

# **Artec Leo Tutorial (Advanced)**

This is an advance tutorial for Artec Leo 3D scanner. It will teach how to perform a full body scan.

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Source: https://hawkridgesys.com/store/3d-scanning/artec-leo-3d-scanner

#### Step 1 — Full Body Scan



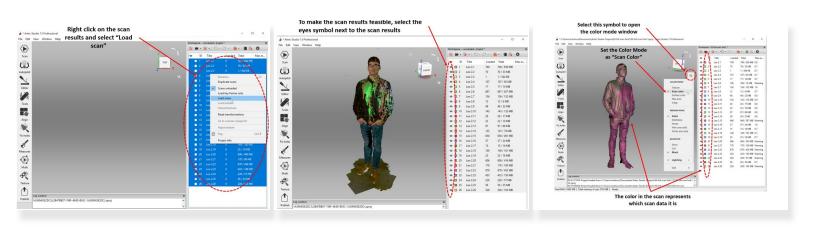
- To perform a full-body scan, the person who will get scanned needs to be position in such a way so that there is at least **1 meter distance around him**
- You start by scanning the feet and gradually move up while rotating around the person as shown in *the First Figure*. You will move like a spiral from bottom to top
- Some scanning tips:
  - It is recommended to first finish scanning the feet, then move to scan the body, and finally move to scan the head.
    - (i) Although you can go back to scan the feet after finish scanning the head, there is a possibility that the person may have moved slightly during that time that can causes misalignment
  - You may need to use a leader as shown in *the second figure* to scan the top part of the head
  - You need to finish the scan at once. One the person move it will be almost impossible to align the scan

# Step 2 — Full Body Scan (Part 2)



- You should get a scan as shown in *the first figure*. Checked to make sure that you have scanned all/most of the body. The area with missing scan are shown in red color as shown in *the first figure*
- You need to finish the scan at once. One the person move it will be almost impossible to align the scan
- When finished, import the scan file into a micro SD card so that it can be opened with Artec Studio (Please refer to the beginner tutorial for more detail about the process)
- Run the **Artec Studio software** at the scanner PC. Import the scan result using the import feature as shown in *the third figure*

## Step 3 — Showing the Scan Result



- Most likely you will end up with multiple scan data which is listed in the right window
- To load the scan results, right-click on the scan results and select **Load scan** as shown in *the first figure*
- To make the scan results feasible, select **the eyes symbol** next to the scan results as shown in *the second figure*
- To open the color mode window select the **cube symbol** next to the coordinate system as shown in *the third figure* 
  - Set the Color Mode as Scan Color
  - The color in the scan will be set to match the color code of each individual scan as shown in *the third figure*

