SIZE STREAM®

SS20 BODY SCANNER
Operation Manual

TABLE OF CONTENTS

WELCOME

The Size Stream 3D Body Scanner is a full-body, non-contact surface scanner that uses depth sensor technology to output accurate body measurements and a 3D rendering of the scan subject.

The scanner collects millions of data points from the reflection of infrared light shone on the surface of the person being scanned. Twenty infrared sensors, like those used in home-gaming systems, surround the subject, covering 95% of the body.

From the coordinates of the reflected light, the scanner software uses complex algorithms to define a mesh that shows the surface of the body by identifying the torso, head, arms and legs. The active scan time is about 4-10 seconds (depending on system setup) and additional algorithms are used to determine 240 separate measurements and landmarks that are displayed about a minute later.

Every Scanner is assembled at our factory and certified to meet functional and accuracy standards prior to being disassembled and packaged for shipping. Quality Control processes ensure that the product leaves the factory in excellent working condition.

Additional resources and up-to-date documentation are online at Size Stream's Knowledge Base, available at http://sizestream.com/knowledge-base. Should the customer experience any issues or problems with assembling or using the product, they should send an email to support@sizestream.com. This will automatically create a tracking ticket which is routed to the support staff who will work diligently to provide a fast response and customer satisfaction.

MAINTENANCE

Starting the Scanner Computer

Note that the power button is located on the computer underneath the main scanner display screen. The power button is recessed to avoid an accidental power off.   If the scanner is running, pressing the power button will cause a normal Windows Shutdown. Note: never use the Windows Restart option, but instead always use the power button or the Windows Shut Down option, and restart with the power button.
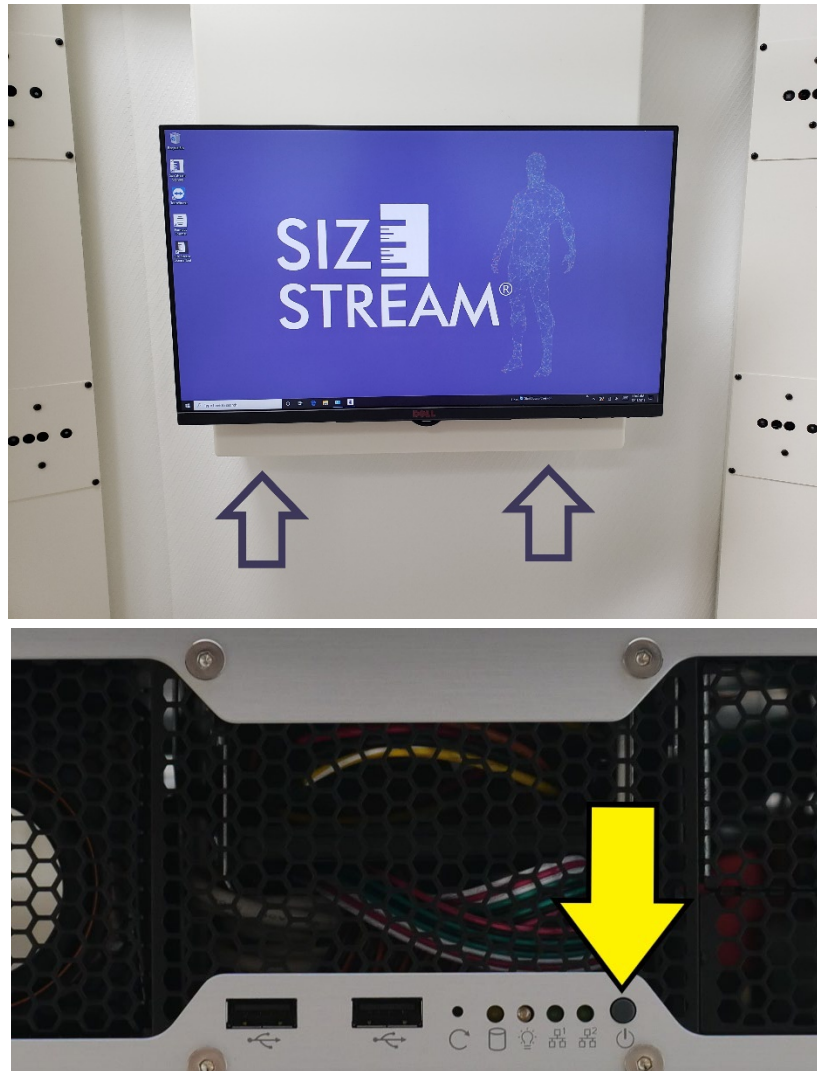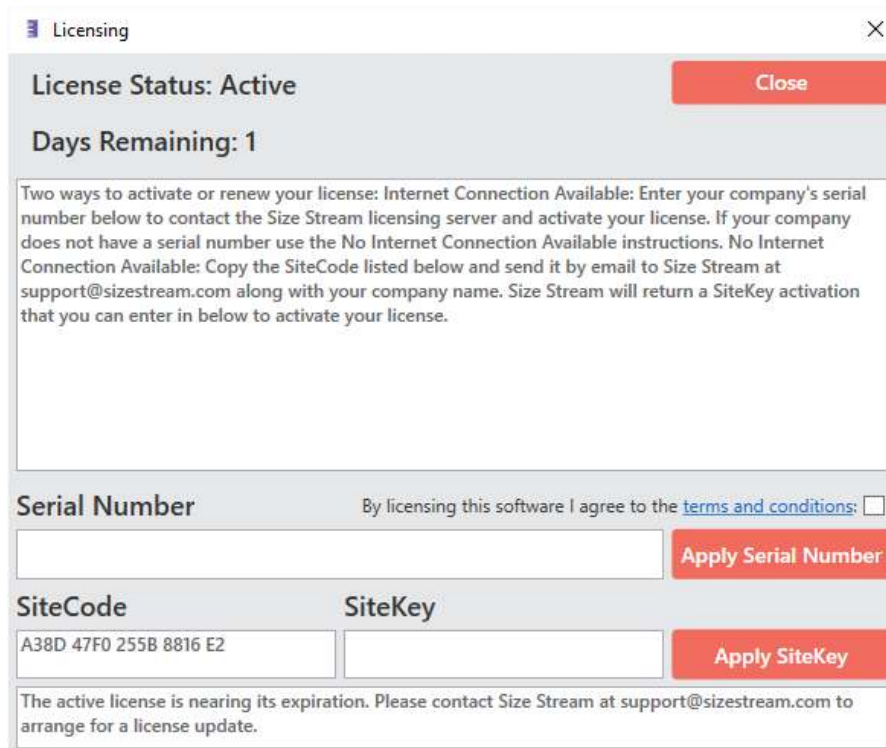
Logging into Windows

