p> <p>The product must not be disposed of with household waste. Dispose of the product appropriately in accordance with the national regulations in force in your country. Always prevent access to the product by unauthorized personnel. Product-specific treatment and waste management information can be received from Artec 3D or Authorized reseller.</p> |
|  WARNING | <p>Risk of injuries to users and equipment destruction due to lack of repair knowledge.</p> <p>Precaution:</p> <p>Only authorized Artec 3D Service Centers are entitled to repair these products.</p> |
|  WARNING | <p>Unauthorized disassembly of the product.</p> <p>Any of the following actions may cause electric shock or fire:</p> <ul style="list-style-type: none">• Touching live or optical components• Using the product after incorrect attempts were made to carry out repairs <p>Precaution:</p> <ul style="list-style-type: none">• Do not disassemble the product. Only authorized Artec 3D Service Centers are entitled to repair this product. |

1.5 Hazards of use

| Warning symbol | Description |
|--|---|
|  WARNING | <p>Electric shock due to missing ground connection. If the unit is not connected to ground, death or serious injury can occur.</p> <p>Precaution:</p> <p>The power cable and power outlet must be grounded.</p> |
|  WARNING | <p>Failure or fire due to incorrect power supply voltage. Choose the correct power supply voltage. Otherwise, a malfunction may cause failure or fire.</p> |
|  WARNING | <p>Proper usage when scanning:</p> <ul style="list-style-type: none">• Ensure that you have a sufficient working area to scan objects and all cables are well organized. Cables should be organized in a way that prevents accidental catching onto other objects. Make sure the cables are long enough to scan the object. Excessive tension on the cables can lead to damage to connectors of the scanner, computer, power adapter, and in rare cases, to rupture and cause damage to the protective sheath of the cables.• Ensure that the scanner is properly secured in your hands while holding it. Place it on a table or another surface very carefully. Any damage to cables, connectors and scanner caused by improper use of the scanner and the organization of the workspace is not covered by the warranty. It is prohibited to use scanner if cables are damaged. |
|  WARNING | <p>Using other cables is at your own risk.</p> <p>Precaution:</p> <ul style="list-style-type: none">• Use only the supplied cables. Using other cables is at your own risk. Any damage to cables and scanner caused by improper use of the scanner and the organization of the workspace is not covered by the warranty. It is prohibited to use scanner if cables are damaged. |

2 Scanner setup

2.1 Cleaning instructions

For detailed instructions on cleaning and drying optical components, refer to the [Thorlabs cleaning guide](#).