#### Step 4 — Base Removal

| Erase Toolbox  |   | 🎍 * Artec Studio 13 Professional                         |  | - D                              | < 👍 * Artec Studio 13 Professional  |                                |                               | - 0               |
|--|---|--|--|----------------------------------|---|--------------------------------|-------------------------------|-------------------|
| tec Studio 13 Professional   | - 0 ×   | File Edit View Window Help                               |  |                                  | File Edit View Window Help  |                                |                               |                   |
| Re Studio I 3 Professional<br>Re View Window Help  |   | Editor X   |  | Workspace - «unnamed» project *  | X Edur  | ×                              | Workspace - +unnamed+ project |                   |
| Iau x  | Viorkspace - <unnamed> project * X</unnamed>              | E ERASER   | A DOALD  | 🗧 🖬 • 📓 • 🕤 • 🖓 • 📓 📲 📦          | E FRASER  | S ~.                           | 🐻 🖬 + 🚺 + 🕩 + f               | C •   🙍 •   🖀 📭 🔅 |
| Select adding tool   | N   | Scan Selection mode                                      | AND EXAMPLE  | ID Title Loaded Tetal May        |   |                                |                               | Loaded Total Max  |
| Residuated Z   |   | (C) 20 selection   |  |                                  | C2D selection   |                                |                               | 749 749 / 662 MB  |
| Place object en coordinage plane   | ID Title Loaded Total Max er                              | () D selection   | A  | 9 E 2 Leo 22 70 70 / 33 MB       | () JD selection   | FROMT                          | • 2 Leo 2.2                   | 70 70 / 33 MB     |
| Transformation tool  | out • 1 Leo 2.1 749 749 / 659 M8                          | Autopilot O Rectangular selection                        |  |                                  | Autopilot O Rectangular selection   | X                              | 🗢 🖸 3 Leo 2.3                 | 1 1/544 KB        |
| R. Move, rotate and the object   | X • 2 Leo 2.2 70 70 / 33 MB                               | Lasso selection  |  |                                  | Lasso selection   | (P)103                         | ● □ 4 Leo 2.4                 | 107 107 / 92 MB   |
|  |   | Cutoff-plane selection                                   | RAIN REAL  | ● □ 5 Leo 2.5 17 17/14 MB        | O Cutoff-plane selection  |                                | ● □ 5 Leo 2.5                 | 17 17 / 14 MB     |
| Streething both  |   | O Base selection   |  |                                  | Dese selection  | 1 States                       |                               | 687 687 / 627 MB  |
|  | G 5 Leo 2.5 17 17/14 MB     G 6 Leo 2.6 687 687/627 MB    | Editor   |  |                                  | Lator   | 2.00                           | ⊕ [] 7 Leo 2.7                | 156 156 / 152 MB  |
| traser   | C 1 0 Leo 25 607 607 627 MB ♥ □ 7 Leo 27 156 156 / 152 MB | Inverse Deselect   |  |                                  | Inverse Deselect  | AL FARMA                       |                               | 12 12/6MB         |
| Remove unwanted elements   |   |  |  |                                  |   | IND HE WILL                    | 🗢 🖬 9 Leo 2.9                 | 48 48 / 22 MB     |
| Defeature brush  |   | Tools Hide Erese   |  |                                  | Teels Hide Erase  |                                | 🗢 🔲 10 Leo 2.10               | 143 143 / 135 MB  |
| Remove unwanted elements and fill gaps   |   | Select through   |  |                                  | Select through  |                                | 🗢 🔲 11 Leo 2.11               | 26 26 / 17 MB     |
| Texture-healing brash Inquint Industrial Instances   |   |  |  |                                  |   | A BLACK STREET                 |                               | 22 22 / 10 MB     |
| Inpaint texture in selected region   |   | Align Adjust the tool size and drag the cursor to freely |  |                                  | Adign Adjust the tool size and drag the cursor to freel<br>outline an irregular region. |                                | 🗢 🛄 13 Leo 2.13               | 97 97 / 68 MB     |
|  |   | Cuttine an irregular region     Cut1+LNB selects region  |  | I 14 Leo 2.14 122 122 / 74 M8    | Ctr1+LttB selects region  |                                | 🗢 🛄 14 Leo 2.14               | 122 122 / 74 MB   |
|  | C 14 Leo 2.14 122 122 / 74 MB                             | Ctrl+Alt+Lis develocts region                            |  |                                  | Ctrl+Alt+LND deselects region   |                                | 🗢 🛄 15 Leo 2.15               | 646 645 / 404 MB  |
|  |   | Fix holes • Ctrl+Shift+LMB selects region                | ALC: NO DE CONTRACTOR DE C | I 16 Leo 2.16 37 37 / 24 M8      | Fix holes • Ctrl+Shift+LMB selects region   |                                | 🗢 🔲 16 Leo 2.16               | 37 37 / 24 MB     |
|  | In 16 Leo 2.16 37 37 / 24 MB                              | through  |  | In 17 Leo 2.17 15 15 / 16 M8     | / through   |                                | 🗢 🛄 17 Leo 2.17               | 15 15 / 16 MB     |
|  |   | *  | Contraction of the Associated  |                                  | et l  |                                | I 18 Leo 2.18                 | 149 149 / 161 MB  |
|  |   | Measures   |  | I 19 Leo 2.19 25 25 / 16 M8      | Measures  |                                | 🗢 🛄 19 Leo 2.19               | 25 25 / 16 MB     |
|  |   |  |  | 20 Leo 2.20 606 606 / 416 MB     | C1  | 1 Aug                          | 🗢 🛄 20 Leo 2.20               | 606 606 / 382 MB  |
|  | 🗢 🛄 20 Leo 2.20 606 606 / 416 MB                          | Select "Erase" to  |  | 🗢 🖪 21 Leo 2.21 170 170 / 100 MB | <b>(5)</b>  | 1                              | 🗢 🛄 21 Leo 2.21               | 170 170 / 100 MB  |
|  | 🗢 🖪 21 Leo 2.21 170 170 / 100 MB                          |  |  | G 22 Leo 2.22 879 879 / 452 MB   | Multi   | - Al                           | E 22 Leo 2.22                 | 879 879 / 429 MB  |
|  |   |  |  | E 23 Leo 2.23 433 433 / 150 MB   |   | <b>1</b>                       | 🗢 🔲 23 Leo 2.23               | 433 433 / 150 MB  |
| and the second   |   | 🕂 area   | treat Parts and a second   |                                  | <i>\$</i>   |                                | 🗢 🛄 24 Leo 2.24               | 228 228 / 57 MB   |
|  |   |  | Highlight area you   |                                  |   |                                | 🗢 🔲 25 Leo 2.25               | 56 56 / 35 MB     |
|  |   | Texture  | want to remove   | O 26 Leo 2.26 328 328 / 165 MB   | Texture   |                                | 25 Leo 2.25                   | 328 328 / 165 MB  |
|  |   | rft l  | want to remove   |                                  | - m -   |                                |                               |                   |
|  |   |  | og window  | ×                                |   | Log window                     | ×                             |                   |
| Log window   | ×   | Publish  | 1:31:12 PM: Command Editor (Eraser-Lasso) undone   |                                  | Publish   | 01:32:44 PM: Frame 649 removed | ^                             |                   |
| h refused a  |   |  |  | ~                                |   |                                | ~                             |                   |
| 012134 PM Project saved in ChUses/matinus/AppData<br>Terror/ (INTERCT, 2011, 4440, 892), 14 20411/2011 UK  | Mocal V   | ree RAM: 49951 MB   Total memory in use 3967 MB   Ready  |  |                                  | vee RAM: 48500 MB   Total memory in use: 9423 MB   Rea                                  | dy .                           |                               |                   |
| COMPANY OF REPAY OF R |   |  |  |                                  |   |                                |                               |                   |

