



# Verisurf Device Relocation with Feature Align

## Table of Contents

INTRODUCTION .....	2
PREPARING AUTO ALIGN FOR RELOCATION .....	4
1ST TRACKER MEASUREMENT .....	5
2 <sup>ND</sup> TRACKER MEASUREMENT.....	6
CREATING FEATURE ALIGNMENT .....	7

# Introduction

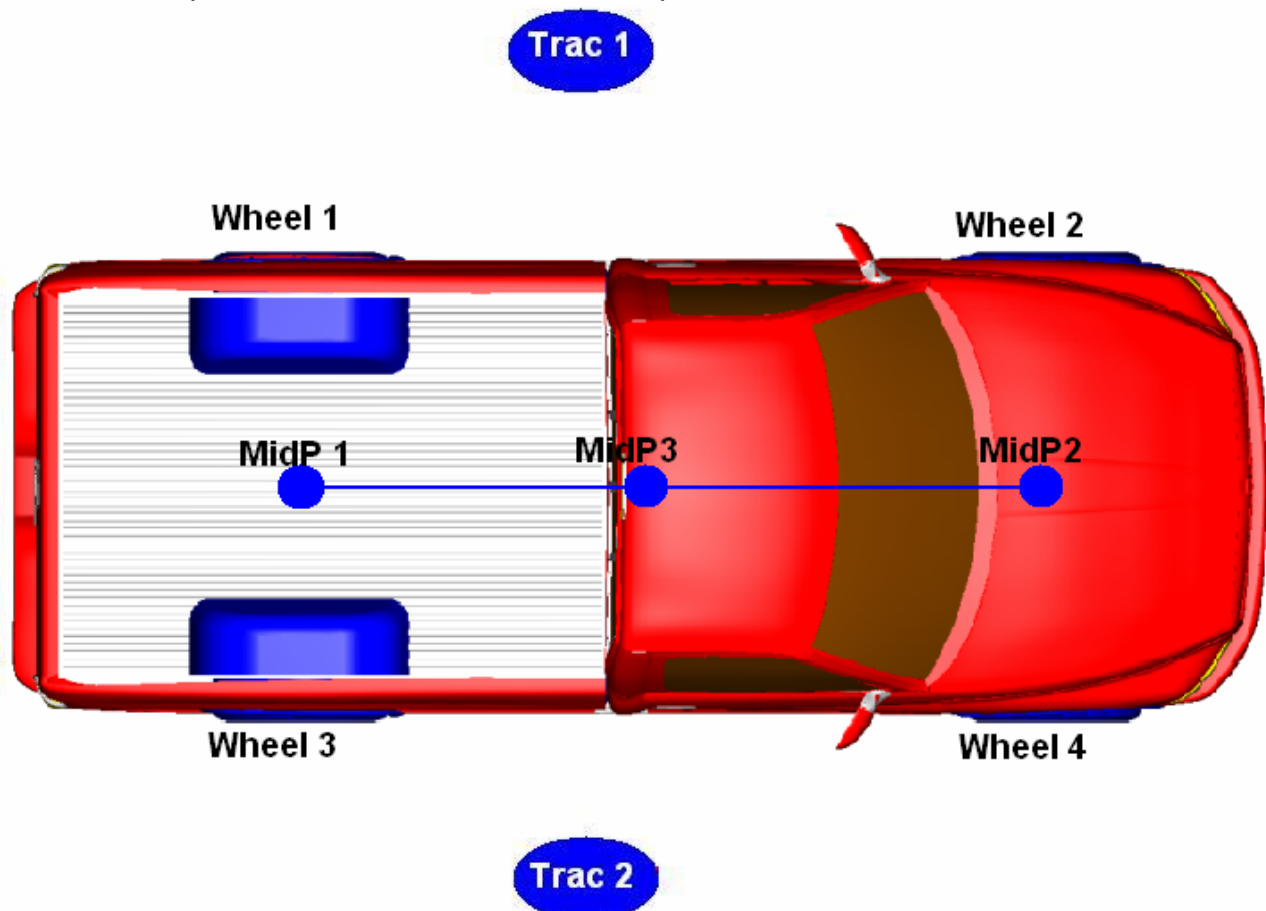
“Relocating” is used to allow line of sight to all surfaces on a part using the same alignment while moving the laser tracker to various positions. It may also be used to extend the measurement envelope of an articulating arm.

