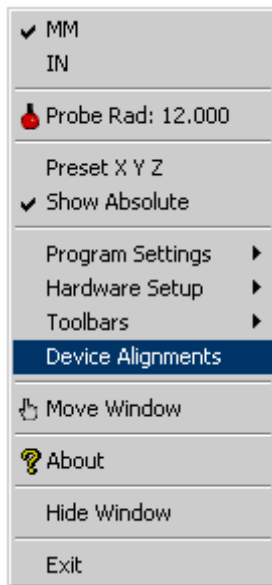


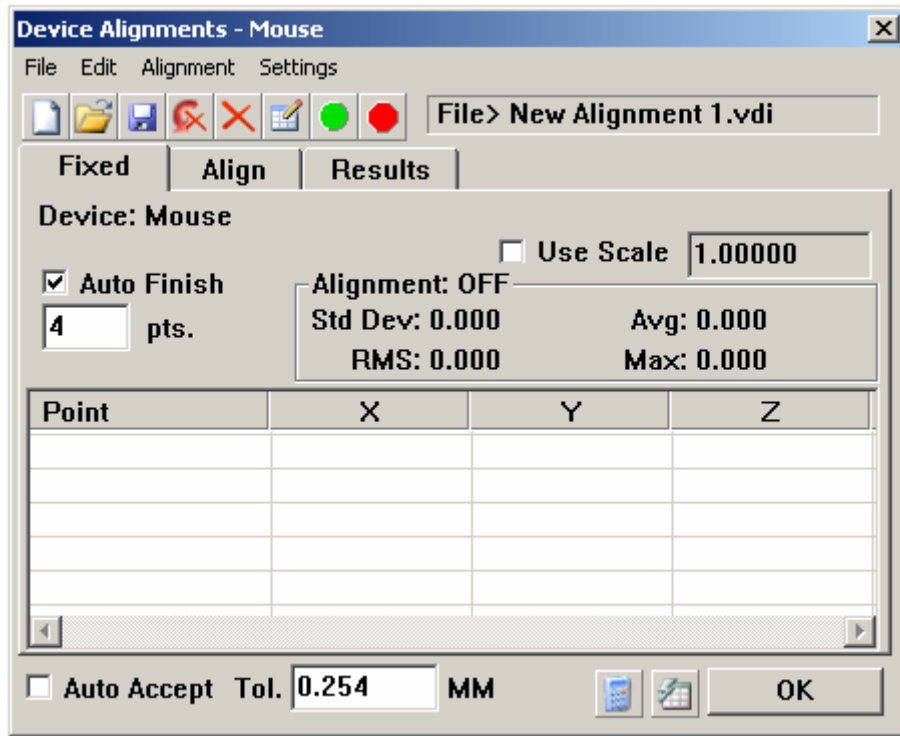
Device Alignments

Alignment Tool Release Notes:

To use the Device Alignments with Verisurf Device Interface, select Device Alignments from the VDI Menu Button.



The Device Alignments window shown below allows you to do Alignment “Jumps” as well as load, add, and edit known alignment points and align your device into a new coordinate system.

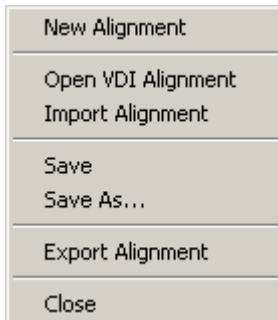


Basic Functions:

Alignment can be created and stored into files for future use and reference. The Current alignment file is shown at the top right of the Alignment window.

The **Fixed** tab shows the coordinates that you want to use as a fixed or base reference for your alignment. The **Align** tab shows the points that you are using to fit your alignment with. These will be fit into the corresponding fixed points. Once you Calculate your alignment, the **Results** tab shows the errors on each of the points in the Align tab. The Align and Results tabs show the same “List” of points, the only difference is the information displayed for each point.

The File Menu:



New Alignment will clear out all alignment info, and create a blank list with no points. It will also put the system into **Recording** mode, where it will take points from the device to fill the list.

Open VDI Alignment will prompt you to open a file saved with this alignment tool. You can save your alignments and use them as templates for another time, or just to recall them to see what points you used and what your calculation results were for future reference.

Import Alignment will prompt you to select a file that contains point x, y, z information to use as a Fixed set of points. The data is commonly in the format of Name, X, Y, Z or just X, Y, Z, and can be comma or space delimited. If names are not supplied, then the importer will supply a name as the data is read.

Save will save the current alignment as a .VDI file, all data is included (points, calculation matrix, and results)

Save As will perform the same as save but prompts you for a new file name, which allows you to save it under a different name if you like.

Export Alignment performs a text file export of just the Fixed list, and will generate a file with the format of Name, X, Y, Z + <return> for each point in the list.

Close will close the Device Alignments Dialog.

The Edit Menu:



Undo Point (Backspace)
Edit Point
Delete
Clear List
Rename All Points
Select All
Unselect All
Create Blank List from Fixed

Edit Point will allow you to change the name of the point, and if you edit a point on the Fixed list, you can change the X, Y, Z data and also change the selection of that X Y Z data.

Edit Alignment Point					
Name:		X		Y	Z
Point 4	<input checked="" type="checkbox"/>	-16.189	<input checked="" type="checkbox"/>	-9.893	<input type="checkbox"/> 0.000
					MM
					Cancel OK

Delete deletes the currently selected point.