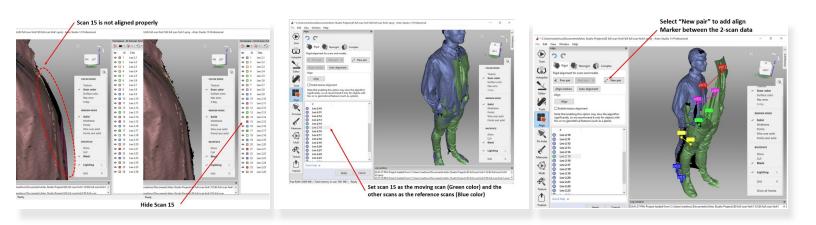
- The next step is for base removal by using the **Erase toolbox** under **Editor** as shown in *the first figure*
- Highlight area you want to remove by using **Ctrl + Left Mouse Button** (See *the second figure*)
- Select **Erase** to erase the highlighted area
- For undo, press **Ctr + z**
- At the end of this step, you should get a result as shown in the third figure

#### Step 5 — Noise Removal

| tec Studio 13 Professional   |  |        | - 🗆 ×                       |  | Only show scan 22  |                         |           |               |
|--|--|--------|-----------------------------|--|--|-------------------------|-----------|---------------|
| dit View Window Help   |  |        |                             | 🝦 * Artec Studio 13 Professional   | Only Show Scall 22   |                         |           | - 0 >         |
| Editor ×   | Workspace - <unnamed< td=""><td></td><td>,</td><td>File Edit View Window Help</td><td></td><td></td><td></td><td></td></unnamed<>  |        | ,                           | File Edit View Window Help   |  |                         |           |               |
| E ERASER   |  | 5.6.1  | 0 · 🛯 🔓 🗘                   | Editor   | ×  | Workspace - «unnamed» p |           |               |
| Selection mode   | Ø ID Title   | Loaded | d Total Max er              | E ERASER   |  | 0 0                     | · · · · · | • • • •       |
|  | 🖉 🖉 🗤 🖉 🖉 🖬 1 Leo 2.   | 1 749  | 749 / 662 MB                | Scan Selection mode  |  | ID Title                | Loaded    | Total Max er  |
| ) O2D selection<br>O3D selection   | • • ■ 2 Leo 2.   | 2 70   | 70 / 33 MB                  | O2D selection  | Nor BACK   | 1 Leo 2.1               | 749       | 749 / 662 MB  |
| lot ORectangular selection   | • 3 Leo 2.   | 3 1    | 1 / 544 KB                  | (C) 2D selection<br>O 3D selection   | and the second sec | 2 Leo 2.2               | 70        | 70 / 33 MB    |
| Lasso selection  | ● □ 4 Leo 2  | 4 107  | 107 / 92 MB                 | Autopilot O Rectangular selection  |  | 3 Leo 2.3               | 1         | 1 / 544 KB    |
| O Cutoff-plane selection   | ● 🖬 5 Leo 2.   | 5 17   | 17 / 14 MB                  | Lasso selection  |  | 9 🕴 🚺 4 🛛 Leo 2.4       | 107       | 107 / 92 MB   |
| Base selection   | ● □ 6 Leo 2/   | 687    | 687 / 627 MB                | O Cutoff-plane selection   | 2  | 5 Leo 2.5               | 17        | 17 / 14 MB    |
|  | ₩  | 7 156  | 156 / 152 MB                | Editor OBase selection   |  | E 6 Leo 2.6             | 687       | 687 / 627 MB  |
| Inverse Deselect   | ● □ 8 Leo 2  | B 12   | 12 / 6 MB                   | Editor   |  | 1 7 Leo 2.7             | 156       | 156 / 152 MB  |
|  | ● ■ 9 Leo 2.   | 9 48   | 48 / 22 MB                  | Inverse Deselect   |  | E 8 Leo 2.8             | 12        | 12 / 6 MB     |
| s Hide Erase   | 🗢 🗖 10 Leo 2.  | 10 143 | 143 / 135 MB                |  |  | 🖬 9 Leo 2.9             | 48        | 48 / 22 MB    |
|  | ● □ 11 Leo 2.  | 11 26  | 26 / 17 MB                  | Tools Hide Erase   |  | 10 Leo 2.10             | 143       | 143 / 135 MB  |
| Select through   | ● □ 12 Leo 2.  |        | 22 / 10 MB                  | Select through   |  | 🛄 11 Leo 2.11           | 26        | 26 / 17 MB    |
| Adjust the tool size and drag the cursor to freely   | • 13 Leo 2.  |        | 97 / 68 MB                  |  |  | 12 Leo 2.12             | 22        | 22 / 10 MB    |
| outline an irregular region.   | • 14 Leo 2   |        | 122 / 74 MB                 | Align Adjust the tool size and drag the cursor to free<br>outline an irregular region. | v 14   | 13 Leo 2.13             | 97        | 97 / 68 MB    |
| Ctrl+LMB selects region  | • 15 Leo 2   |        | 646 / 404 MB                | Ctrl+LMB selects region  |  | 14 Leo 2.14             | 122       | 122 / 74 MB   |
| Ctrl+Alt+LMB deselects region  |  |        | 37 / 24 MB                  | Ctrl+Alt+LMB deselects region  |  | 15 Leo 2.15             | 646       | 646 / 404 MB  |
| es • Ctrl+Shift+LMB selects region<br>through  | • 🛙 17 Leo 2.  |        | 15 / 16 MB                  | Fix holes • Ctrl+Shift+LMB selects region  |  | 16 Leo 2.16             | 37        | 37 / 24 MB    |
| , unough   | • 11 Leo 2.  |        | 149 / 161 MB                | through  |  | 17 Leo 2.17             | 15        | 15 / 16 MB    |
| 100  | 2 br / 19 Leo 2  |        | 25 / 16 MB                  | Here .   |  | 18 Leo 2.18             | 149       | 149 / 161 MB  |
| res State St | • 20 Leo 2.  |        | 606 / 382 MB                | Measures   |  | 19 Leo 2.19             | 25        | 25 / 16 MB    |
|  | ● 21 Leo 2.  |        | 170 / 100 MB                |  | Size benz  | 🖬 20 Leo 2.20           | 606       | 606 / 382 MB  |
|  | ● II 22 Leo 2.   |        | 879 / 429 MB                |  |  |                         |           | 170/ 100 MB   |
| i  | The second secon |        | 433 / 150 MB                |  |  | ● ■ 22 Leo 2.22         |           | 879 / 429 MB  |
|  | ● □ 23 Leo 2.<br>● □ 24 Leo 2.   |        | 433 / 150 MB<br>228 / 57 MB | Multi  |  | 25 200223               |           | 453 7 1 50 MB |
| Noiso  |  |        | 228 / 5/ MB<br>56 / 35 MB   | Scan 22 is the   |  | 🗊 24 Leo 2.24           | 228       | 228 / 57 MB   |
| Noise 🔶 🚺  | ▼ 25 Leo 2.  |        |                             |  |  | 25 Leo 2.25             | 56        | 56 / 35 MB    |
|  | • 🖸 26 Leo 2.  | 328    | 328 / 165 MB                | Texture scan with the -  |  | 26 Leo 2.26             | 328       | 328 / 165 MB  |
|  |  |        |                             | noise  |  | - M                     |           |               |
| Log window   | ×  |        |                             | liuise   | Log window   | - V                     |           |               |
| h 01:32:44 PM: Frame 649 remo  | oved   |        |                             | Publish  | 01:32:44 PM: Frame 649 removed   | -                       |           |               |
|  |  |        |                             |  | VI.J. W PHL FIGHT OF TENOVED   |                         |           |               |