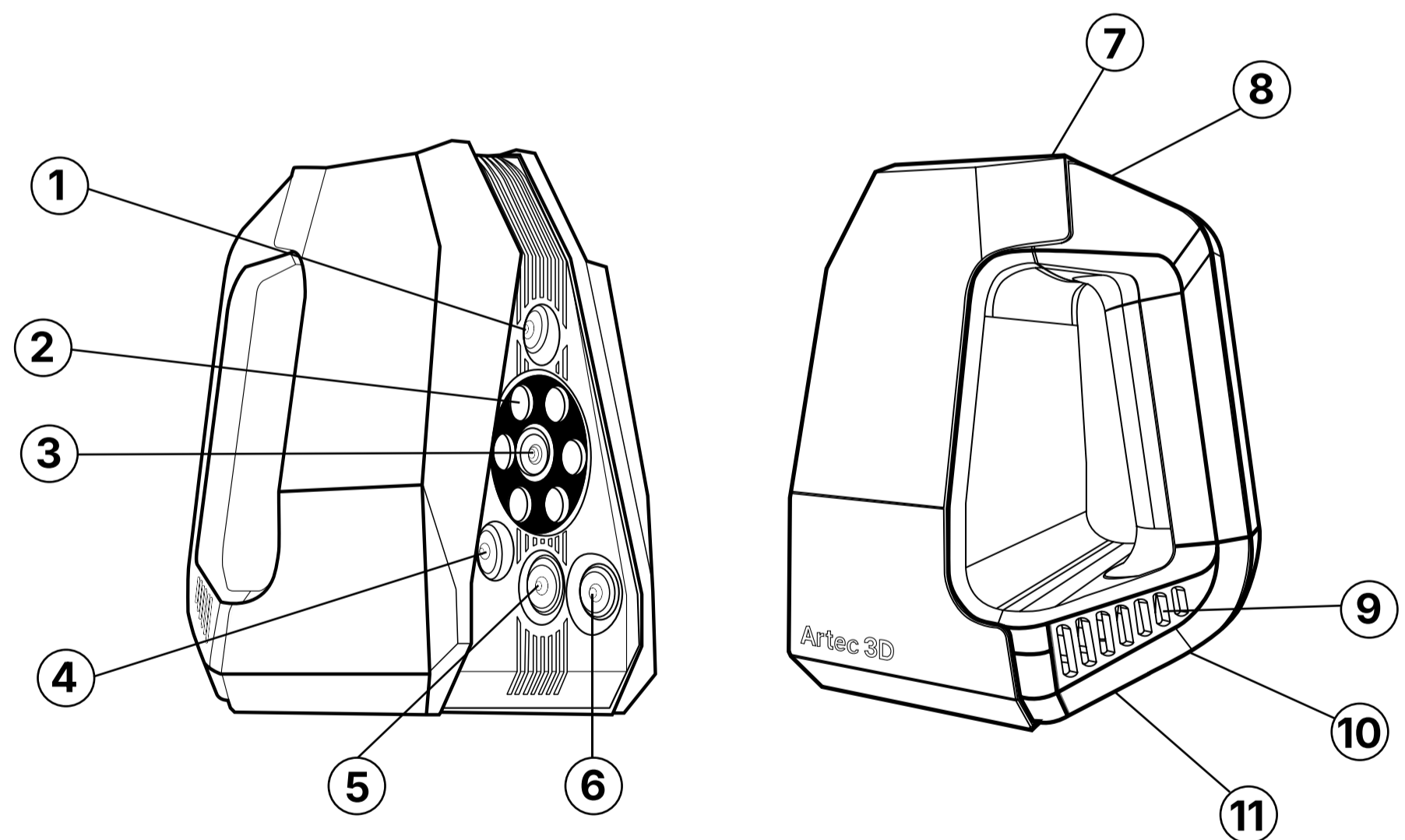
2.2 Scope of delivery

Please remove the scanner from the outer packaging and verify that the following standard configuration items are present in the container.

Scope of delivery:

- 1x Artec Spider II 3D scanner
- 1x Calibration board
- 1x Power supply
- 1x AC Power cable
- 1x Carry case
- 1x Thunderbolt cable
- 1x DC cable
- 1x Letter for customer
- 1x External carton box


2.3 Scanner components



- 1 3D camera 2 6-LED flash 3 Texture camera 4 3D camera
5 3D camera 6 Regular flash for 3D capture 7 Indicator light
8 Scan control button 9 Ventilation openings 10 Thunderbolt 4 port
11 Power port

2.3 Scanner components

The names and functions of some structural components are detailed in the table below.

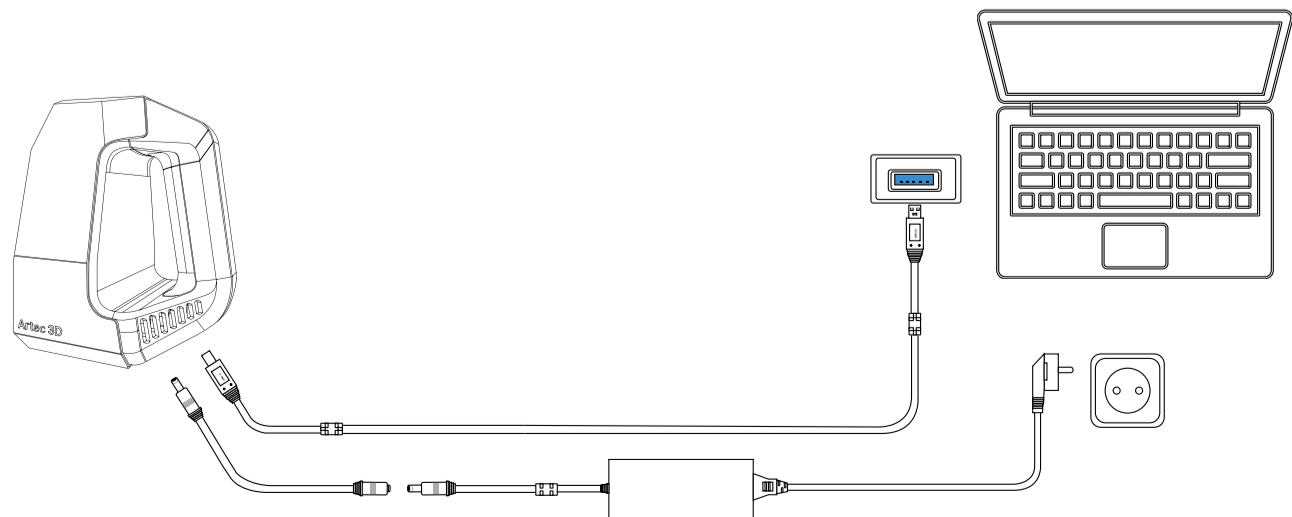
| Name | Function |
|--|--|
| <div>8</div> Scan control button  | <div>1. Click to switch from Preview to Recording mode and start recording frames.</div> <div>2. The second single click will pause scanning.</div> <div>Scan panel closed Single press: Opens Scan panel.</div> <div>Scan panel open Double press: Closes Scan panel. Single press: Starts Preview mode.</div> <div>Preview mode Single press: Starts Recording mode.</div> <div>Recording mode Double press: Shows confirmation message to stop recording. Long press: Stops scanning with no messages. Single press: Pauses scanning.</div> |
| <div>10</div> Thunderbolt 4 port | Thunderbolt port for connecting the Thunderbolt cable to the scanner on one end and to a PC on the other. |
| <div>11</div> Power port | Power port for connecting the power cable to the scanner on one end and to the power adapter on the other. |

