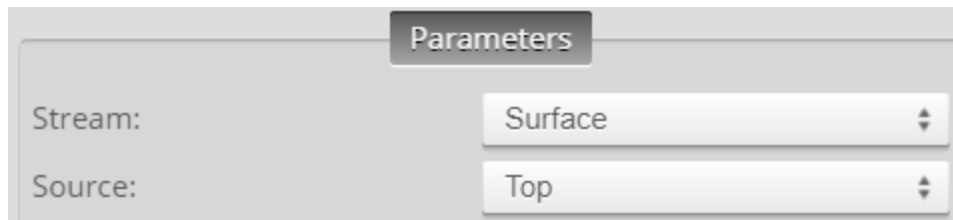


Surface Transform Point Cloud User Manual

General introduction

After loading a calibration xml file generated by Surface Align Ring, the tool will transform the point cloud from multi sensors into a unified point cloud as output.

Inputs



The screenshot shows a 'Parameters' dialog box with two settings: 'Stream' set to 'Surface' and 'Source' set to 'Top'. Both are displayed as drop-down menus.

Name	Description
Stream	<p>It's possible for more than one type of data to be available for a tool as input. You use the Stream drop-down in a tool to choose which type. If only one type of data is available for a tool, the Stream drop-down may not be displayed.</p> <p>Currently, only Surface Point Cloud can be selected</p>
Source	<p>The sensor, or combination of sensors, that provides data for the tool's measurements.</p>

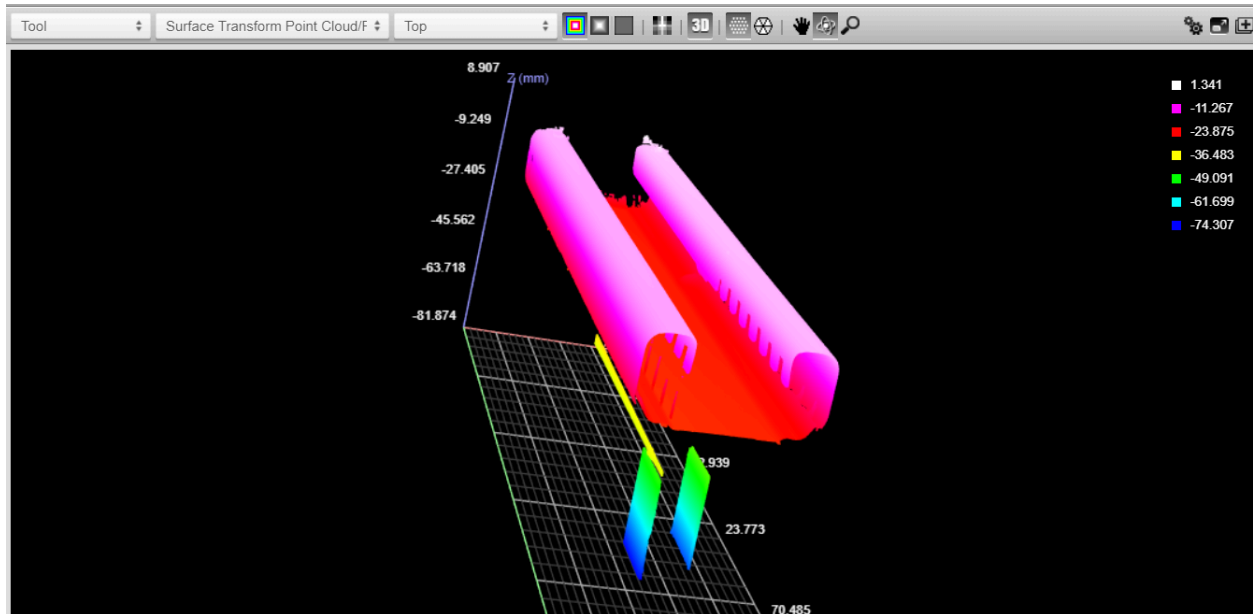
Parameters

File:	SAR_20240425_104438.xml
Operation:	Normal
Sensor Count:	3
<input checked="" type="checkbox"/> Sensor Parameters 1	
Affine X 1:	10.665 mm
Affine Y 1:	-2.615 mm
Affine Z 1:	-15.83 mm
Affine Pitch 1:	0.953 deg
Affine Roll 1:	42.355 deg
Affine Yaw 1:	-1.207 deg
Affine Mode 1:	5
<input checked="" type="checkbox"/> Sensor Parameters 2	
Affine X 2:	3.454 mm
Affine Y 2:	-3.227 mm
Affine Z 2:	-15.635 mm
Affine Pitch 2:	-0.284 deg
Affine Roll 2:	-0.023 deg
Affine Yaw 2:	-1.255 deg
Affine Mode 2:	5