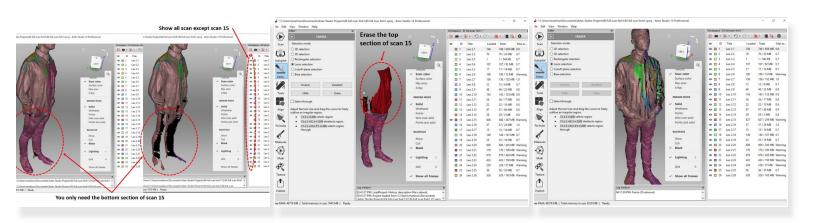
- Perform all around check on the scan result for noise as shown in the first figure
- Once you identify a noise, you need to track which scan data this noise belonges
  - This can be done by matching the color of the scan with the color designation of each scan which is listed on the right window
  - You can double-check by only showing one scan at a time as shown in the second figure
- In order to avoid removing other scan data, when removing the noise, show only the scan data with the noise as shown in *the second figure*

# Step 6 — Alignment Fix



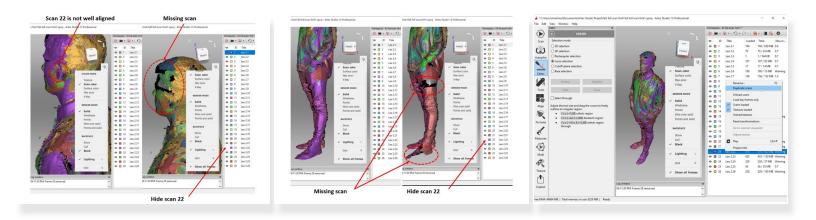
- Check if you have any scan result which is not well aligned as shown in the first figure
- If yes, run the alignment toolbox as shown in the second figure
- Set the scan you want to realign (scan 15) as the moving scan (Green color) and the other scans as the reference scans (Blue color) as shown in *the second figure*
- Select **New pair** to add align Marker between the 2-scan data as shown in *the third figure* 
  - 5 to 6 points are sufficient
  - To start the alignment process select Align
- When finished select **Apply** at the bottom window

# Step 7 — Alignment Fix (Part 2)



- You may found a case where it is impossible to fix the alignment
- This most likely because of the person is moving which causing a portion of the scan no longer align
- For this case you can try to see if you can remove the portion of the scan data which is not-align
  - For example, for the case shown in *the first figure*, you can conclude that only the bottom section of scan 15 is needed. The top portion which is not align is actually not-needed
  - Therefore, you can remove the top section of scan 15
  - The third figure shows how the scan look like after the top part of scan 15 was removed