In the example below we have a truck that needs to be measured with a known feature alignment that comes from a measurement nest at the center of each wheel. These 4 measurements from the wheels will provide a basis for a feature alignment comprised of:

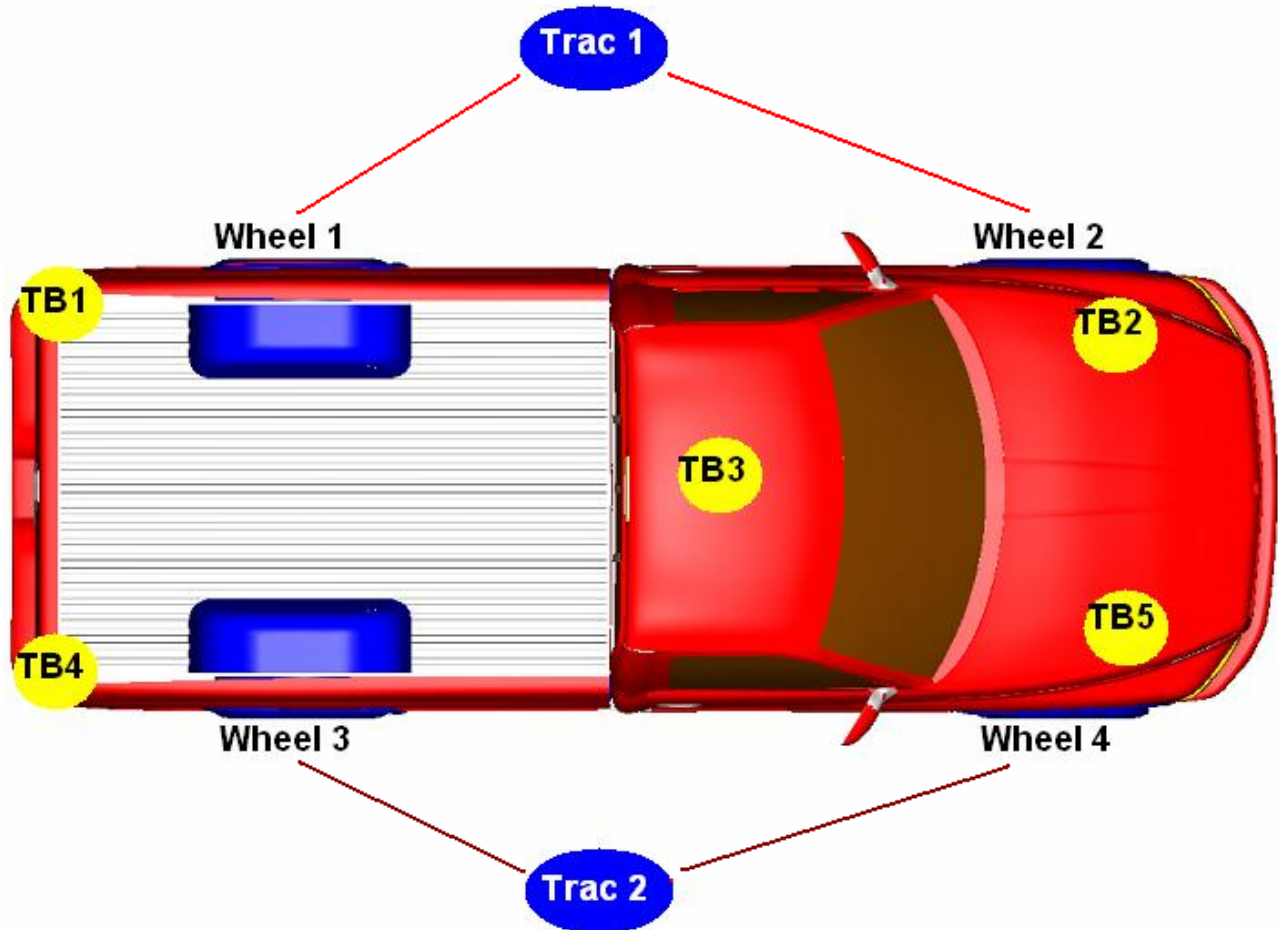
Plane – The 4 wheel points

Line – Constructed from 2 midpoints between Wheel 1 – Wheel 3 and Wheel 2 – Wheel 4.

Point – A midpoint between the 2 construction points.