Name	Description
File	List all the .xml files in C:\GoTools\SurfaceAlign. The calibration file generated by Surface Align Ring are also in this folder

	Note users should choose the file generated by the Surface Align Ring tool.
Operation	<ul style="list-style-type: none"> - Normal - Load: After choosing the correct xml file in “File”, choose this mode to load the parameters from the xml file. The loaded parameters should be shown in the below parameters
Sensor Count	<p>Specify how many sensors are used.</p> <p>This parameter is loaded from the xml file</p>
Sensor Parameter {N}	When enabling, show the parameters for the relevant sensor
Affine X {N}	Loaded from the xml file.
Affine Y {N}	Loaded from the xml file.
Affine Z {N}	Loaded from the xml file.
Affine A {N}	Loaded from the xml file.
Affine B {N}	Loaded from the xml file.
Affine C {N}	Loaded from the xml file.
Affine Mode {N}	Loaded from the xml file.

Outputs



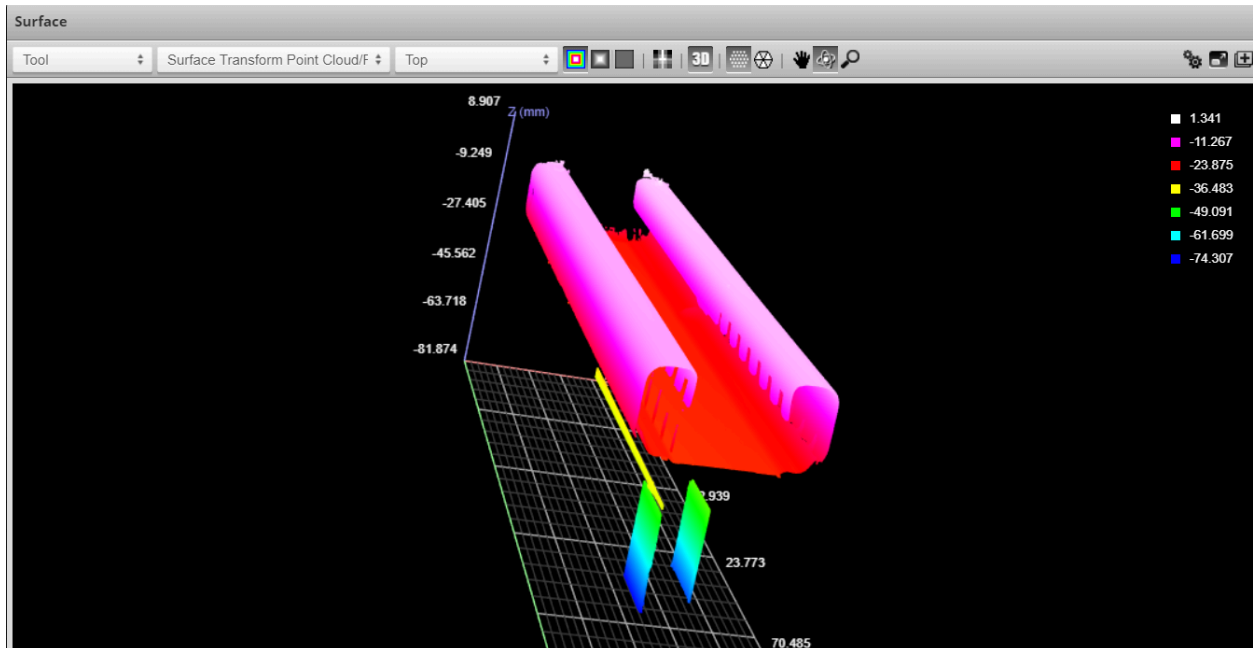
Type	Name	Description
Data output	Point Cloud Surface	The transformed point cloud output

Application Example

GS files: [Testdata](#)

Below is the typical workflow to use this tool

1. Use Surface Align Ring to generate the calibration file
2. Surface Transform Point Cloud
 - a. Choose the correct xml file for the parameter "File"
 - b. Choose "Load" from the parameter "Operation"
 - c. Then, check the data output of the tool



Note that when in Mesh rendering mode, the displaying is messy because the points in the point cloud data become disordered. This is expected!