2.4 Device connection

The device connection involves a two-step process: first, connecting the power supply to the scanner, and then connecting the scanner to the computer. The connection cable consists of a power cable that plugs into the scanner and a power adapter that plugs into a power socket. The data cable has Thunderbolt connectors on both ends and connects the scanner to the laptop.

To connect Artec Spider II:

1. Take one end of the Thunderbolt cable and plug it into the Thunderbolt port on the scanner.
2. Plug the other end of the Thunderbolt cable into the Thunderbolt port on the computer.
3. Plug the power cable into the power port on the scanner.
4. Plug the other end of the power cable into the power adapter.
5. Finally, after confirming that the above steps are correctly done, plug the power adapter into a power socket.



3 Software

3.1 General information

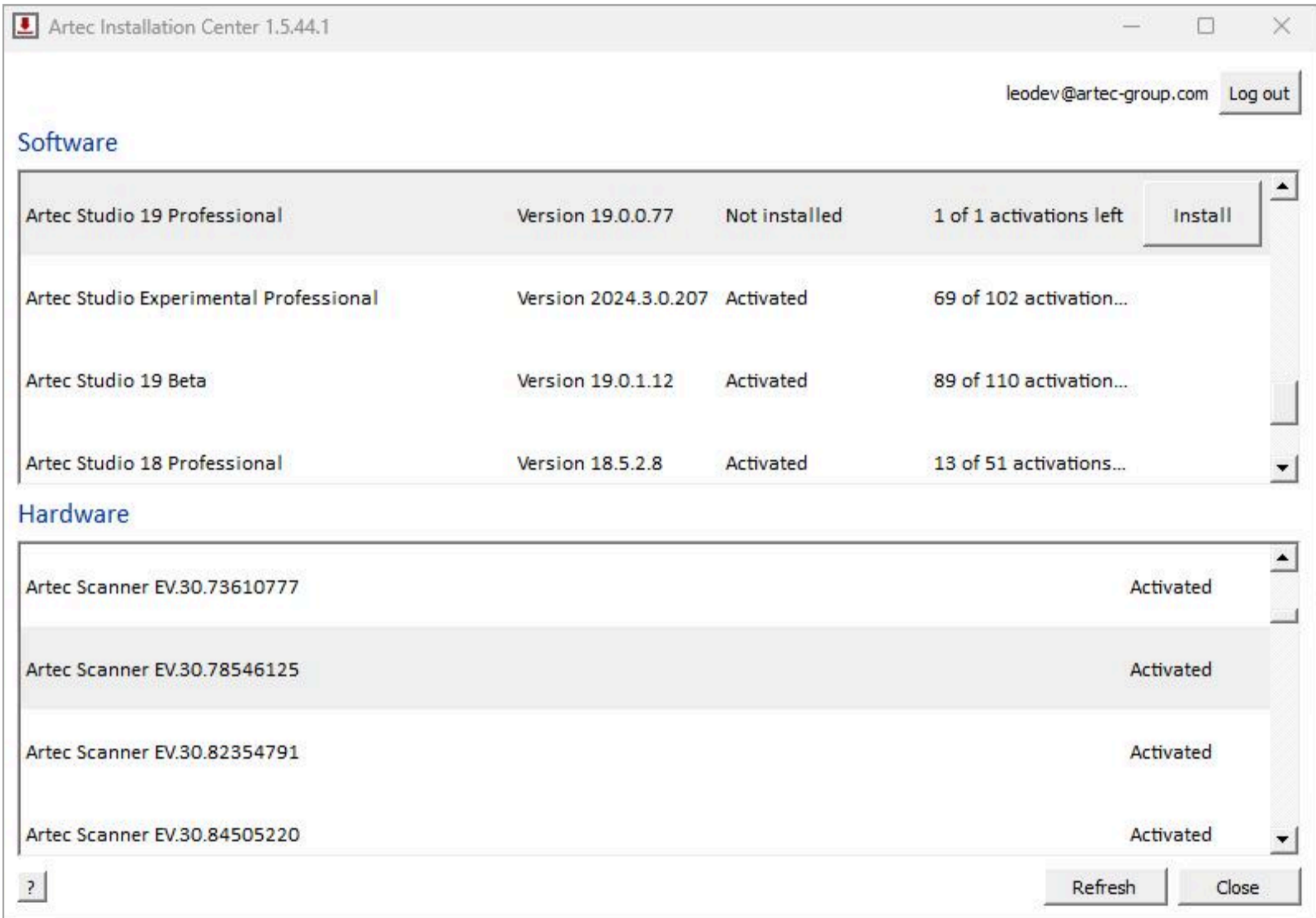
Artec Spider II requires Artec Studio 19 (and later) software which allows it to scan and process scanned data. Artec Studio 19 (and later) should be purchased separately, to obtain software, contact Artec 3D Sales Team or Authorized Reseller. Note that an Internet connection must be available to download and license the software.