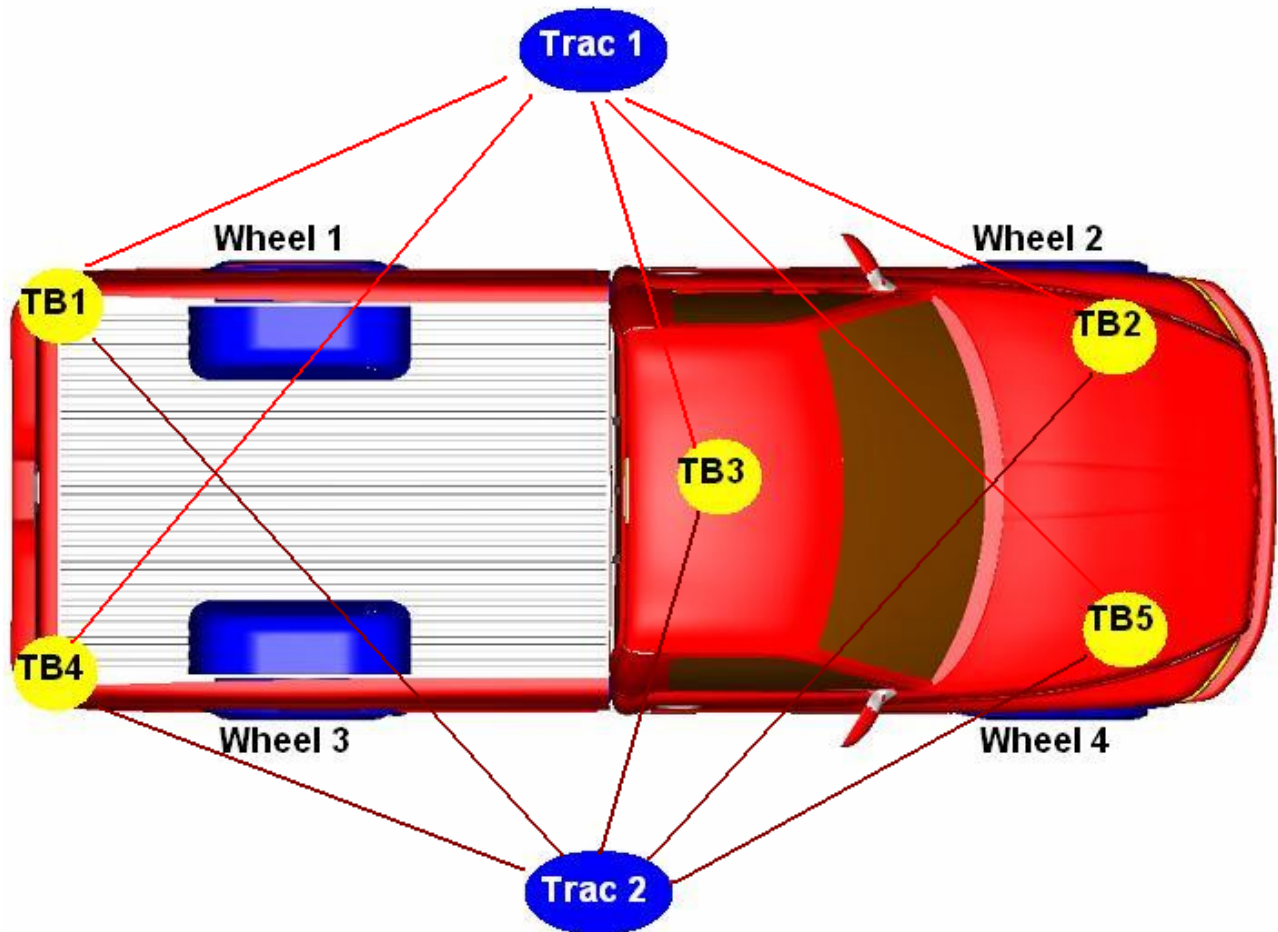


Using one tracker position it is obvious that you can not achieve “line-of-sight” to all wheels. In this case you will need 2 different tracker positions to measure all the wheel centers.



