



MindCAD 3D Last Design & Engineering

User Manual

2016

mind
:: technology

MindCAD - Last Design & Engineering

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Printed: 29-04-2016 in Lisbon, Portugal

Publisher

Mind - Software Multimedia e Industrial SA

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Special thanks to:

All the people who contributed to this document, customers and partners that provided valuable feedback on this ever ongoing product

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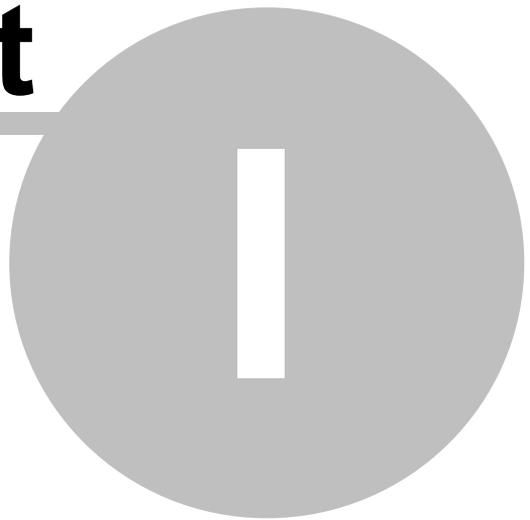
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Part



1 Getting Started

1.1 What is MindCAD?

MindCAD is a suite of specialist programs that have been developed specifically for shoe design and manufacturing.



Last Design & Engineering - For input, modification and flattening of lasts.

3D Design & Engineering - Allows lines to be drawn on a last in 3D and 2D. These lines can then be used to create parts with thickness, and textures. Accessories, punches, holes and padding can also be added, as well as laces and soles.

The final design can be output to:

2D Design & Engineering - For 2D part creation, grading, cutting and specification

Viewer - This is a free package of visualization software from Mind and can be downloaded from Mind Technology website.

1.2 Before you begin

IMPORTANT NOTE: A valid product authorization file must be installed before MindCAD can be used.

If you'd like some sample data to use in **MindCAD Last Design & Engineering**:

1. From the **File** menu, select **Open** to load example projects.
 2. Select a file and press “Open” (or double click the file).
- All *instructions* in this manual are correct at the time of printing. Some *sections may not be up to date due to subsequent updates to MindCAD LAST Design & Engineering.*

1.3 How do I start Last Design & Engineering?

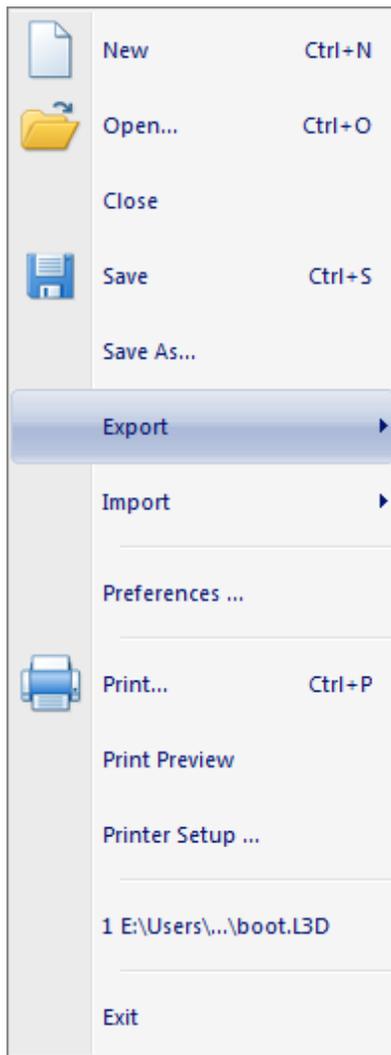
Double click **MindCAD Last Design & Engineering**'s icon  on your desktop. **MindCAD Last Design & Engineering** will start shortly after.

1.4 How do I use the Menus?

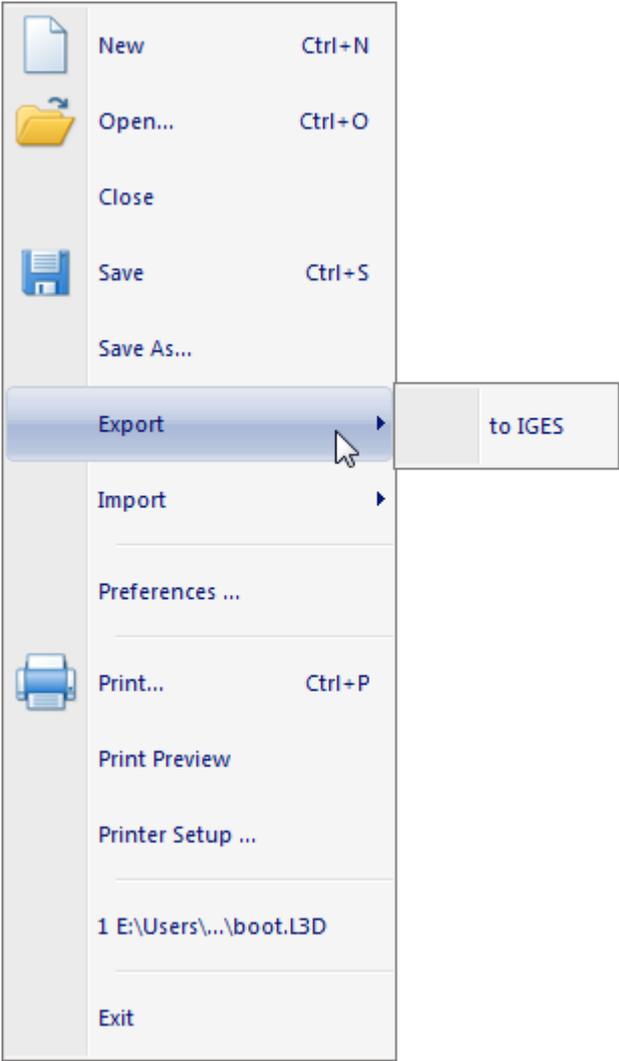


Almost everything in **MindCAD 3D Last Design & Engineering** can be accessed through the main menu. This is shown in the picture above and is displayed at the top of the **MindCAD 3D Last Design & Engineering** screen.

1. Select an item from the main menu. A drop down list is displayed, showing a list of sub-items, each corresponding to specific program action. Greyed out sub-items mean that a specific program action is not available (e.g. a paste action will not be available if no copy action was previously executed).

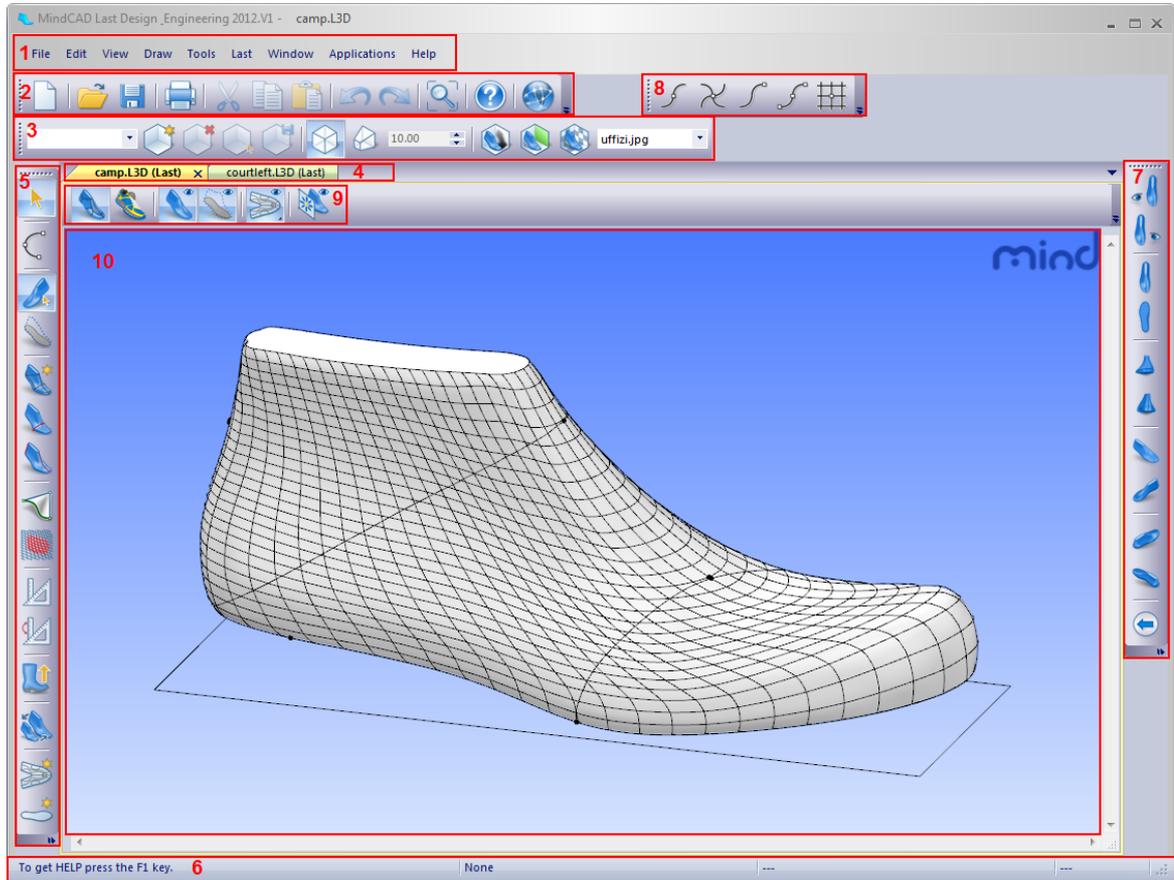


2. If you move your mouse to an item that has an arrow alongside, as highlighted above, an additional list of sub-items will appear.