3.2 Installation

1. Sign up at artec3d.com.
2. Once registered, your account manager or reseller will assign the licensed software to your account.
3. Download Artec Installation Center.
4. Install Artec Installation Center on your computer and launch it.
5. Click **Install** near the Artec Studio label as the Artec Studio manual describes.
6. Finish installation.

Note: Along with Artec Studio, the Artec Spider II add-on will be automatically installed on your system. It includes the necessary drivers for the scanner and can be updated separately from the Artec Installation Center.

7. Activate your scanner.



3.3 Check the software running environment

1. Ensure the computer power is set to a high-performance state:
 - Right-click on the battery icon in the system tray and select **High Performance** from the power plan options.
2. Verify if the graphics card driver is up to date.
3. Confirm the graphics card is set to high-performance state:
 - Right-click on the blank area of the desktop and open the NVIDIA control panel;
 - Ensure that the preferred graphics processor is **High-performance NVIDIA processor**.

3.4 System requirements

Please note that Artec Spider II is not guaranteed to work at maximum performance on machines that do not meet the recommended system requirements:

| Specification | Minimum requirement |
|----------------------|------------------------------------|
| Artec Studio | Artec Studio 19 and later |
| OS | Windows 10 (x64), Windows 11 |
| Graphics/video cards | GeForce RTX 4060 and higher |
| CPU | Intel Core i7/ i9 Gen 13 or Gen 14 |
| RAM | 64 Gb and higher |
| Ports | Thunderbolt 4 |

3.5 Scanning with Artec Spider II

3.5.1 Recalibrate and warm up scanner

Every Artec scanner is delivered pre-calibrated. However, in some cases, owing to careless handling or transportation (jolts, accidental drops or some other reason), the scanner may fail to capture surfaces properly. The scanned surfaces may only be partially reconstructed or may contain holes. You can resolve these issues by recalibrating the scanner right from Artec Studio (version 19.1 or later). The process is generally very simple and takes no longer than 5 minutes.

1. Open the **Scan** panel
2. Click the **Start** button.
3. Scan the QR code in the upper-left corner of the calibration board.
4. Once the QR is code scanned, the warming-up process will begin.