## Step 8 — Alignment Fix (Part 3)



- You may encounter a case where it is not possible to delete the non-align scan as it will cause missing scan
  - For example, in the case shown in the *first figure*, scan 22 is not well aligned in the ear section. However, you cannot remove the scan as this will cause a missing scan
  - Moreover, if you check the bottom part of the scan (As shown in *the second figure*), you will see that the bottom part also cannot be removed as it will cause missing scan
- For this case, it is not possible to just remove a portion of the scan as done previously
- To mitigate this problem, you will need to separate the top and bottom sections
- This can be done by first making a copy of the scan as shown in the third figure

# Step 9 — Alignment Fix (Part 4)

| Image: The state is a state | Image: State of the s | Max         For scan 22 keep         Control   | And with the second sec |
|---|---|--|--|
| Pakish<br>Free RAM: 42783 MB   Tetal memory in use: (341) MB   Ready<br>A copy  | of scan 22  | Lag nation<br>Addition<br>Not Add Add Link (Link State Bit National Bit Nati | Nation         Appry         Conset         Nation 10 Annotation   |

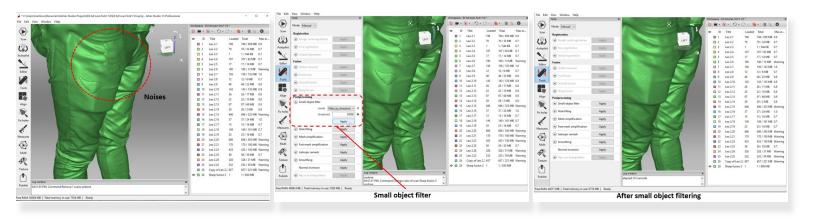
- You should have a copy of the scan data (Scan 28 is a copy of scan 22) as shown in the *first figure*
- Use erase feature to remove the top part (Keeping the bottom part) for the scan 22 (The original scan data) as shown in *the second figure*
- Use erase feature to remove the bottom part (Keeping the top part) for the scan 28 (The copy of scan 22) as shown in *the second figure*
- Perform alignment for both scans (Scan 22 and 28) separately as shown in *the third figure*