1.5 Last Design & Engineering Layout

The image below shows **MindCAD 3D Last Design & Engineering's** interface.



1. **Menu Bar** - Most of **MindCAD 3D Last Design & Engineering's** functionality may be accessed through this menu.
2. **Main Bar** - This toolbar allows a user to open a new project or an existing one, save a project, print, cut, copy, paste, undo, redo, zoom to fit, go to help topics and open Mind's web site.
3. **View Settings** - This toolbar allows a user to control the project's visualization settings and save them.
4. **Tabs** - Allows a user to switch between sets of projects, as well as close any of them.
5. **Tools Bar** - This toolbar allows a user to select the draw lines tool, change between work on upper or bottom surfaces, access several last editing tools, measurement tools and last flattening interfaces.
6. **Status Bar** - This toolbar located at the bottom of the document window provides additional information about the project a user is creating.
7. **Views Bar** - This toolbar allows a user to change the last's point of view.
8. **Line Snap** - This toolbar allows a user to control 'snap' editing to the nearest line, nearest intersection, nearest end or nearest point.
9. **Layers Bar** - This toolbar have the options to let you turn on/off the layers of the project.
10. **Canvas Area** - Allows a user to visualize the last.

1.6 How do I manipulate the view contents?

There are three main interaction classes for direct manipulation of the 3D environment:

Scaling

Moving (Panning)

Rotating

1.6.1 Scaling

To scale the view, in both 3D and 2D windows,

1. Press the **Ctrl** key and hold down the middle mouse button. View contents will scale up/down as the mouse is moved up/down.
2. Releasing the middle mouse button will end the scaling process.

You can also scale by using the mouse scroll wheel.

1.6.2 Moving (Panning)

To move the view contents, in both 3D and 2D windows,

1. Press the **Shift** key and hold down the middle mouse button. As the cursor is moved, view contents will move with it.
2. Releasing the middle button will end the process.

1.6.3 Rotating

To rotate view contents, in the 3D window,

1. Hold down the middle mouse button. As the cursor is moved, view contents will rotate.
2. Releasing the middle button will end the process.

1.7 Getting Help with MindCAD 3D Last Design & Engineering

Help in **MindCAD 3D Last Design & Engineering** is available in the following ways:

Tool Tips

Status Bar Help

Standard on-line Help

1.7.1 Tool Tips

Placing the cursor over a button will display a brief description of the function of the button.

1.7.2 Status Bar Help

Placing the cursor over a button will display information about the button in the status bar.

1.7.3 Standard on-line Help

1. Select **Help** from the **MindCAD 3D Last Design & Engineering's** menu.
2. Select **Contents and Index** and then the item you require. There's a separate section for each option on the main toolbar.

1.8 Whats New

1.8.1 2016.V1

MindCAD 3D LAST Design & Engineering 2016.V1 release offers the following new features and enhancements:

Usability and Productivity

- **Additional reference elements on flattening**

Is now possible to draw lines on the 3D insole and on the resulting flattened insole.

- **Auto apply on Edit Surface**

Auto apply option is now available on Edit Surface tool.

- **Last snapping to 3D stencil**

Enhanced modelling tool supporting last adjustment/ snapping to 3D stencil.

- **Faster activation of top level surfaces**

Top level surfaces are now automatically activated. Just press the <Shift> key and left-click over the required surface

- **New section template editor**

New editor to save and apply section configurations templates.

- **Edit Last Sections revised interface**

Distance from heel/toe" fields are now editable.

- **Revised labels drawing**

Drawing of axis labels has changed for contrasting circles. Cancel and Finish actions were also included.

- **New heel symmetry tool**

New modelling tools for heel symmetry adjustment.

Interoperability

- **Usage of 3D splines over surface**

For enhanced interoperability, extended usage of 3D splines over surface.

- **Skybox support**

Environment mapping and IBL are now unified.

- **Last Templates export**

Export toe and heel templates.

Flattening Features

- **New Flattenings Manager**

- **New distortion color map**

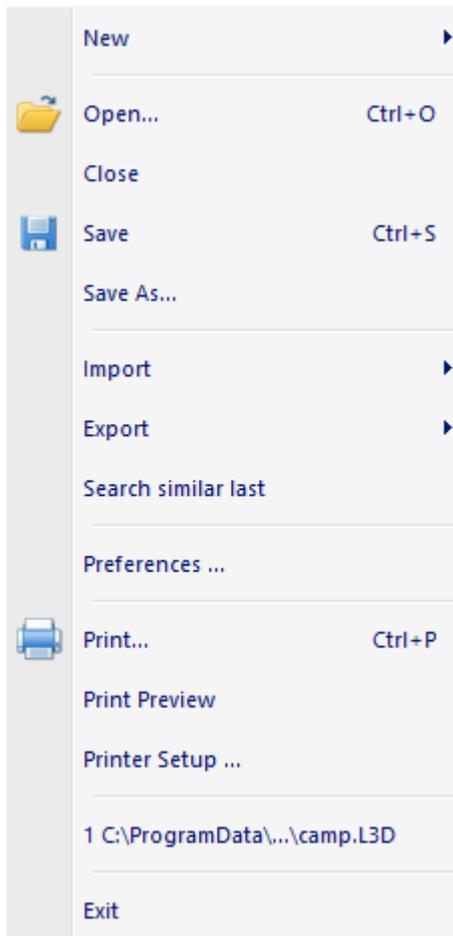
Distortion map displaying the distortion regions between 2D flattened results and 3D representation.

Part



2 File Overview

This menu lets you create new files, open existing files, close files and save files. It also lets export and import data, set your preferences and print.



2.1 File - New

This option allows to open a external file, create a new last from template or from merge.

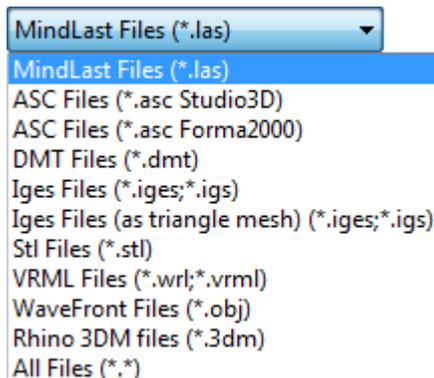


2.1.1 File - New - From external format

This is the same as clicking the **New Last**  button in the **Main** toolbar or pressing **CTRL+N**.



Use this option to select a last to import.



You should select the correct file format to be able to browse for your original files. The most common formats are IGES and STL.

When a last has been used to create a design and is saved, all the information is saved into a project.

2.1.1.1 File - New - LAS

Open lasts in the **LAS** file format (Import **Last Design & Engineering** old format files).

2.1.1.2 File - New - ASC Files (Studio 3D)

Open lasts in the **ASC** file format. (**3DStudio** Files). It launches the import wizard after loading, please refer to Import Wizard for details.

2.1.1.3 File - New - ASC Files (Forma 2000)

Open lasts in the **ASC** file format (**Forma 2000** Files). It launches the import wizard after loading, please refer to Import Wizard for details.

2.1.1.4 File - New - DMT

Open lasts in the **DMT** file format (**Delcam Machining Triangles** Files). It launches the import wizard after loading, please refer to Import Wizard for details.

2.1.1.5 File - New - IGES

Open lasts in the **IGES** file format (**Initial Graphics Exchange Specification** Files). If the parametric topology of the file is compliant the last will be seamlessly imported. If not, try importing the file by using the "File - New - IGES as triangle mesh" option.

2.1.1.6 File - New - STL

Open lasts in the **STL** file format (**Stereolithography** Files). It launches the import wizard after loading, please refer to Import Wizard for details.

2.1.1.7 File - New - VRML

Open lasts in the **VRML** file format. It launches the import wizard after loading, please refer to Import Wizard for details.

2.1.1.8 File - New - OBJ

Open lasts in the **OBJ** file format (**WaveFront** Files). It launches the import wizard after loading, please refer to Import Wizard for details.