The <u>Admin</u> user {Password is "<u>Configure!</u>"} is installed with Administrative privileges, allowing access to all standard windows functions. This account is used to upgrade and troubleshoot the software. At login, the Windows desktop will appear with the Size Stream application icon on the desktop. Double touch the icon or double click with a mouse to launch the application.

Licensing the Scanner

The License Information Window will appear when launching the Size Stream Software as an alert that you should contact Size Stream to renew your license.


The Licensing box shows the number of days remaining for the active Scanner software license and instructions on how to have the Scanner license activated or renewed.

The administrator is required to agree to the Size Stream Scanner Terms and Conditions before they can apply a license to their software. Please make sure this checkbox is marked before applying a Serial Number or Site Key. You can click on the Terms and Conditions link to see the full agreement.

Upon entering a Serial Number or Site Key, press the appropriate <u>Apply</u> button. A message will appear in the box at the bottom of the window to tell you if the license was successfully applied. You can then touch/click on the Close button and operate the Size Stream Scanner. If the message window indicates any problems, please contact support@sizestream.com.

Aligning the Scanner
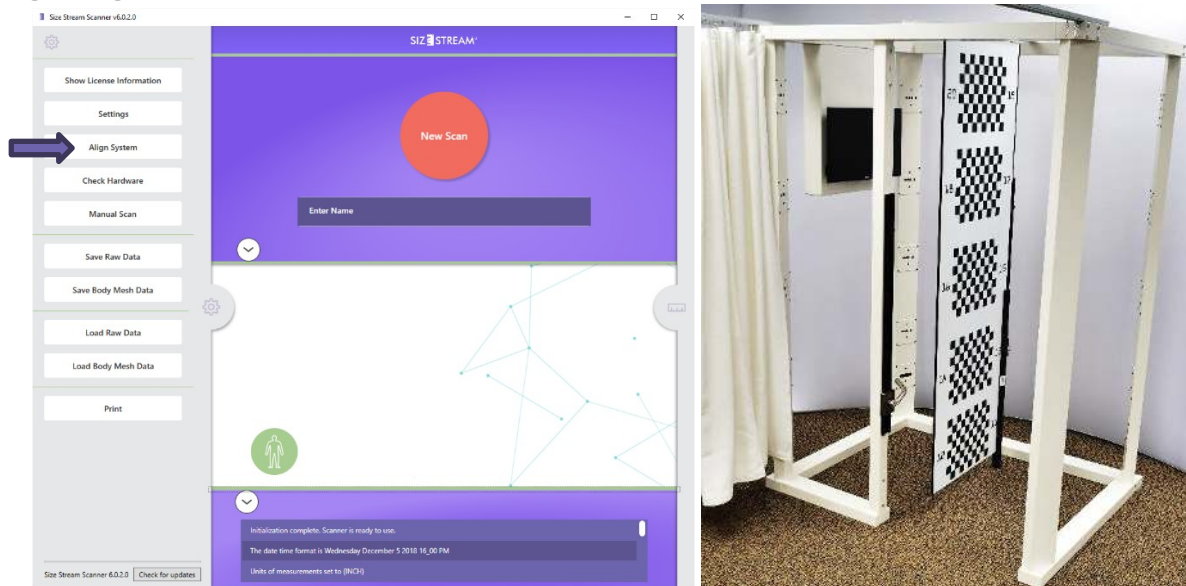
The data coming from each of the sensors in the scanner must be aligned to maintain the accuracy of the 3D body image. The system administrator does this with the Alignment Board provided with the scanner. If the board is lost or damaged, contact support@sizestream.com.