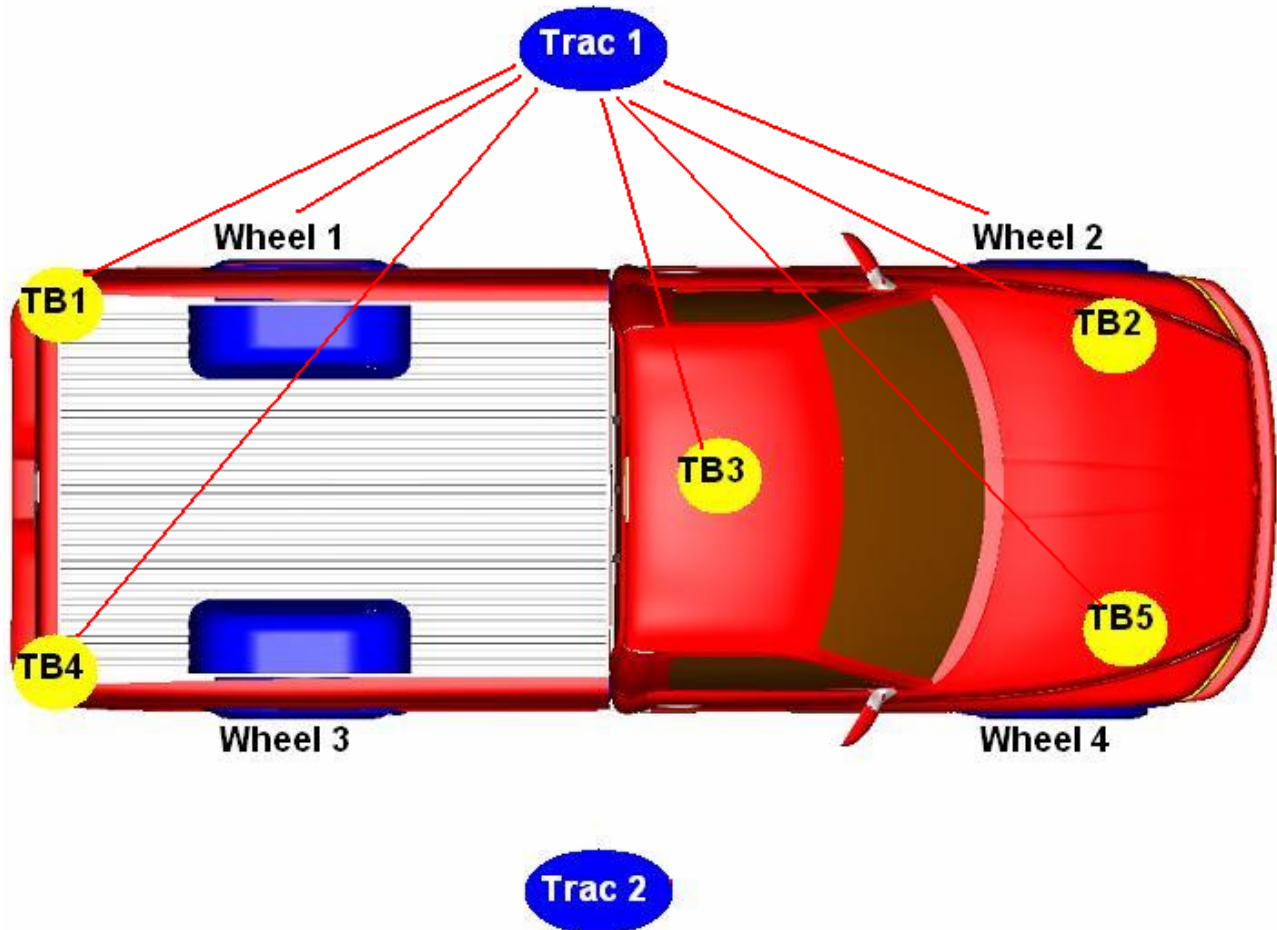
## Preparing auto align for relocation

As with any Verisurf auto-alignment you need to get an initial alignment with the 1<sup>st</sup> tracker. These can be any points that your 1<sup>st</sup> tracker position and your 2<sup>nd</sup> tracker position can see. I'll use the following example.