Clear List will prompt you to delete the current list (either Fixed or Align)



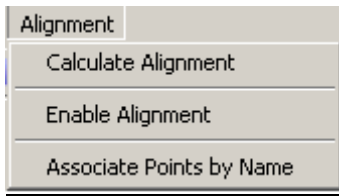
Rename All Points will change the name of every point in the list starting with the name "Point 1"


Select All works with the Fixed list and selects all the Check boxes next to each point name, this indicates that they are to be included in the alignment calculation.

Unselect All works with the Fixed list and will unselect all the points.

Create Blank List from Fixed will delete the list for Align (and Results) and create a blank list of points with the same name as in the Fixed list. This can be used to "Re-due" your points, or to start an alignment after you "Import" a file.

The Alignment Menu:

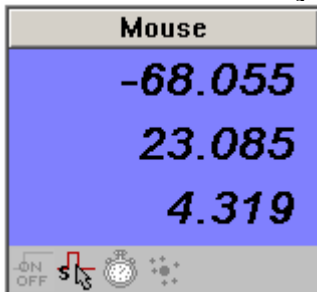


Calculate Alignment is used to calculate the alignment either when finished or when point's selections have changed. This function is also available from the toolbar icon at the bottom of the window: 

Enable Alignment will either make active alignment active On or Off. When the alignment is active the toolbar is depressed and changes color.



The VDI window also changes to blue and the font is changed to italic to indicate that the coordinate system is now altered.



Associate Points by Name is used to match the points in the Fixed list with the points in the Align list by name instead of by order. This is used for calculating, and can help with alignment procedures that are long and have named locations specific to the part.

The Alignment Toolbar:



File New – Creates a new file.

File Open – Opens a VDI Alignment file

Save – Saves the current alignment.

Clear List – Deletes all information in the current point list.

Delete – Deletes the currently selected point.

Edit – Allows you to change the name of the point, and for the Fixed list, allows you to change the points attributes.

Start Recording – Puts the Device Alignments in Record mode, and will record points from the measurement device at the end of the selected list. (either the Fixed list or Align list)

Stop Recording – Takes the system out of Record Mode.

Auto Accept:

☐ Auto Accept

Auto Accept will automatically Enable the alignment and make it active if the alignment that is calculated meets the Tolerance specified. The tolerance is specified in the current displayed units (either In or MM). The tolerance is checked against the Max: deviation value shown below:

Alignment: OFF	
Std Dev: 0.000	Avg: 0.000
RMS: 0.000	Max: 0.000

Use Scale:

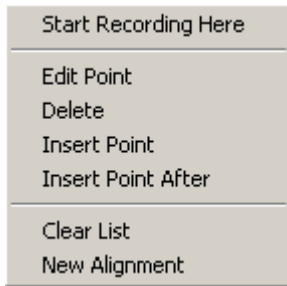
☐ Use Scale 1.00000

Scale is a result of the best fit alignment from any alignment calculation. When the calculation occurs, it will scale the coordinate system to try to see if it can get a better fit to the points it is aligning to.

If use scale is selected, then the active alignment will have scale applied to it. The results will also differ with scale on or off.

Note: when you change scale from on/off you must calculate the alignment to see the results change.

Popup List Menu:



This menu is available when you click in the list area with the **RIGHT** mouse button.

Start Recording Here – This will put the system in record mode and will insert recorded points after the point selected.

Edit Point – Edits the current point.

Delete Point – Deletes the current point.

Insert Point – Inserts a blank point before the current point.

Insert Point After - Inserts a blank point after the current point.

Clear List – Deletes all points in the list.

New Alignment – Creates a new alignment.

The Basic 3 Point "Jump":

This describes how to move your device from one area of the part to another area while staying in the same coordinate system. This is called a Jump or Leap. This is used to increase the working volume of the measuring device.

You must have 3 or more points of reference that are within reach of both positions before and after your jump.

First Select File->New, and click OK at the warning message if one appears. This will put the Alignment tool in Recording mode.

Then select **Auto Finish**, and type in the number of points you want to use for your "Jump".

☒ **Auto Finish**
 pts.

You can then take points just as you normally would, and the Fixed list will fill up with your points.

Device Alignments - Mouse

File Edit Alignment

File> New Alignment 1.vdi

Fixed Align Results Recording !

Device: Mouse

☒ Auto Finish ☒ Use Scale 1.01411

pts. Alignment: OFF

Std Dev: 0.418 Avg: 0.473

RMS: 0.304 Max: 0.706

Point	X	Y	Z
<input checked="" type="checkbox"/> Point 1	-57.121	-25.895	0.000

☐ Auto Accept Tol. 0.254 MM OK

When the number of "Auto Finish" points is reached the list will switch over to the Align tab. At this point you will now move your device to the Jump to location. Once there, you will continue taking the same points in the same order. These points will show up in the Align list.

When you are finished you can calculate your alignment, and enable it if you are satisfied with the results.

If you select "Auto Accept" then this will calculate and enable for you automatically, so long as the tolerance you specify is met for Max Error.

With your alignment enabled the VDI position readout, will turn blue and the numbers will change to an italic font to indicate that the coordinate system has been altered and your alignment is being applied. An Active alignment is also indicated by the Alignment button being depressed, and the status goes to "Active" on window.

 **Alignment: Active** 