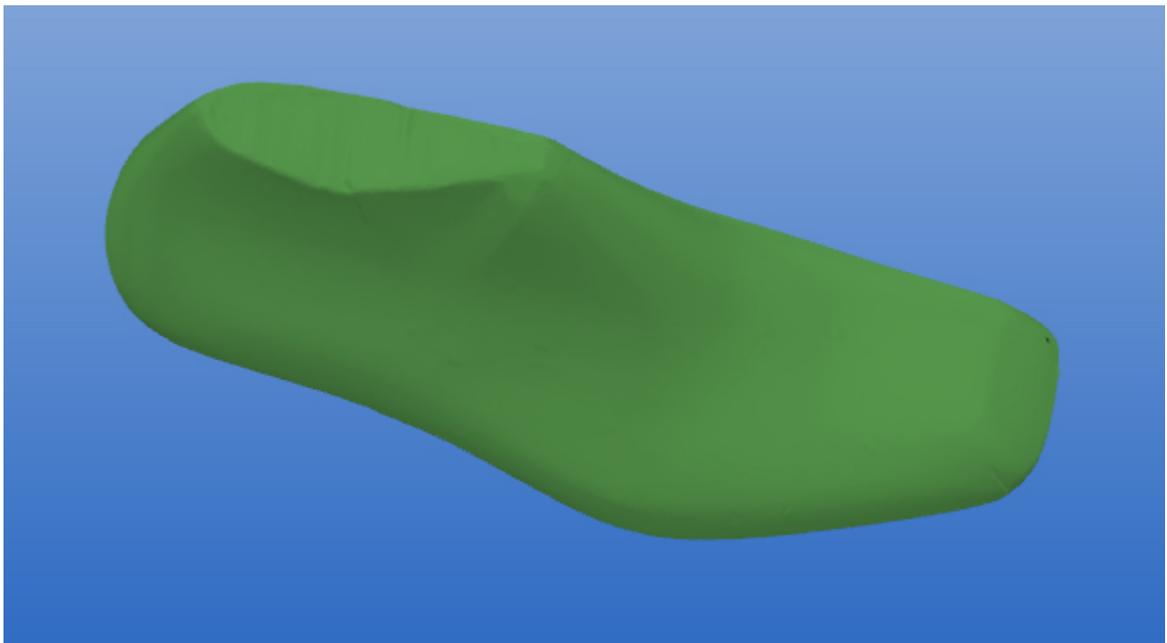
2.1.1.9 File - New - 3DM

Open lasts in the **3DM** file format (**Rhino** Files). It launches the import wizard after loading, please refer to Import Wizard for details.

2.1.1.10 Import Wizard

Last's that don't comply with the expected topology can still be imported using a wizard.

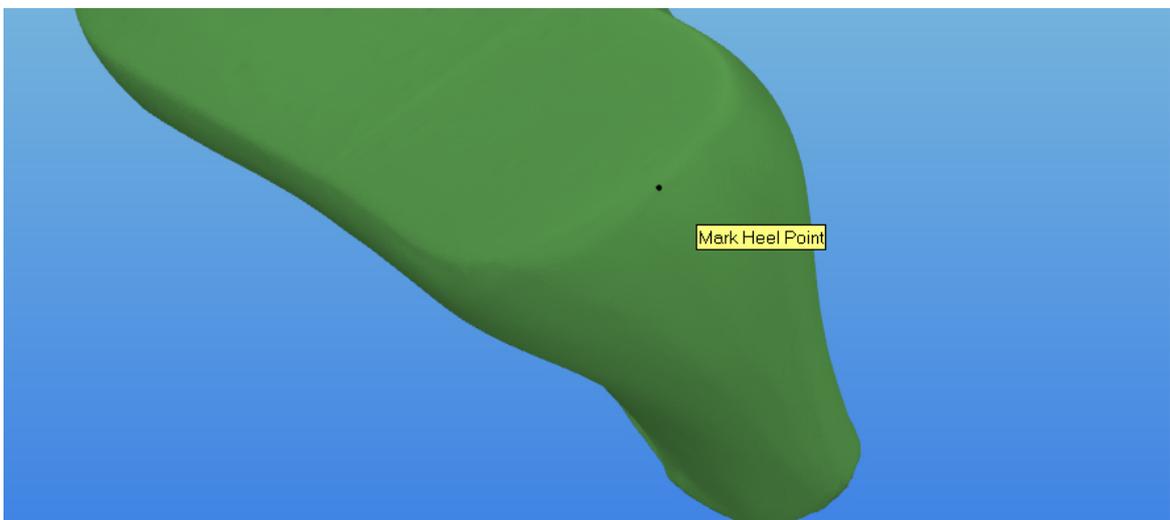
After loading the file, the last single surface is displayed and sequence of operations is needed for successful import



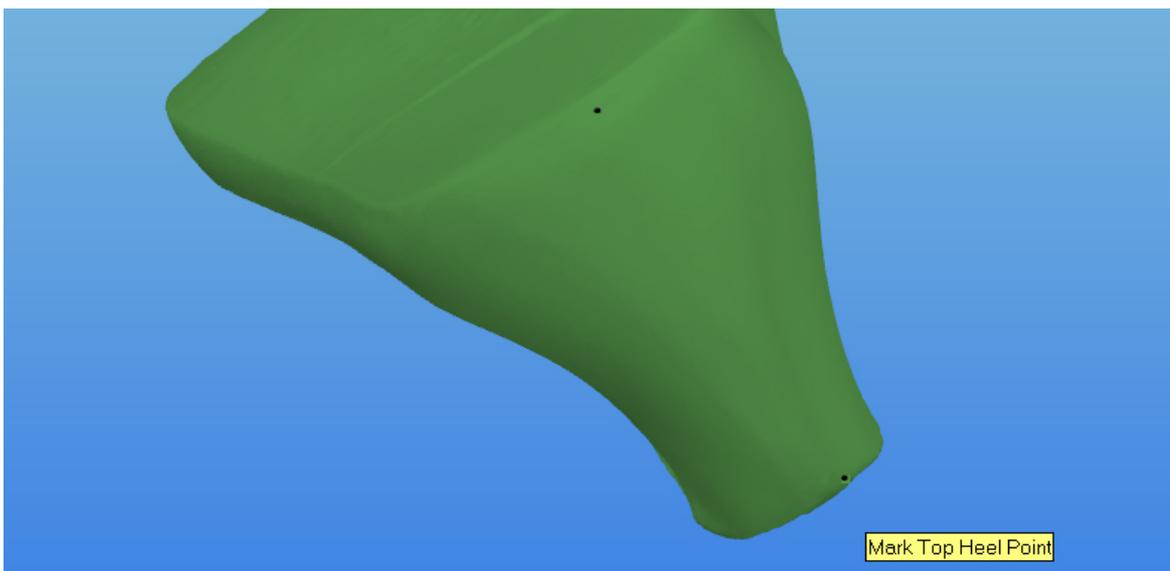
1. mark Toe Point (in the middle of the last shape on the toe)



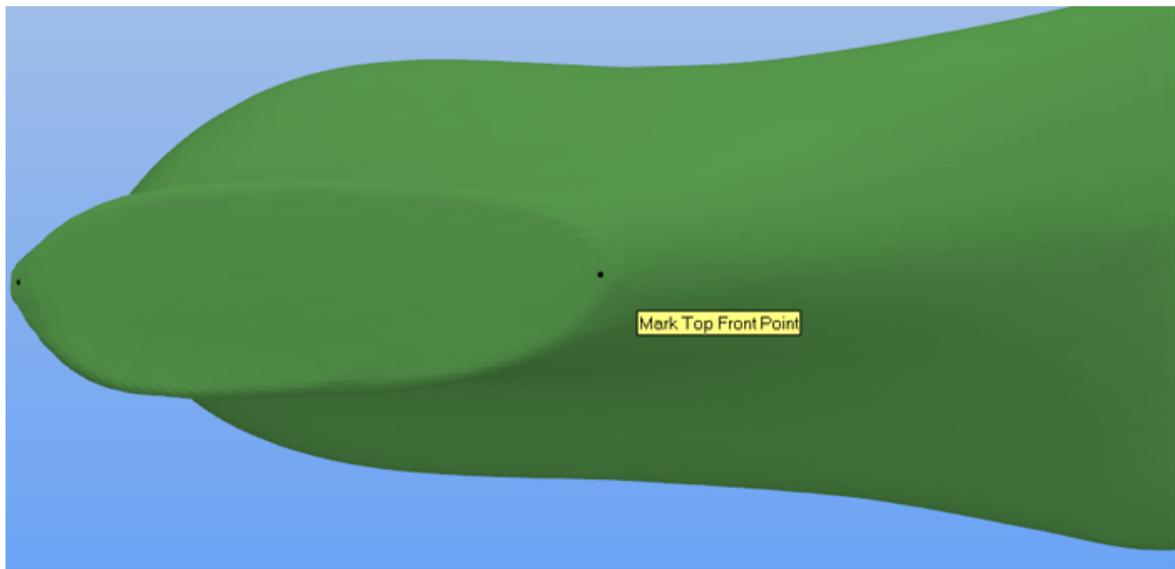
2. mark Heel Point (in the middle of the last shape on the heel)



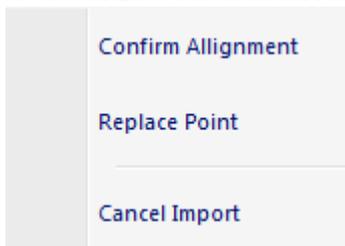
3. mark Top Heel Point (in the middle of the last shape on the top of the heel)



4. mark Top Front Point (in the middle of the last shape on the top)



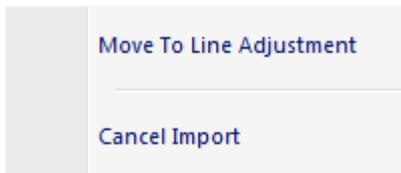
5. Check Last Orientation. After Confirm alignment.