Size Stream recommends that the scanner be aligned every day or whenever it is moved or modified. When the Scanner Software initializes it will prompt the user to do a system alignment. The user can choose to skip this step if the system is already aligned. If not, please follow the instructions below before clicking *Yes* to the alignment prompt.

1. If not previously done, carefully unpack the scanner Alignment Board. Make sure to find and keep the "stabilizer" foam tube. It is easy to mistake the stabilizer tube as packing material.
2. Hang the Alignment Board on the Alignment Bar, in the center of the scanner. Numbers 1-10 should be facing the monitor and 11-20 should be facing the back of the scanner.
3. Attach the stabilizer tube to one side of the alignment board. Dampen any swaying motion and lower the foam slider to the floor once the Alignment Board is centered and vertical with the scanner frame.
    Important: The alignment board must be as still as possible. The alignment directly affects the accuracy of the scan.
4. If the Align pop-up window was skipped, alignment can be started from the Utility Menu. Click the gear icon on the left side of the screen to open the Utility Menu and touch or click the Align System button. (CTRL+m)
    Note: The system will play music while the system alignment is active.
5. When system alignment is completed a message in the status box will appear and an audio notification saying, "Alignment Complete!".

Note: If the system alignment failed, go to the Troubleshooting section of this manual for possible causes and solutions.

6. Remove the Alignment Board and store it in a safe place for future use. You are now ready to begin scanning!

Updating the Size Stream Body Scanner Software

The scanner comes from our factory with the software pre-installed. Size Stream periodically releases updates for the scanner software to improve measurement quality and user experience. Please check the Size Stream Knowledge Base for release notes with more details about what changes are included in the latest software updates.

When connected to the Internet, the software will automatically check and download updates for the system. The software will alert the user when an update is ready to apply and allow the user to choose when to apply the update. Please note the software will prompt the user to apply the update at start up, system alignment time, or manually by using the "Update" button on the Utility menu.

If an internet connection is not available, a manual update installer is available upon request. Please contact support@sizestream.com for more information.

SCANNING

Scan Wear

Since the SS20 is a surface scanner, it can't see through clothes or any other object. The person to be scanned must wear close-fitting garments, such as underwear, biking shorts, leotards or tight gym wear for best results. Clothing color does not matter, but loose-fitting clothing such as boxer shorts, baggy jeans, sweatshirts, etc. should not be worn.

Note: Size Stream does not recommend scanning in the nude due to privacy considerations.

Long hair should be worn "up" in a bun and away from the neck. Watches should be removed for the scan. Long beards can also adversely affect measurement accuracy.

If the scanner is assembled using the cloth walls and dressing area drape, the scan subject should remove their street-clothing in the private dressing room and enter the scanning area. The subject should leave their clothes and personal items in the dressing room area before beginning the scan.

Scan Posture

1. The footprints on the carpet show where to stand, with feet approximately shoulder-width apart and toes pointed slightly out to assure complete foot coverage.
2. The body should be aligned with the handhold bars.
3. The adjustable handholds should be grasped with each hand. The handholds will slide so the subject is standing upright in a normal relaxed posture while holding the handholds.
4. The subject should look straight ahead.

Step by Step Instructions

1. The user can enter their name which will be applied to the saved data files.
2. Click the large red button, "New Scan."
3. The subject may follow the instructions presented on the screen, observing correct Scan Posture.
4. When active scanning is complete the voice instructions will advise that the process has completed. The subject may get dressed while measurements are determined.
5. When the scan is finished processing, a 3D image will appear on the monitor while the software is extracting measurements.

    Note: The measurement list will open automatically when the extraction is complete.

    The image shown is interactive. You can rotate the image on the touch screen. You can also touch on individual measurements in the list, which will highlight the corresponding measurement line on the avatar.
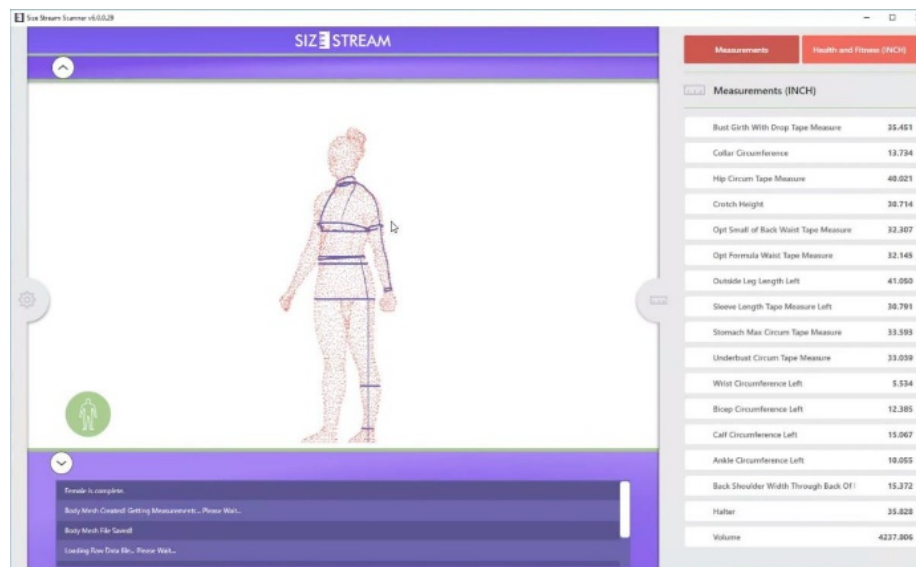
6. If configured with the Cloud Upload feature, a QR claim code will appear. To learn more about the QR claim code please go to the Cloud Upload Feature section.