### Step 10 — Sharp Fusion

|     | Tools X  |  | Workspace - Ell full scan forkt V3   |      |                                    | rile con                     | View Window Help                                | Workspar       | ce - Ex r | I scan fork1 V | ·3·    |                            |        |
|-----|--|--|--|------|------------------------------------|------------------------------|---|----------------|-----------|----------------|--------|----------------------------|--------|
| ,   | Mode: Manual V                                 |  |  |      |                                    | $\langle \mathbf{E} \rangle$ |   |                |           |                |        | - 1 (0) (1                 | 0      |
|     | Registration                                   | » Z  | ID Title   | Load |                                    |                              |   | 1              |           | Title          | Loaded |                            | Maxe   |
|     | Rough serial registration Apply                | urr urr  | <ul> <li>         I Leo 2.1      </li> <li>         I Leo 2.2      </li> </ul> | 749  | 749 / 659 MB 0.9<br>70 / 33 MB 0.7 | Scan                         |   |                |           | eo 2.1         | 749    | 749 / 659 N                |        |
|     | Fine registration     Apply                    | Y  | © 3 Leo 2.3  | 1    | 1 / 544 KB 0.7                     | ে)                           |   | LUFT K         |           | eo 2.2         | 70     | 70 / 33 MB                 |        |
|     | Fine registration     Apply                    |  |  | 107  | 107 / 82 MB 0.7                    | Autopilo                     |   |                | 3 1       | .eo 2.3        | 1      | 1 / 544 KB                 | 0.7    |
|     | Global registration Apply                      |  | ● □ 5 Leo 2.5  | 17   | 17 / 14 MB 0.7                     | •                            |   | G 0            | 4 1       | .eo 2.4        | 107    | 107 / 82 MI                | 8 0.7  |
|     | Fusion   | COLOR MODE   | 🗢 🗖 6 Leo 2.6  | 180  | 180 / 13 MB Warr                   |                              |   | 0              | 5 1       | .eo 2.5        | 17     | 17 / 14 MB                 | 0.7    |
|     | Outlier removal Apply                          | Texture  | 👁 🗖 7 Leo 2.7  | 156  | 156 / 152 MB 1.0                   | Editor                       | A STAN  |                | 6 1       | .eo 2.6        | 180    | 180 / 13 Mi                | 8 Warn |
|     |  | ✓ Scan color   | 🗢 🗖 8 🛛 Leo 2.8  | 12   | 12/6 MB 0.7                        | Editor                       |   | 0              | 7 1       | .eo 2.7        | 156    | 156 / 152 N                | 1B 1.0 |
|     | Fast fusion Apply                              | Surface color  | 👁 🗖 9 Leo 2.9  | 48   | 48 / 22 MB 0.8                     |                              |   |                | 8 1       | .eo 2.8        | 12     | 12/6 MB                    | 0.7    |
|     | Smooth fusion Apply                            | Max error  | 🗢 🔲 10 Leo 2.10  | 143  | 143 / 135 MB 0.9                   | -                            |   | •              | 9 1       | .eo 2.9        | 48     | 48 / 22 MB                 |        |
|     |  | X-Ray  | 👁 🔲 11 Leo 2.11  | 26   | 26 / 17 MB 0.8                     | Tools                        |   | 0              | 10 P      | .eo 2.10       | 143    | 143 / 135 N                |        |
| 1   | Sharp fusion                                   | RENDER MODE  | 🗢 🔲 12 Leo 2.12  | 22   | 22 / 10 MB 0.8                     |                              |   |                | 11 1      | .eo 2.11       | 26     | 26 / 17 MB                 | 0.8    |
| i   | resolution 0.5                                 | RENDER MODE  | 🗢 🔲 13 Leo 2.13  | 97   | 97 / 68 MB 0.9                     |                              | 「「「「「「「「「」」」」                                   | 0              |           | .eo 2.12       | 22     | 22 / 10 MB                 |        |
| i   | Fill_holes Watertight 🗸 🖬                      | ✓ Solid  | 🗢 🔲 14 Leo 2.14  | 29   | 29 / 2 MB 0.8                      | Align                        |   | •              | 13 1      | .eo 2.13       | 97     | 97 / 68 MB                 |        |