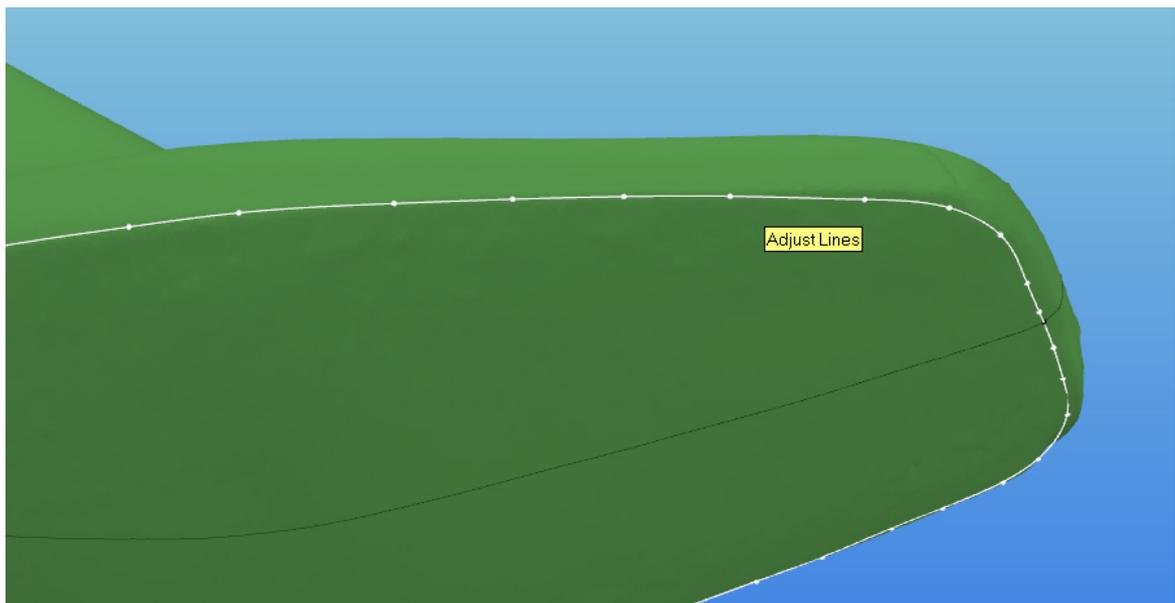
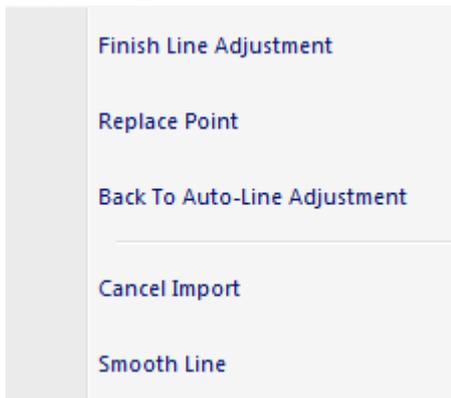
6. Adjust Feather line



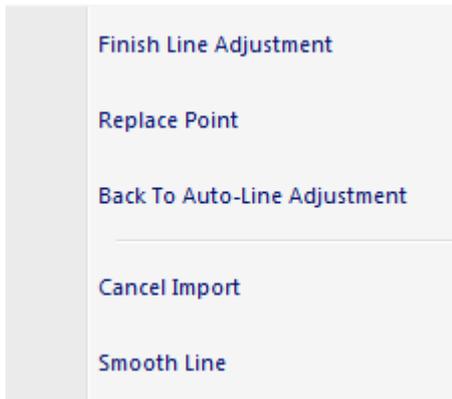
7. Right click, Move to line adjustment (or Cancel the Last importation)



8. Its possible to adjust the line easily, to do that press the right button of the mouse and select Smooth Line.



9. Do a right click, select Finish Line Adjustment (it's also possible to go back to auto-line adjust, replace a point or cancel importation)



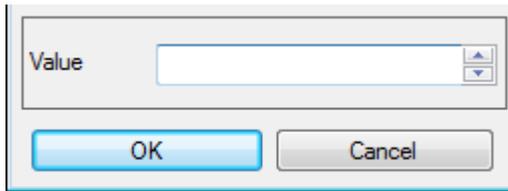
10. adjust separation (move the red points to define front and rear distribution areas for new mesh lines)



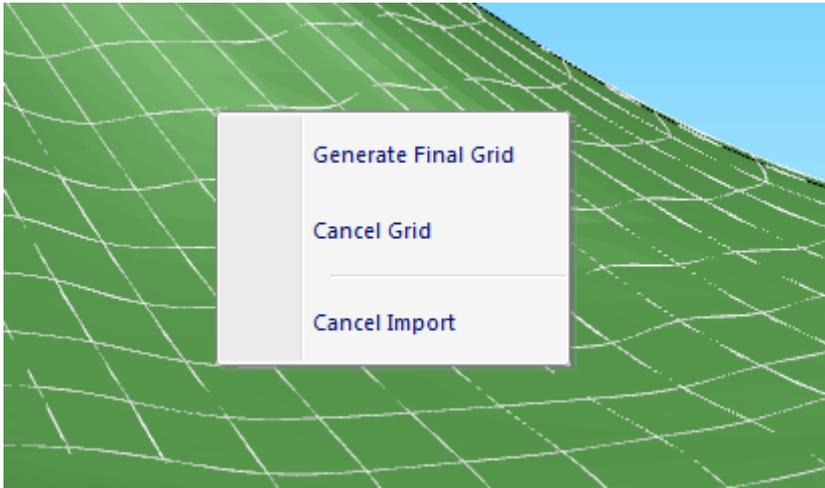
11. generate mesh (right click and select **Generate Fast Grid**).



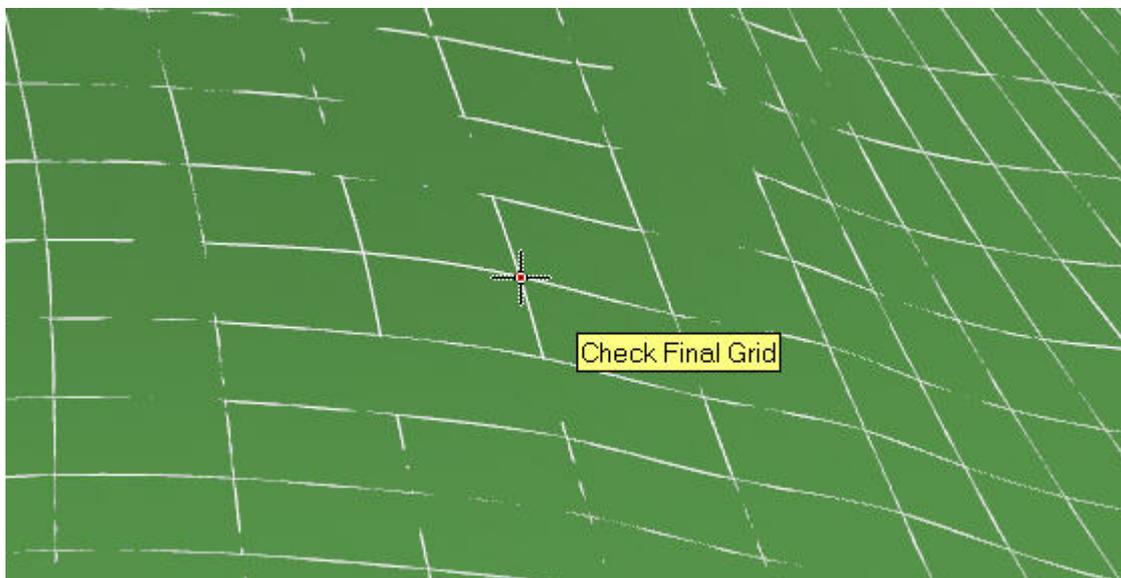
12. input number of horizontal and vertical lines for mesh generation. The number of assigned lines must change according to last complexity (ie. 30 horizontal and 30 vertical are typical reference values).