    If the scanner is configured with an external monitor and keyboard so an Operator outside the scanner can control the scan event, the subject should let the Operator know when they are ready to be scanned. In less than 10 seconds the scan is complete, and the subject can relax while the operator determines if the scan was successful or whether they want to repeat the scan. After the scan image and measurements become available and are reviewed the Operator should tell the subject to get dressed.

    If the subject is initiating the scan themselves from the touchscreen they can follow the steps described below.

Printing

A printout of the displayed scan data can be generated in either of the two different formats shown below, along with the choice of either the Standard Measurement list, the Custom Measurement list, or both. The scan file name appears in the space at the bottom of the printout and can be edited by the user prior to printing. The output will appear in Print Preview for approval.

Normal printout shown with Custom and Standard measurement lists: The Standard Measurement list can be changed to suit your application. See: "Changing the Standard Measurement List Order". The blue measurement labels shown on the printout above will correspond to the Standard measurements contained in your edited list.

Note: The measurement labels only appear for the Standard Measurements and not for any Custom Measurement files, e.g., Men's Custom Suit, etc.

Alternate printout (with Custom Measurement list only):

CONFIGURATION

Changing a Setting

Under the Utilities pull-out on the left side of the screen is a Setting button. Touching this button will bring up the Settings window, shown below. By touching the name for each setting, the explanation of the setting is shown at the bottom. If you need additional information on a setting, see the Knowledge Base page under the Resources section of the Sizes Stream web site or contact support@sizestream.com.   Remember to touch the "Save Changes" button after making your changes.
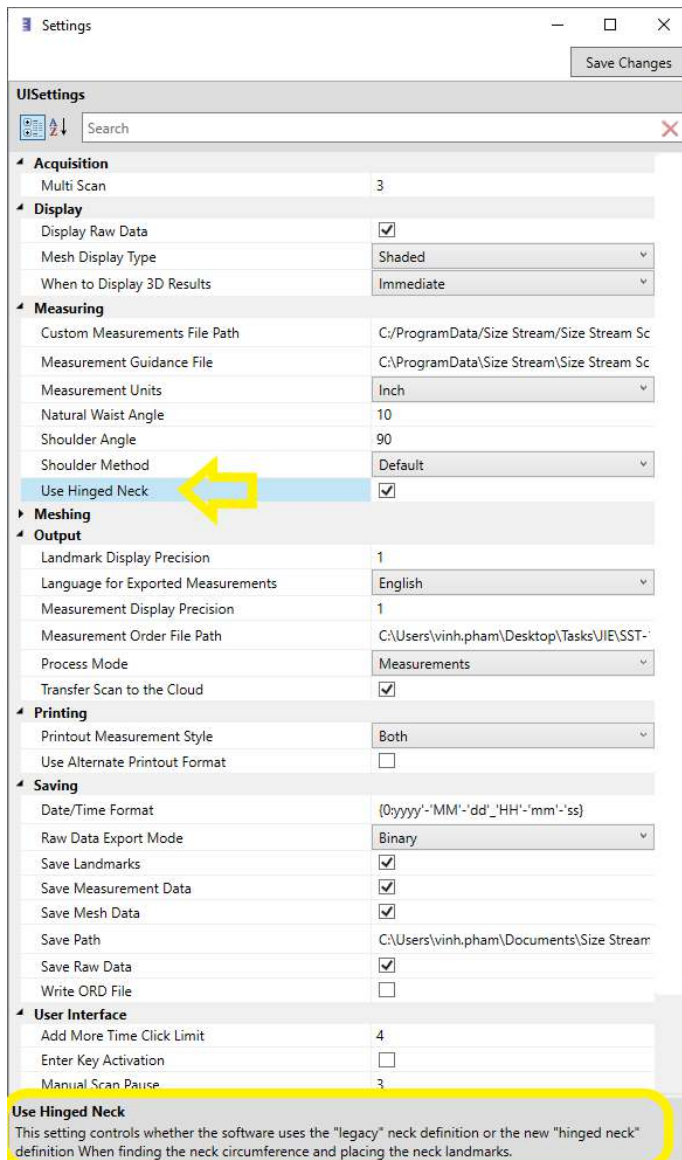
Scan Process

MULTI-SCAN

It is difficult for people to maintain perfect stillness during the short period when they are being scanned. To minimize the variations in measurements due to movement and posture changes, the Size Stream Scanner is configured to take multiple scans (three is the default) in one continuous sequence. The number of scans taken for a multi-scan can be changed using the Settings Tool.