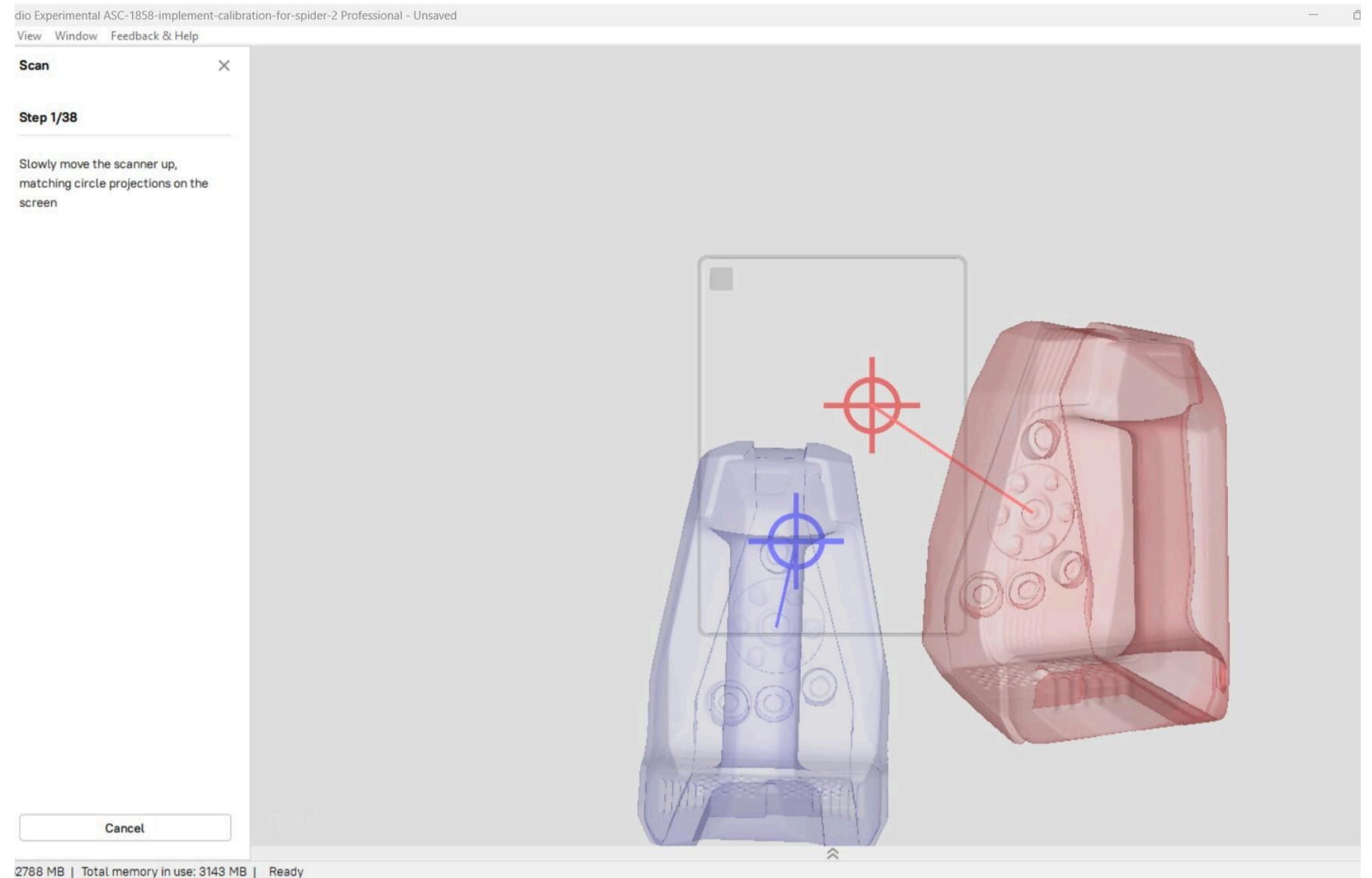
Note: This is an optional step, but we highly recommend warming up the scanner for better results. Warming up may potentially lead to more precised scanning. However, you can proceed to the next step by clicking the **Skip** button.

5. Follow the calibration process instructions displayed in the 3D scene.

Note: The quality of the calibration should be checked by pointing the scanner at a flat easy to scan surface (like a A4 paper piece) and moving the scanner to its closest and farthest distances in preview. Any holes in the image, other than at the extreme distances, indicate that recalibration is necessary.

3.5.1 Recalibrate and warm up scanner

Artec Spider II calibration in progress.