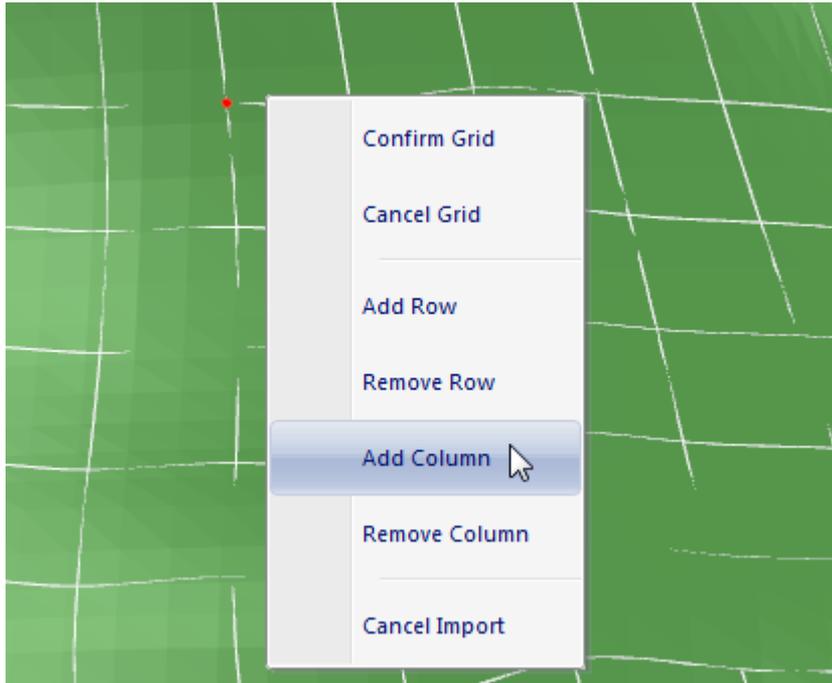
13. using right click, the grid could be confirmed or discarded. If discarded then the process returns to point 7



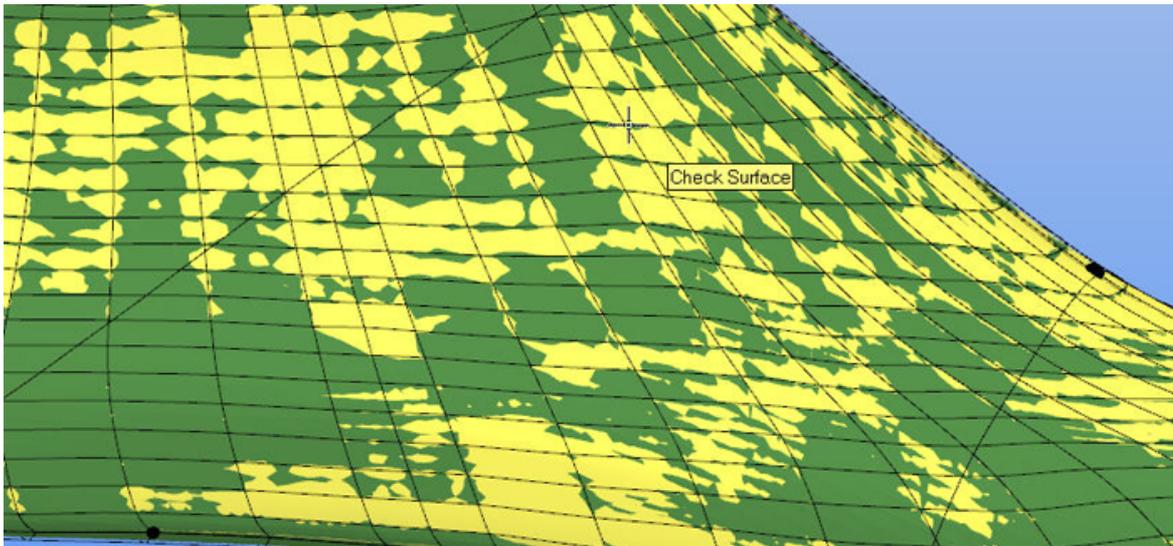
14. In this step, fine adjustment of grid points is possible by simply dragging the hover red point to the desired location.



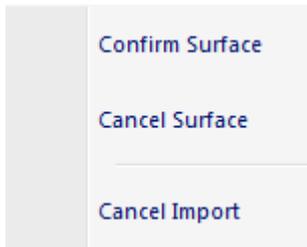
Doing a right click and selecting, on the context menu, the options to **Add/Remove Row/Column**, will insert a new grid line on the red point. To proceed, do a right click and choose **Confirm Grid**. Going back in the import process is possible by choosing **Cancel Grid**.



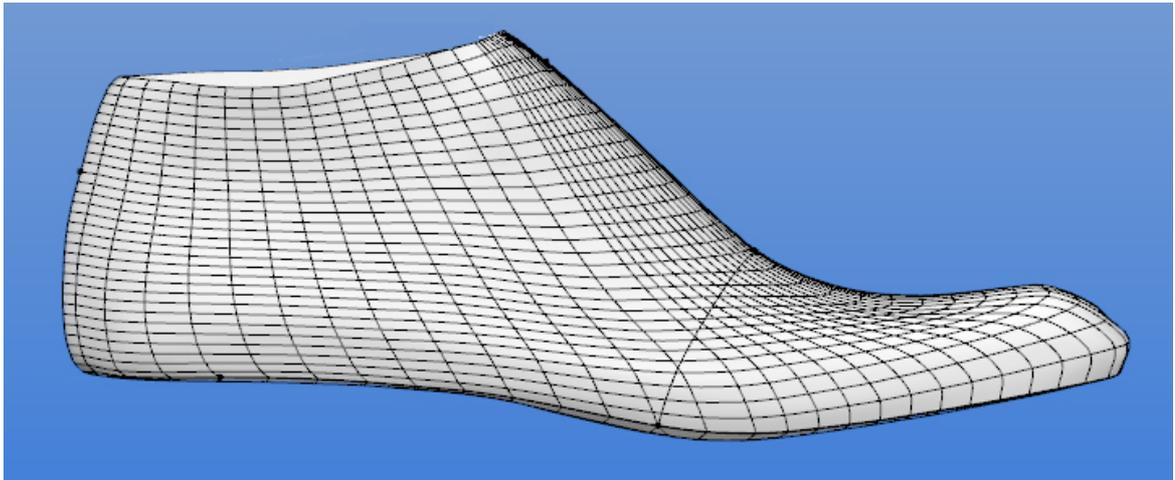
15. In this step, it's possible to check the difference between the original surface and the imported surface.



To proceed, do a right click and choose **Confirm Surface**. Going back in the import process is possible by choosing **Cancel Surface**.

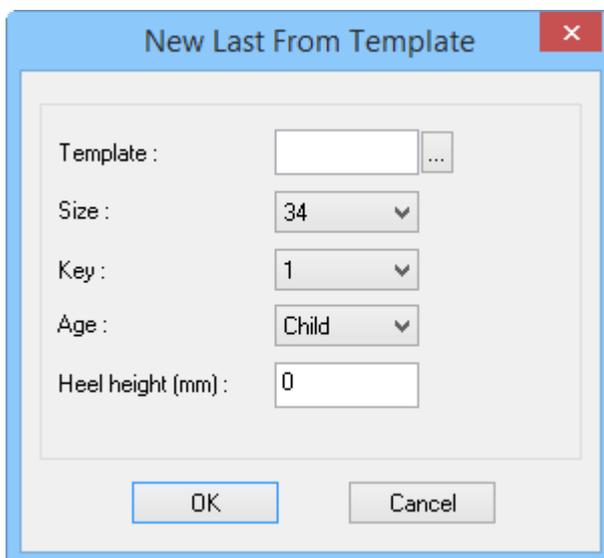


16. if confirmed, a last with the generated mesh is created.



2.1.2 File - New - From template

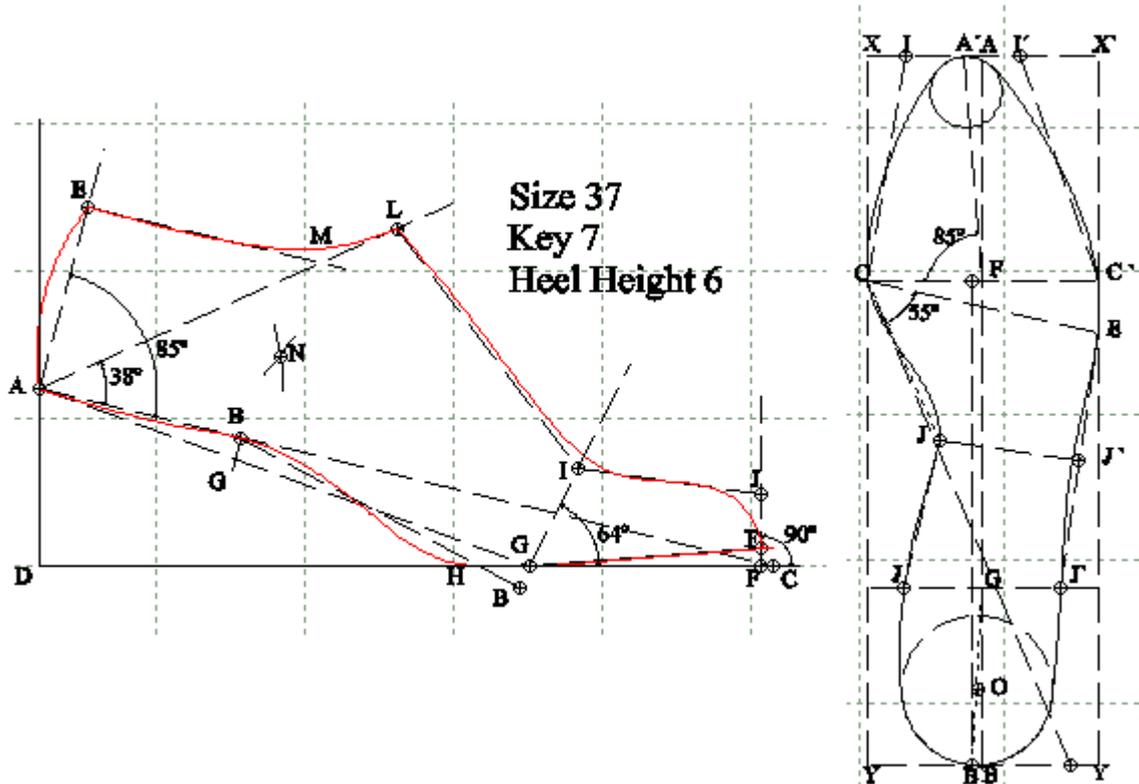
This allows to create a new last from a template last.