Multi-scan produces a raw data image, a refined mesh and an extracted measurement list for each scan in the sequence. Each will be displayed onscreen as they are processed. In addition, a Composite list of measurements is also generated. If the multi-scan option is set to 3 or 5 scans, the composite value given for each measurement will be the median (middle value) of all the values for that measurement. If multi-scan is set to either 2 or 4, the composite value given will be the average of the two middle values. In multi-scan, the Custom Measurements will be calculated using the composite measurement values as described above and the landmarks from the final scan in the sequence.

Note: Pressing the ESC key will abort the processing of the multi-scan sequence. This saves time if the scan is determined to have errors so a rescan of the subject can occur immediately.

Measurements

MEASUREMENT LIST

The Size Stream Scanner Software processes over 240 measurements. A Measurement Order file can be chosen to limit this list to only a few key measurements and determine the order in which they are shown. To select a Measure Order file, point the Measurement Order File Path setting to the file of your choice. A demo Measure Order file is provided, as well as an alphabetically sorted list of all available measurements. This setting is available in the Settings tool. Contact support@sizestream.com to request assistance with selecting which measurement will be displayed.

CUSTOM MEASUREMENTS

Custom Measurement functionality is available if your application requires a measurement that is not in the standard list. Custom Measurements can be created with simple adjustments on the existing measurements. A sample set of Custom Measurements are included to demo an example use-case.

To obtain a Custom Measurement script specific for your application please send a request to support@sizestream.com. A diagram and description of each measurement requested should be included with your request.

User Interface

ADDITIONAL LANGUAGES

The Size Stream Scanner software supports several languages including: English, Spanish, French, Japanese, Simplified Chinese and Traditional Chinese. Languages can be selected in the Settings Menu on the Utility Pane.

Contact support@sizestream.com for information about customizing the language of the audio narration.

LOGO CUSTOMIZATION

The Size Stream logo that appears at the top of both the scanner screen and on the printout sheets can be changed to display the customer's logo.

To replace the Size Stream logo:

1. Close the scanner software.
2. Save your logo image file as Logo.png.
3. Copy the .PNG file into: C:\ProgramData\Size Stream\Size Stream Scanner
4. Launch the scanner software and your logo will appear at the top of the screen and at the top of the printout page.

THEMES

The colors for all UI elements are customizable. To select a theme, point the "Theme File" setting towards a valid .xaml theme file. Contact support@sizestream.com to learn more about custom themes.

In addition to the default white theme, a dark theme is also included. This theme follows the color scheme of the v5.X series of the scanner software and is therefore called "Legacy". The .xaml file for this theme is available at C:\ProgramData\Size Stream\Size Stream Scanner\Themes\Legacy.xaml

NAVIGATING THE SCANNER DISPLAY

The Size Stream Scanner Display is divided into multiple sections:
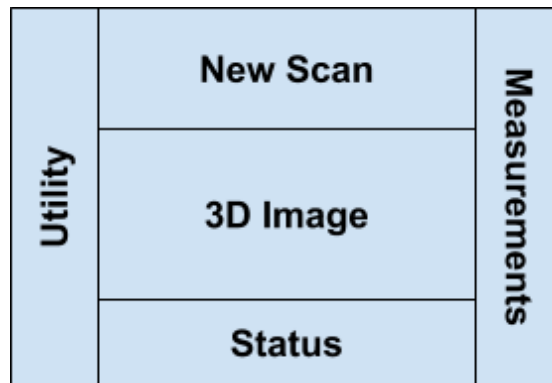
New Scan: This button initiates a new scan. Depending on the user's configuration a form field for entering a name for the scan is also provided. This pane disappears when the scan is started and reappears after the scan results are no longer being viewed.

3D Image: This pane displays the scan image as the data is processed. It disappears when the scan results are no longer being viewed.

Status: Text messages will appear here showing what the scanner is doing, and if the operation was completed. Any error messages will also appear here.

Measurements: Measurements will appear here after they are calculated. Click or touch the "Gear" control icon to hide or view the results.

Utility: This pane is intended only for Administrative Users and can be accessed by touching or clicking on the Gear icon. You will then be provided with options to Align the Scanner Sensors, load existing scan data files, save files, scan without guidance, and print results. Please note that this screen does not appear for Unattended Mode users.