# 1st tracker measurement

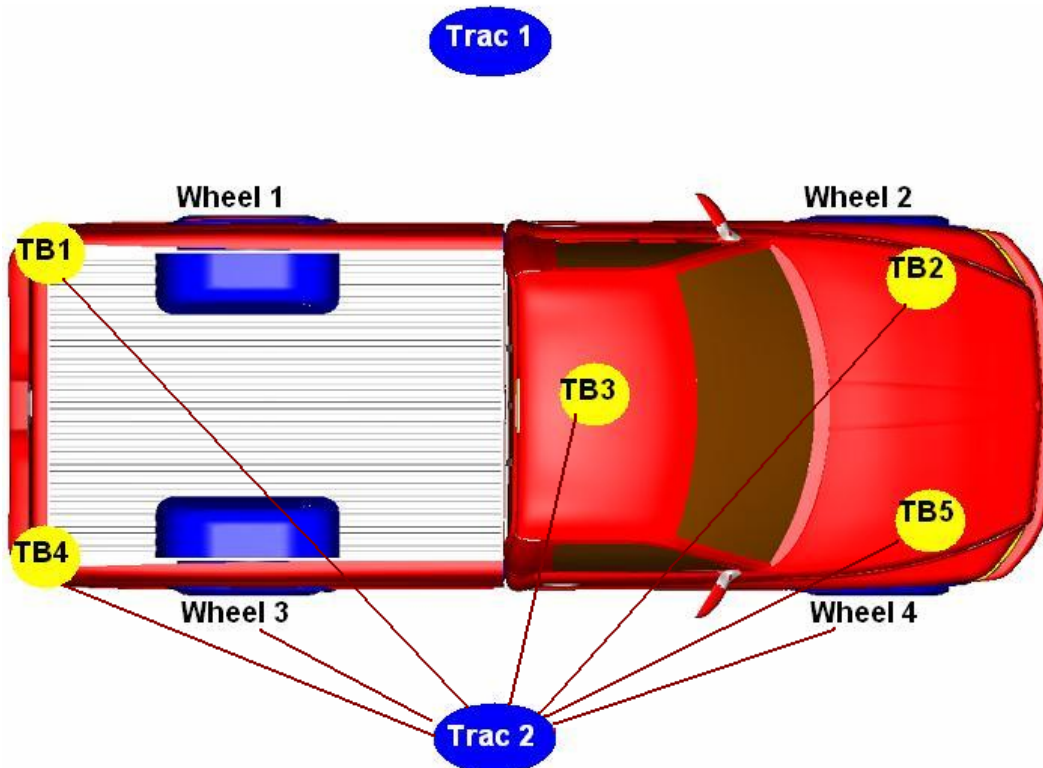
Once you are sure that both tracker positions will see your auto-align points you can measure Wheel 1 and Wheel 2. Before or after the measurement of those points you can measure the 5 auto-align points. TB1 – TB5. These can be done in either order.



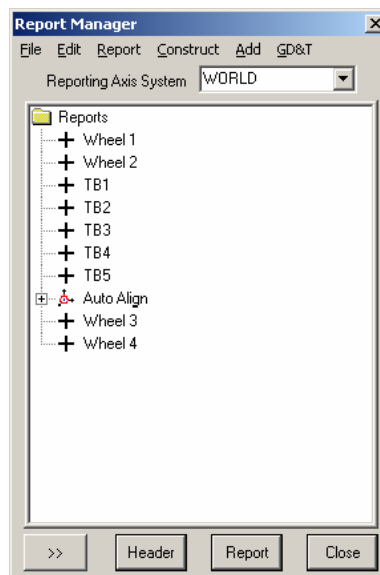
Once you have measured these points you can now create an auto-alignment using TB1 – TB5.

## 2<sup>nd</sup> Tracker measurement

Move the tracker to the other side of the part and using the Auto-align created from the 5 relocation points align back into the part. Once re-aligned, measure Wheel 3 and Wheel 4.



Now you will have a report manager with 1 auto-align, 4 wheel points and 5 auto-align points.



# Creating Feature Alignment

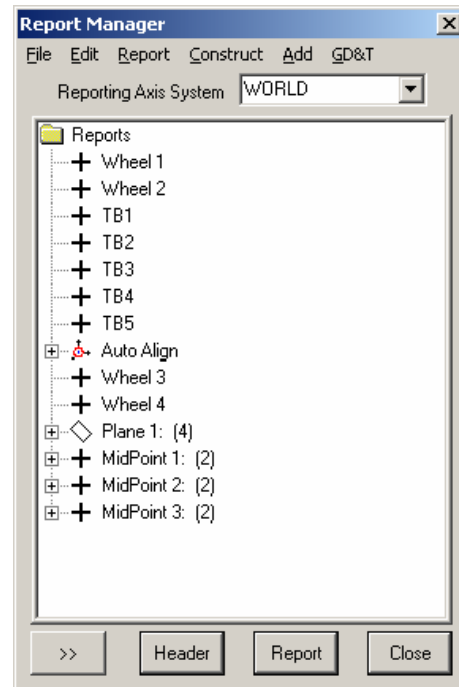
Now we need to create the features to align to.

Again we will construct the following.

Plane – The 4 wheel points

Line – Constructed from 2 midpoints between Wheel 1 – Wheel 3 and Wheel 2 – Wheel 4.

Point – A midpoint between the 2 construction points.



Now we Feature Align using these entities.

Your part will now be aligned to your feature coordinates. You can also still move the tracker and measure anywhere. First you will need to create a new auto align on the TB1 –TB5 because their position in cad space has moved due to the alignment. Delete the prior points and re pick the points to create the same auto-align.