Select the **template file**, select the **new size**, insert the **Key** to be used; the **Age**, between Child, Teen or Adult and insert the **Heel Height** in mm.

Press **Ok** and the new Last will be generated.

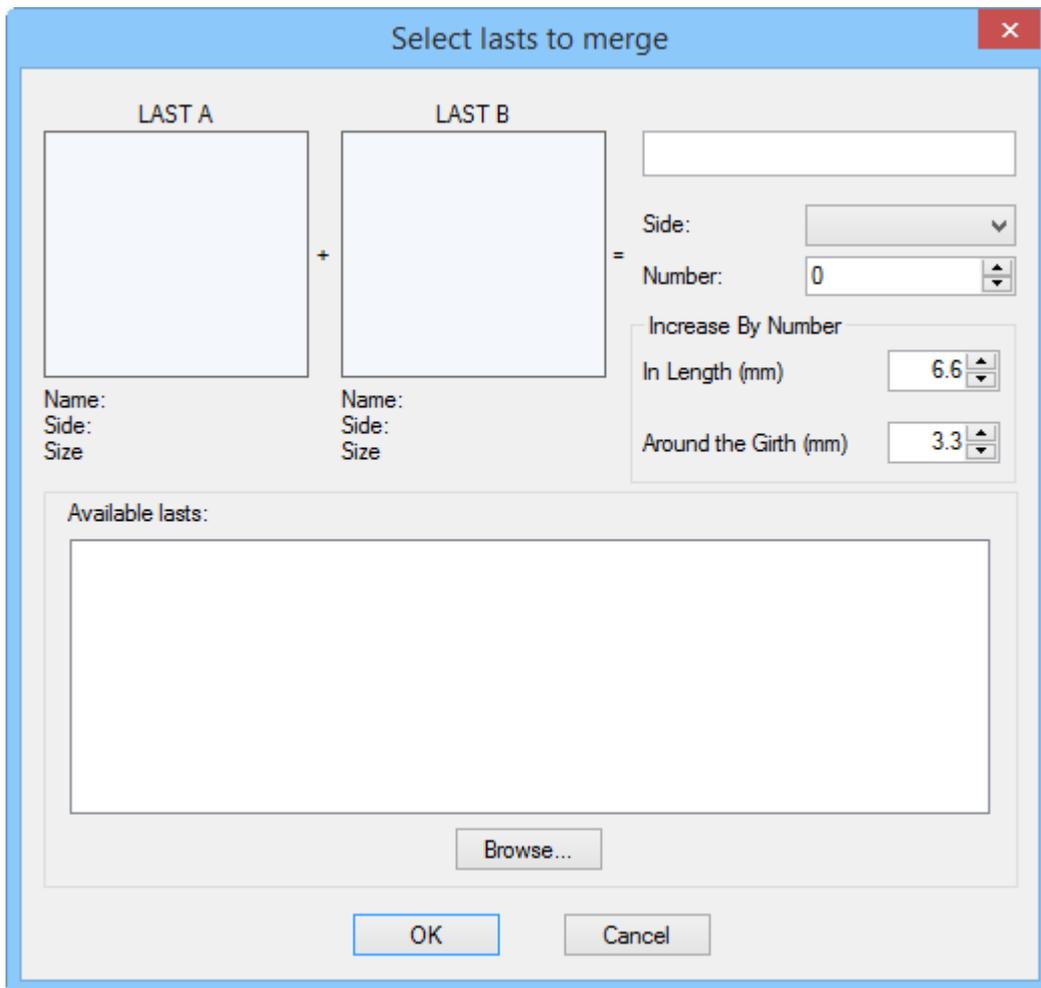
You can see an example bellow, a geometric construction, based in size 37, key 7 and heel height 6.



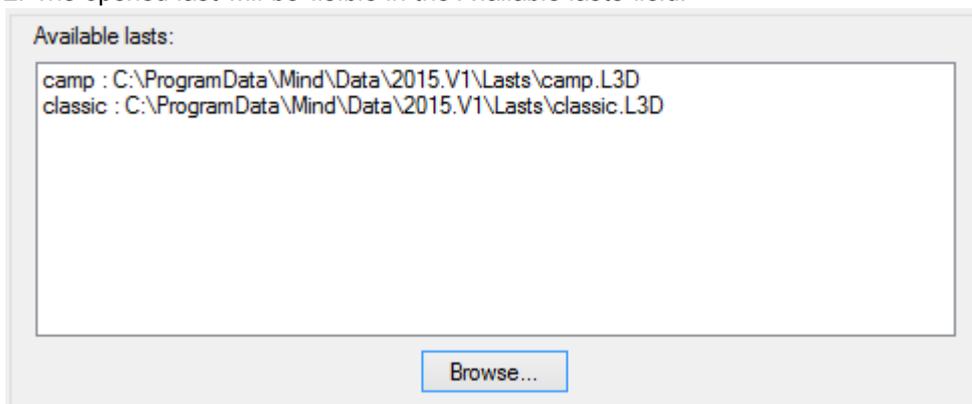
Note: The above diagram does not depict an actual Last Design & Engineering interface.

2.1.3 File - New - From merging

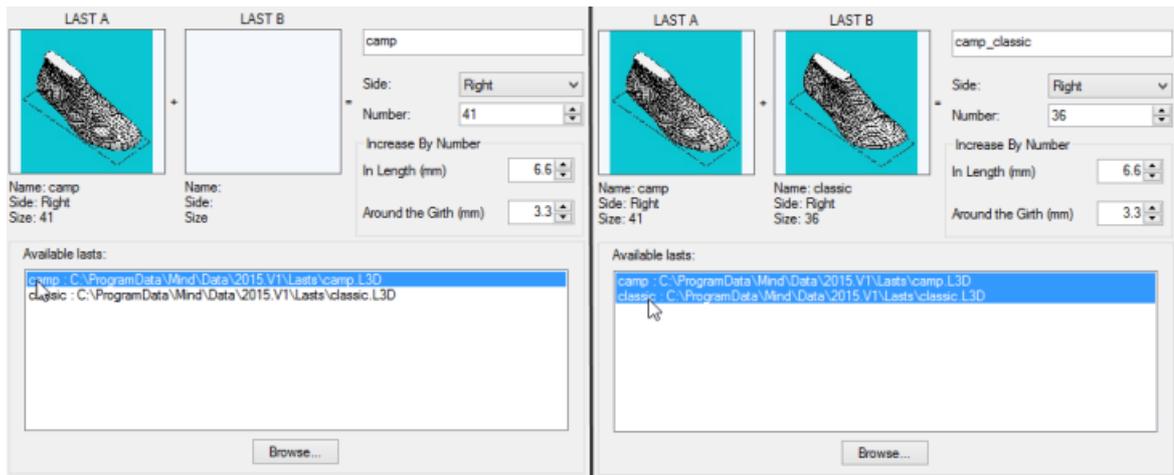
This option allows to merge two different last's.



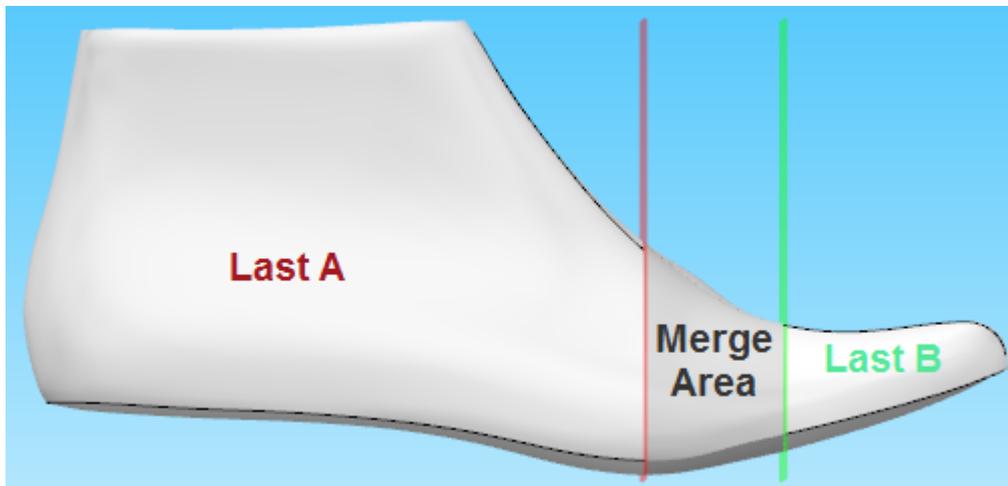
1. Press Browse to open the require Last's, from PDM or from file.
2. The opened last will be visible in the Available lasts field.