New Scan

The red New Scan button will start the scan sequence. Touch or click the circled arrow (show below) to hide or open the New Scan pane. Touching or clicking this arrow will also clear the scan image and measurement output list from the screen so the system will be ready for the next scan.
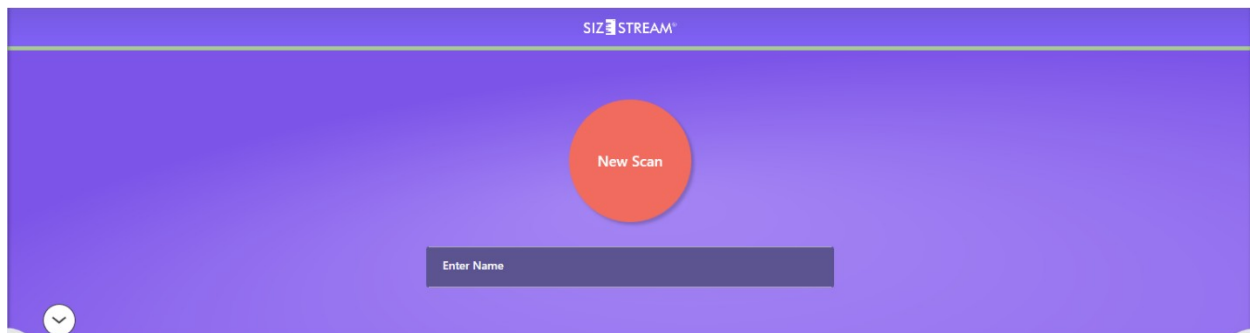
Status

The box at the bottom of the Main Screen shows the status of scanner operations as they occur with the top line being the most recent entry. The status lines can be hidden by clicking the circled arrow at the upper left of the box. The box can be hidden or resized by dragging the top edge of the box.
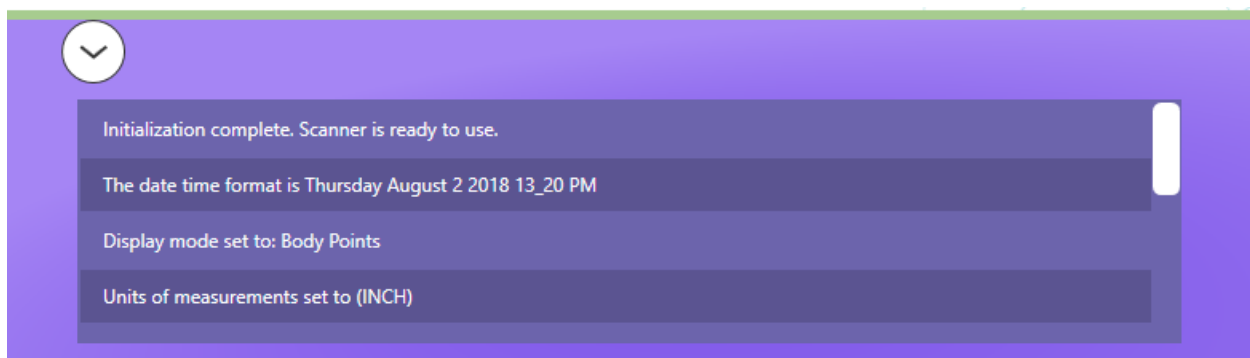
3D Image Display

When scanning is complete a 3D view of the resulting data will be visible in the middle of the screen. Selecting measurements on the Measurement Pane will affect which measurement lines are visible in this view.

In addition to the processed body mesh, the raw data captured by the sensors is available for review. The Raw Data button in the corner of the 3D view allows the user to toggle the scan image between the finished Body Mesh and its 3D Raw Data.
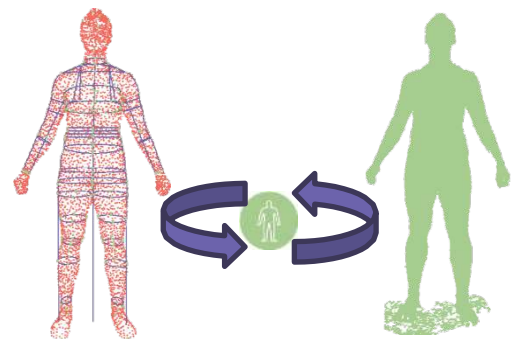
Measurements

The measurements calculated by the scanner are displayed automatically in the Measurements Pane when the scanning process is complete. The Measurements Pane can be hidden or displayed by touching or clicking the Ruler Icon tab. The measurements will be shown in inches or metric units depending on the choice selected in the "Measurement Units" setting in the Settings Tool.