| 1   | remove_targets_Off                             | Wireframe  | 🗢 🔲 15 Leo 2.15  | 646  | 646 / 323 MB Warr                  | 6                            |   |                | 14 1      | .eo 2.14       | 29     | 29 / 2 MB                  |        |
|     |  | Points   | 👁 🔲 16 Leo 2.16  | 37   | 37 / 24 MB 1.0                     | 1                            |   | •              |           | .eo 2.15       | 646    | 646 / 323 N                |        |
|     | Apply  | Wire over solid<br>Points and solid                  | 👁 🔲 17 Leo 2.17  | 15   | 15 / 16 MB 0.7                     | Fix holes                    |   | •              |           | .eo 2.16       | 37     | 37 / 24 MB                 |        |
|     | Postprocessing                                 |  | 18 Leo 2.18  | 149  | 149 / 161 MB 0.7                   | 1                            |   | •              |           | .eo 2.17       | 15     | 15 / 16 MB                 |        |
|     | Small-object filter Apply                      | BACKFACE   | 👁 🔲 19 Leo 2.19  | 25   | 25 / 16 MB 0.7                     | 1                            |   |                |           | .eo 2.18       | 149    | 149 / 161 N                |        |
|     |  |  | 20 Leo 2.20  | 606  | 606 / 345 MB Warr                  | Measure                      |   | •              |           | .eo 2.19       | 25     | 25 / 16 MB                 |        |
|     | Hole filling     pply                          | Show<br>Cull   | 👁 🔲 21 Leo 2.21  | 170  | 170 / 100 MB Warr                  | R                            |   |                |           | .eo 2.20       | 606    | 606 / 345 N                |        |
|     | Mesh simplification     Analy                  | Black  | 22 Leo 2.23  | 433  | 433 / 150 MB Warr                  | $\odot$                      |   |                |           | .eo 2.21       | 170    | 170 / 100 N                |        |
|     |  |  |  | 56   | 56 / 35 MB 0.7                     | Multi                        |   |                |           | .eo 2.23       | 433    | 433 / 150 N                |        |
|     | Fast mesh simplification App                   | ✓ Lighting L   | 24 Leo 2.26  | 328  | 328 / 31 MB Warr                   |                              |   |                |           | .eo 2.25       |        | 56 / 35 MB                 |        |
|     | Isotropic remesh     Apply                     |  | • 25 Leo 2.22  | 232  | 232 / 39 MB Warr                   | A.                           |   |                |           | .eo 2.26       | 328    | 328 / 31 MI                |        |
|     |  | Grid G   | Copy of Leo 2.2.   | 657  | 657 / 221 MB Warr                  | Texture                      |   |                |           | eo 2.22        | 232    | 232 / 39 Mi<br>657 / 221 N |        |
| L   | Smoothing Apply                                |  |  |      |                                    |                              |   |                |           | Copy of Leo 2. |        | 657 / 221 M<br>1 / 741 MB  |        |
| Ľ   | Normal inversion Apply Log wi                  | ndow   | ×  |      |                                    | Γ <b>Γ</b> ]                 |   |                | 0 3       | iharp fusion 3 | 1      | 1/ /41 MB                  |        |
| ŀ   | 04:30:2  | 22 PM: Frame 647 removed                             | ^  |      |                                    |                              | Log window                                      |                |           |                |        |                            |        |
|     | Ray scan triangulation Apply 04:30.2           | 22 PM: Frame 648 removed<br>22 PM: Frame 649 removed | < <  |      | >                                  | Publish                      | V3.sproj  |                |           |                |        |                            |        |
| 437 | 797 MB   Total memory in use: 14594 MB   Ready |  |  |      |                                    |                              |   |                |           |                |        |                            |        |
|     | 1  | n Sharp fusion                                       |  |      |                                    | Free RAM:                    | 50412 MB   Total memory in use: 7920 MB   Ready | p Fusion Resul | 120       |                |        |                            |        |