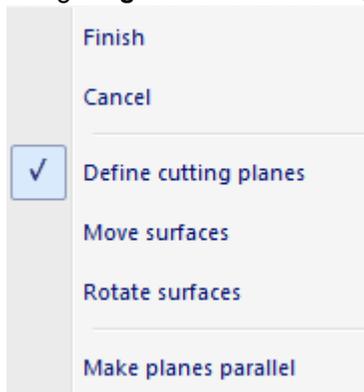
3. Select the Last A and B from the available lasts, by clicking over the last name.



4. Select the New last **Name**, **Side**, **Number**, Increase By Number in length and around the girth in mm
5. Press **Ok** and the new last will be generated.



Doing a **right click** the following context menu will appear:



Allowing to edit the last's merge finish or cancel de merge.

2.1.3.1 Define cutting planes

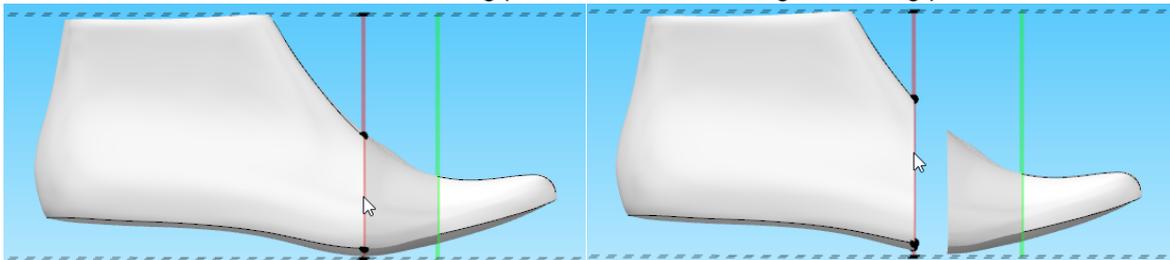
Rotate the last for a better plan. Now you can change the cutting planes.

To edit the Last cutting planes; Its possible to move the plane parallel or move just one of the plane ends.

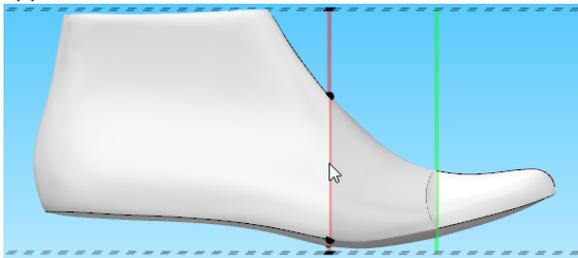
Note: The cutting plane will always move over the original last lines. Red plane over the Last A lines and the Green plan over the Last B lines.

To move the plan parallel:

1 - Move the mouse cursor over the cutting plane 2 - Click and drag the cutting plane

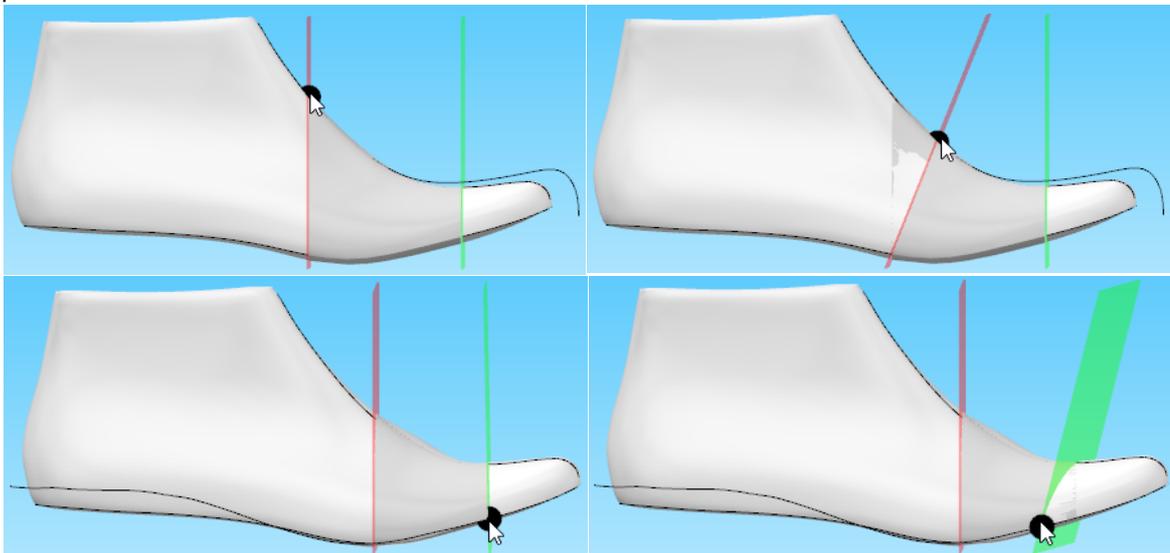


3 - Release the line and the new merging area appears

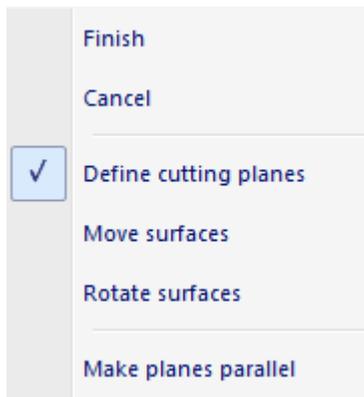


To move one of the plane ends:

1 - Move the mouse cursor over one of the cutting 2 - Click and drag the cutting plane end plane ends



Move the mouse cursor over one of the cutting planes and do a **right click** the following context menu will appear:

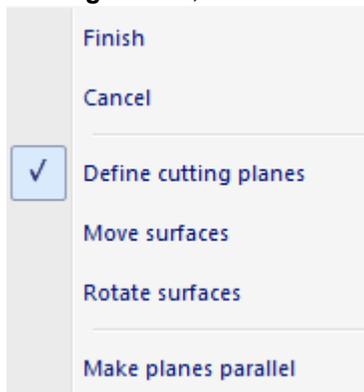


To make the planes parallel again select the option **Make planes parallel**.



2.1.3.2 Move surfaces

Do a **right click**, and select **Move surfaces** from the contextual menu.

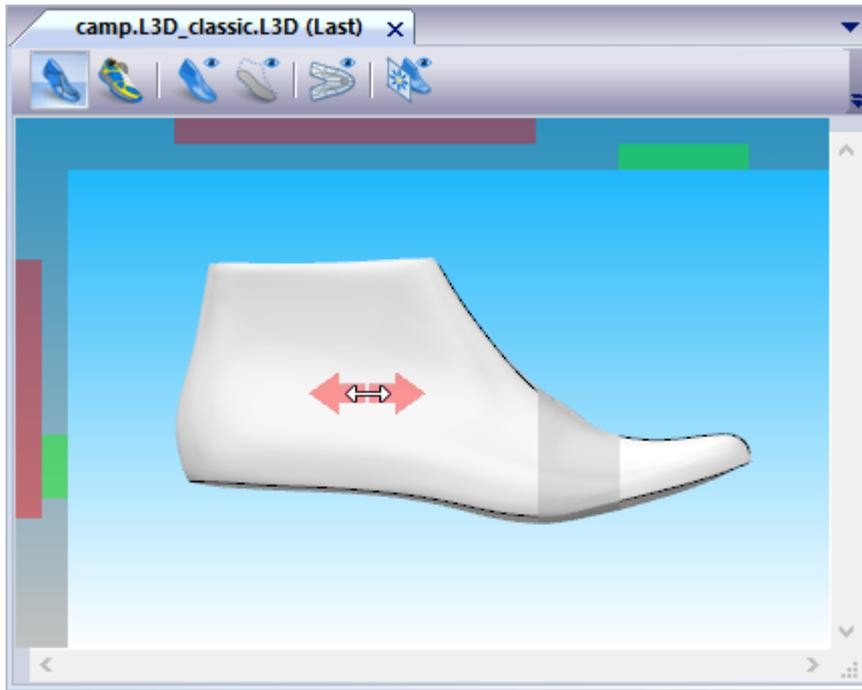


It's possible to move the surfaces in an x,y axis (right/left and top/bottom).

Note: The movement is related to the last point of view.

To move the surface, place the mouse cursor over the surface, click and drag to the desired direction.

Press SHIFT to change the direction.