If Custom Measurements are in use, the top of the Measurements Panel will show two buttons that select which set of measurements are visible. The "Measurements" button shows or hides the Standard Measurement list. The other button's title will change depending on which Custom Measurement list is selected in the Settings Tool. This button will show or hide the custom measurements.
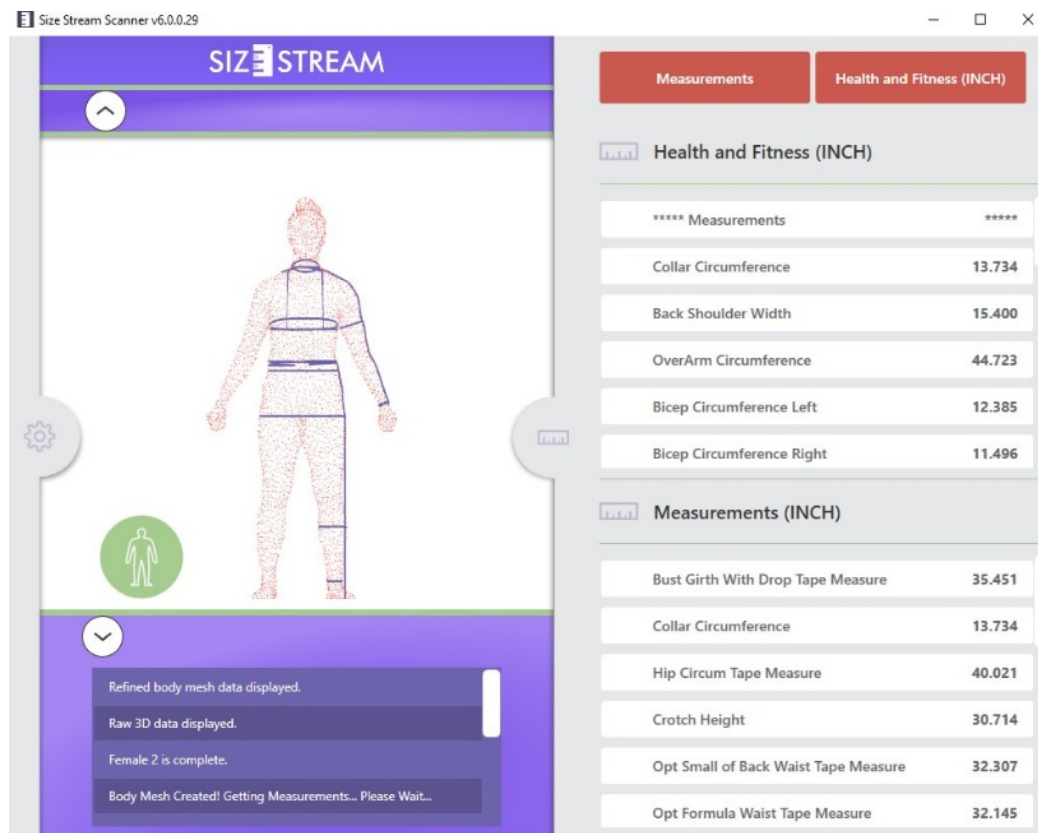
Utility

The Utility Pane is accessed by clicking on the Gear icon on the left side of the screen. This symbol does not appear if the system is operated in Unattended Mode as it is intended for the system administrator/operator. If a keyboard is available, The Utility Pane can be accessed using the hotkey combination Ctrl+m.

SHOW LICENSE INFORMATION

The Licensing window shows the number of days remaining for the active Scanner software license as well as instructions on how to have the Scanner license activated or renewed. This box will automatically pop up if the license has not been activated or when the license is down to 14 days or less remaining as a reminder to renew.

SETTINGS TOOL

Opens the Settings Tool Dialog which allows you to access and change the current system configuration and settings. Settings can be changed in memory (as soon as you change the value) and they can be saved so that they will be available the next time the software is restarted.

Note: Clicking on the settings name will display the documentation about that setting at the bottom of the window.

ALIGN SYSTEM

Initiates the process of aligning the 20 sensor views, with respect to each other, to render an accurate 3D image of the person being scanned. See the System Alignment section for more information.

MANUAL SCAN

Touch or click this option to manually start the scanning sequence. In this mode, the audio instructions remain silent and scanning starts immediately. This option is useful for scanning objects or for test scanning.

Note: This data is not saved automatically. Click Save Raw Data to manually save this data.

SAVE RAW DATA

Touch or click this option to save the raw sensor data in a different location than the default, for example, on a USB memory stick. The raw data can be saved in binary, XYZ, OBJ or WRL format.

SAVE BODY MESH DATA

Touch or click this option to save the body mesh data in a different location than the default, for example, on a USB memory stick. Data is saved in OBJ format only.

Show License Information

Settings

Align System

Manual Scan

Save Raw Data

Save Body Mesh Data

Load Raw Data

Load Body Mesh Data

Print

Size Stream Scanner 6.1.0.1 | Check for updates
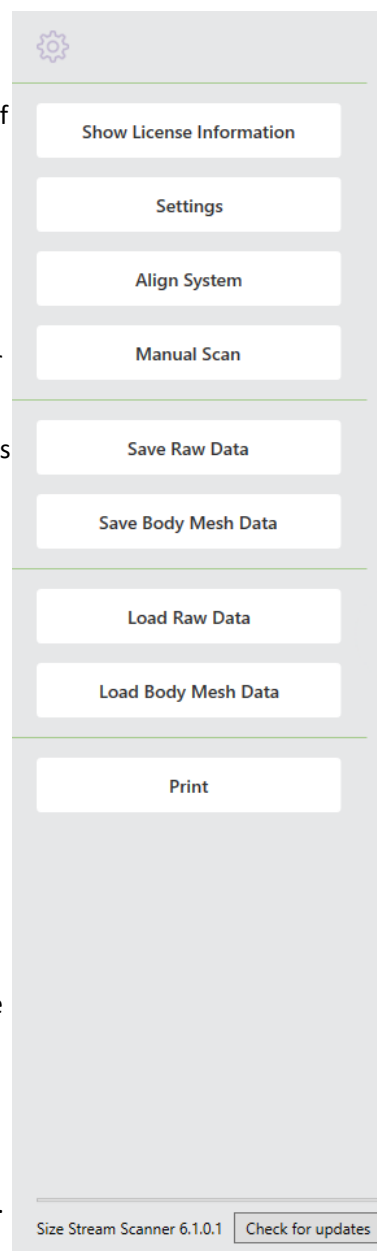
LOAD RAW DATA

Loads a raw data file (binary, XYZ, OBJ or WRL format) from a saved location for onscreen examination. The data is processed to Body Mesh and Measurements. Loading multi-scan data will yield a composite file.