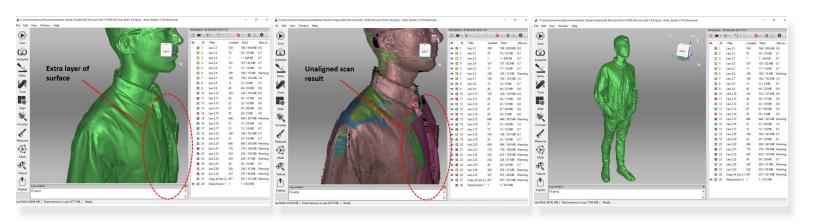
- When you feel that you have a good alignment for all of the scan data and there are no noticeable noise, run the sharp fusion as shown in the first figure
  - You can use the default setting for the sharp fusion.
  - Make sure that the watertight is selected under Fill holes
- You should get a watertight result as shown in the second figure

## Step 11 — Small Object Filtering

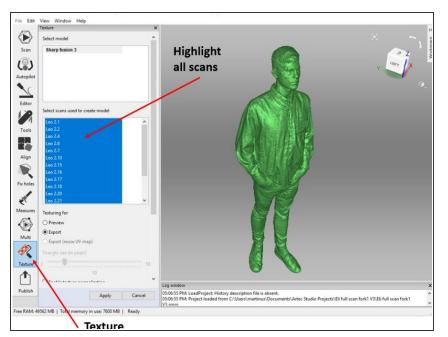


- Analyze the combine scan result, check if there are small clusters of objects (Noises) as shown in the first figure
- The noises can be removed by using **small object filter** feature as shown in *the second figure*
- Adjust the threshold to determine the upper limit of the size of the small object to be removed. You
  can increase the threshold if it is not sufficient to remove all of the small objects
- The third figure shows how the scan will look like after small object filtering

## Step 12 — Small Object Filtering



- You may find a case where you see that there is an extra layer of the surface as shown in *the first figure*
- This is most likely caused due to the unaligned scan result as shown in the second figure
- This can be fixed by running scan result alignment as explain in step 6 9 and rerun the Fusion
- At the end of this step, you should get a clean scan data as shown in the third figure



#### Step 13 — Adding Texture

- Artec studio record the color texture of the scanned object
- The original color of the scanned object can be added into the mesh by using **Texture feature**
- Go to Texture, highlight all of the scan data from the left box, and hit apply

Congratulation you have learn sufficient skill to perform full body scan using Artec Leo