3.5.2 Prepare object

Black and shiny surfaces can be scanned but may produce suboptimal results. To improve results when scanning black, reflective, or transparent surfaces, consider the following tips:

- Use a scanning spray
- Adjust scanning angle and distance.

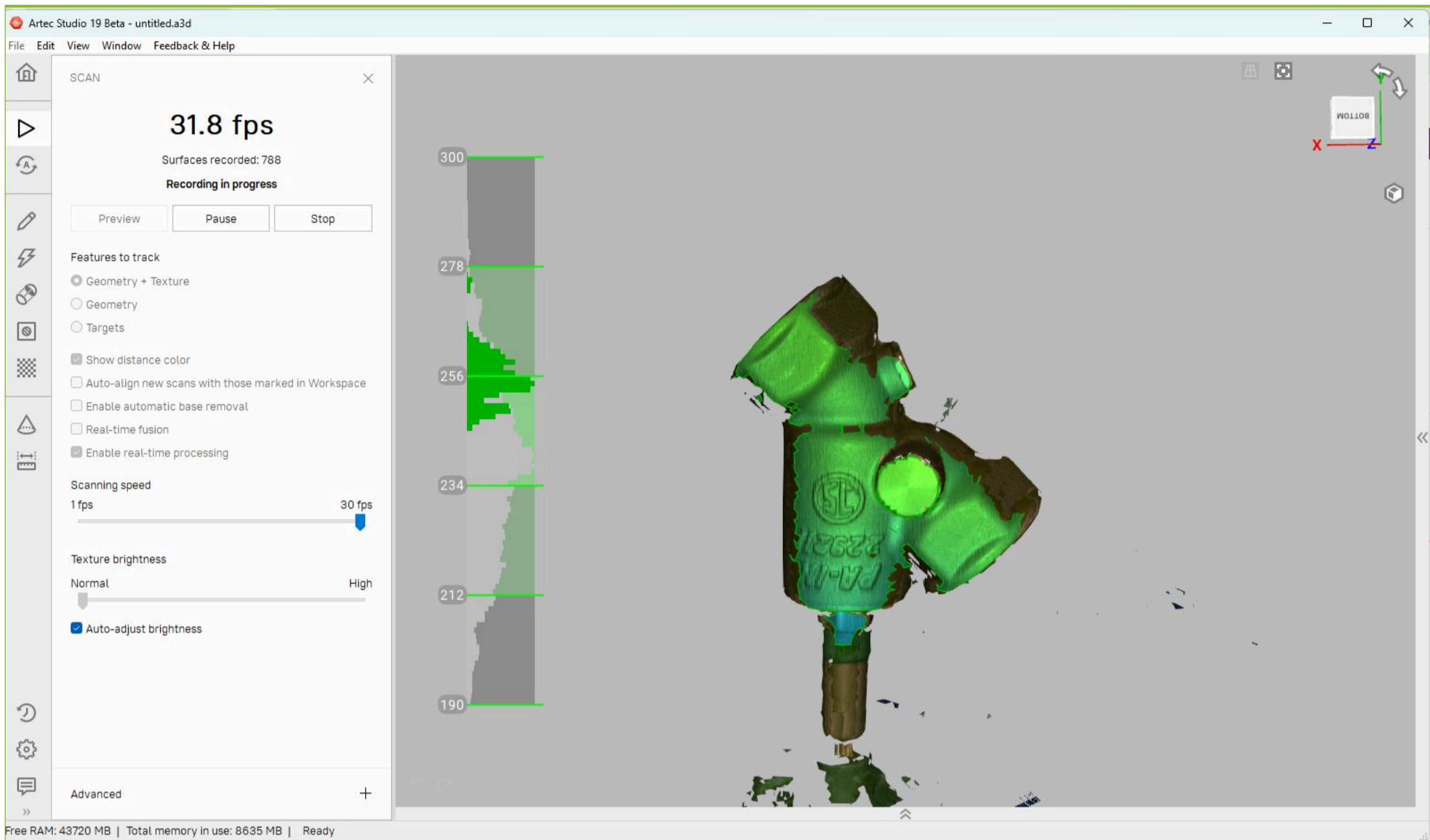
Non-polished metal surfaces are generally acceptable for scanning.