LOAD BODY MESH DATA

Load a body mesh file (.OBJ format) from a saved location for onscreen examination. The loaded data will be processed to Body Mesh and Measurements according to the scanner's configuration.

PRINT

Opens the Print Preview window for the current scan image. See the Printing section for more details about print options.

CHECK FOR UPDATES

When connected to the internet the Scanner software will check if an update is available and will begin the download. Once the download is complete the button will change to "Apply Update" to allow the user to choose when the update is applied. The loading bar above the button shows the download progress during an update download.

TROUBLESHOOTING THE SIZE STREAM BODY SCANNER

The following paragraphs provide tips for identifying and resolving issues that may occur.

Problem: A scan produces no data.

Solution: Perform a system alignment and do a new scan to see if this resolves the problem.

Problem: The software fails to create a claim code at the end of processing when configured to use cloud upload.

Solution:

1. Verify the scanner is connected to the Internet.
2. Check the system logs found in C:\ProgramData\Size Stream\Size Stream Scanner\Logs\ folder for additional information.
3. Check that the scan succeeded in processing to measurements.
4. Check that the Scanner has access to a robust internet connection.
5. Check that the save folder exists. (Transfer files are temporarily written to that location.)

Problem: During a computer Restart, the software hangs up and/or does not recognize all 20 sensors.

Solution: The Windows Restart function causes a problem with the sensor drivers and should never be used! If the computer requires a restart, for any reason, it should be manually SHUTDOWN using the Windows Shutdown command or by depressing the computer power button until the computer completely shuts down. Wait 5 seconds and then start the computer again. This will clear the problem and the software will function normally.

Problem: System Alignment was successful, but now I'm getting bad or no body data.

Solution: It is possible that one or more of the sensors have locked up in an unknown state.

1. SHUTDOWN the computer.
2. Disconnect AC power to the computer.
3. Unplug all 20 sensor USB cables from the back of the computer.
4. Reconnect all 20 sensor USB cables.
5. Connect AC power and start the computer.
6. Launch the Scanner software.

Problem: System Alignment failed

Solution: Ensure the Alignment Board is the only thing inside the scanning area, and that nothing is obstructing the sensors.
Make sure the Alignment Board is vertical and not moving. Lower the Alignment Board stabilizer foam tube to the floor to steady the object.
If the alignment continues to fail contact support@sizestream.com

Problem: An error message says the computer is looking for 20 sensors but only sees 19.

Solution: There are several things that can cause this error:

1. A loose USB connection: Check all the USB connections at the computer and at the sensors and make sure they are secured.
2. A sensor that has gone into an unknown state and needs to be reset: You can reset the sensors to a known state by shutting down the computer; disconnecting the AC power to the computer; disconnecting all sensors from the computer and re-connecting all sensors back into the computer; connect AC power and start the computer.
3. A failed USB port: This can be checked by disconnecting the sensors from one USB card at-a-time and monitoring the number of sensors in the Device Manager as you do this. You should be able to determine if a USB card has a bad port if the number of sensors does not change when you unplug the cable. Move that cable to one of the unused USB ports and see if the sensor appears on the list again.
4. A failed USB cable: This is not common but is possible. If you have tried the above steps and the sensor still does not appear in the Device Manager, switch the USB cable with one from another sensor. If the sensor now appears in the Device Manager, it is probably the cable. Replace it with a new cable. You can purchase a USB cable locally if you do not have any spare cables or request one from Size Stream. Contact support@sizestream.com
5. A failed sensor: If you have tried all the above steps and the sensor does not appear in the Device Manager, it has probably failed and needs to be replaced. Contact support@sizestream.com

Problem: Upon system startup, a message says my license has expired!

Solution: If you have been issued an Emergency License Activator code follow the instructions in the PDF to get a temporary 10-day license.

If you have not been issued an Emergency License Activator code send the license Site Code to support@sizestream.com as soon as possible.

If you do not see the Site Code in the License Expiration dialog, go to the License menu at the top of the dialog and select "Show Site Code"

Send the Site Code to support@sizestream.com to get your license restored.

Some common things that can cause the licensing to fail:

1. Changing the system time.
2. Copying, renaming, or moving the folder where the licensed executable is located.
3. Installing the software on an OS account that doesn't have Admin rights.
4. Running the software as a different user than the one who installed it.
5. Accessing the software over VPN.