3.5.3 Scan settings

To familiarize yourself with basic and advanced scanning settings, including the specific settings for Artec Spider II, refer to the Artec Studio manual available in the Documentation Portal at <https://docs.artec3d.com/>.

3.5.4 Scan object

1. Click the **Preview** button in the Scan panel and direct the scanner at the object.
2. Adjust *Texture brightness*.
3. Now, Click the **Scan** button in the Scan panel or press the **Scan control** button on the scanner to start the scanning process.



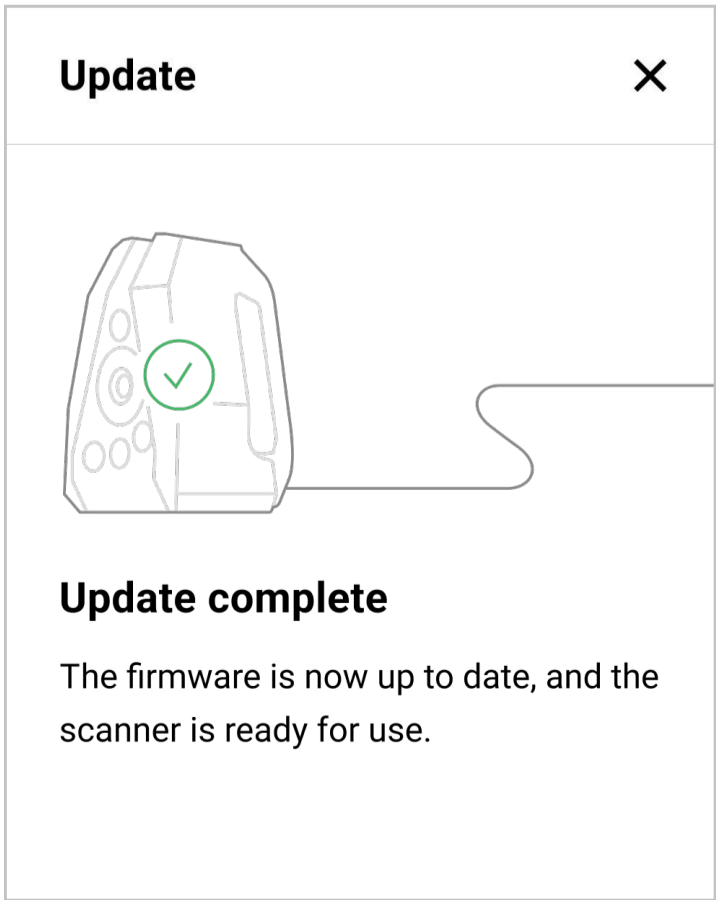
4. Position and move the scanner near the object and ensure the distance between the scanner and the object allows the triangle icon on the histogram near the Scan panel to stay close to the green area.
5. Finally, click the **Finish scanning** button at the bottom of the Scan panel in Artec Studio or press the **Scan control** button on the scanner to complete scanning. Artec Studio will automatically perform initial scans processing and optimization.

3.5.5 Update firmware

When a firmware update is available, Artec Studio displays a notification in the center of the 3D window. Click **Proceed** to begin the update. The process is straightforward and takes approximately 20 minutes to complete.



Once you follow the process step by step and the firmware is updated, a success message will appear in the Scan panel.



3.5.6 Further processing

For more information on Artec Spider II scanning settings, as well as manual and automated post-processing with Autopilot, please refer to the Artec Studio manual available in the [Documentation Portal](https://docs.artec3d.com/) at <https://docs.artec3d.com/>.

3.5.7 Software license agreement

Scanning data from Artec Spider II can be processed and saved using the Artec Studio 19 software, which needs to be purchased separately and does not come with the scanner. This software is protected by copyright and other laws, and its usage is defined and regulated by the Artec Europe End User License Agreement (EULA), which covers various aspects such as, but not limited to, License Grant and Restrictions, Export Restrictions, Disclaimer of Warranties, and other information. Please ensure that at any time you fully comply with the terms and conditions of the Artec Europe EULA, which is provided along with all products. For the full text of the Artec Europe EULA, please reach out to the [Artec 3D Support Team](#). You must not install or use the software unless you have read and accepted the terms and conditions of the Artec Europe EULA. The installation or use of the software or any part thereof, is deemed to be an acceptance of all the terms and conditions stated in the License Agreement. For any inquiries regarding the acquisition of Artec Software, please contact our Sales team.