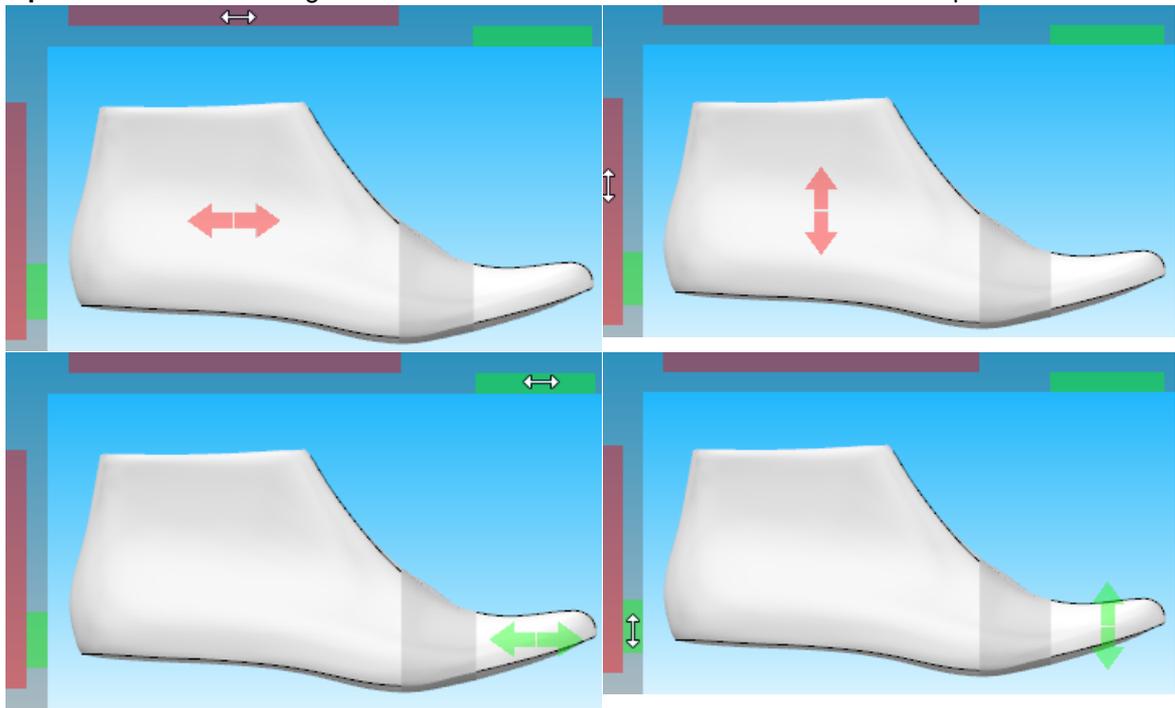


Lateral View

Or over the surface handles, shown in the top or lateral of the work area.

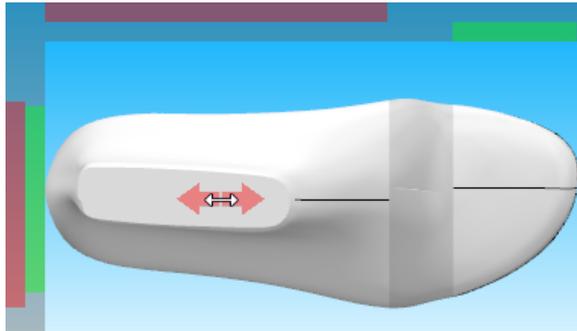
top handle - movement right to left

lateral handle - movement top to bottom.

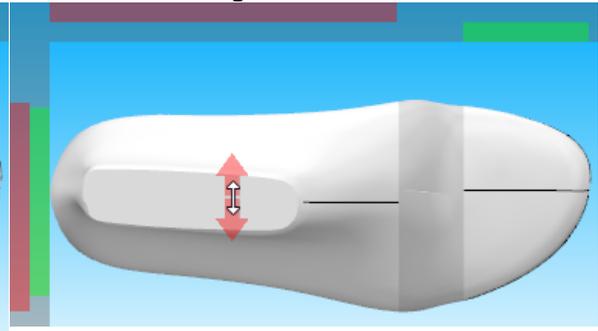


Top View

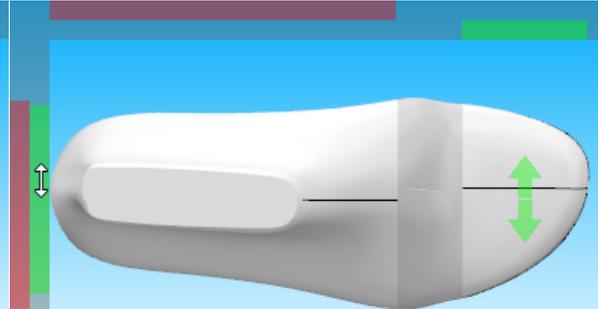
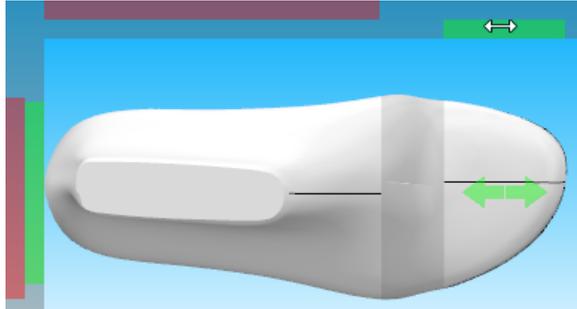
Place the mouse cursor over the surface.



Press Shift to change the movement direction.

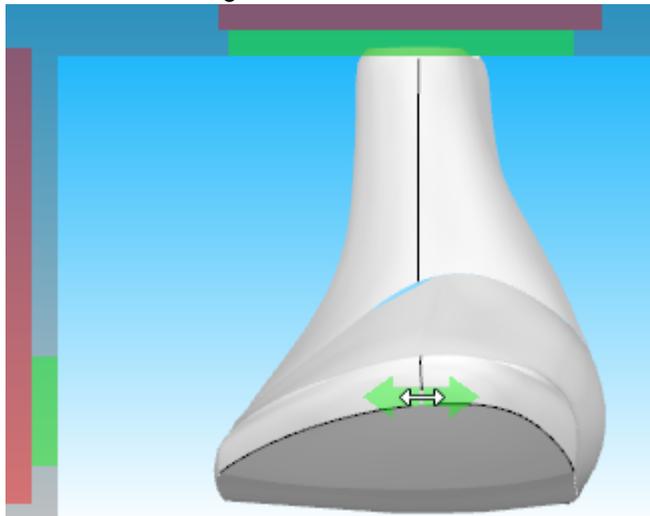


Or use the handles to move the surface



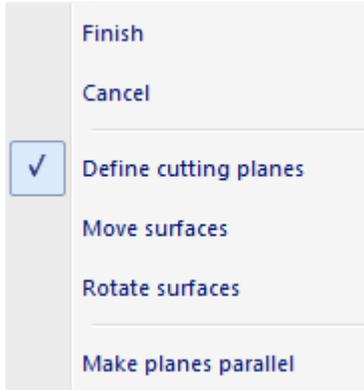
Front View

Press shift to change the movement direction or use the handles.



2.1.3.3 Rotate surfaces

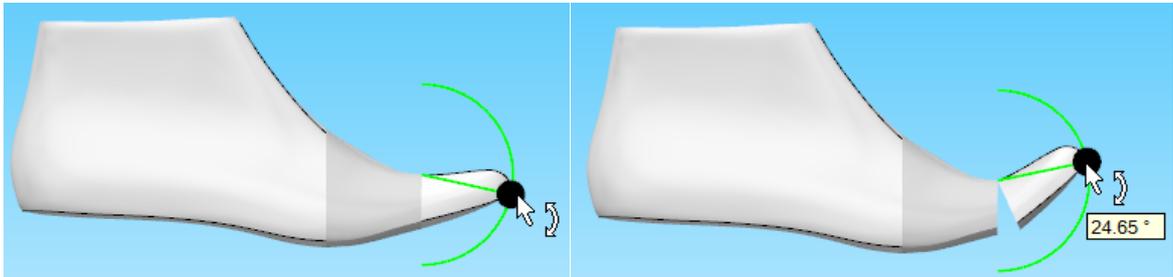
Do a **right click**, and select **Rotate surfaces** from the contextual menu.



There are two rotations possible, right to left or top to bottom. Depending in the last point of view.

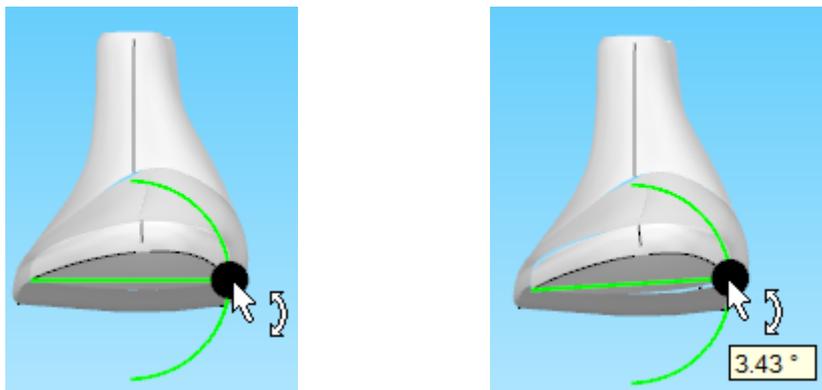
Medial or lateral point of view

Click and drag the dialer to the desired rotation. A feedback of the angle is provided.



Front View

Click and drag the dialer to the desired rotation. A feedback of the angle is provided.



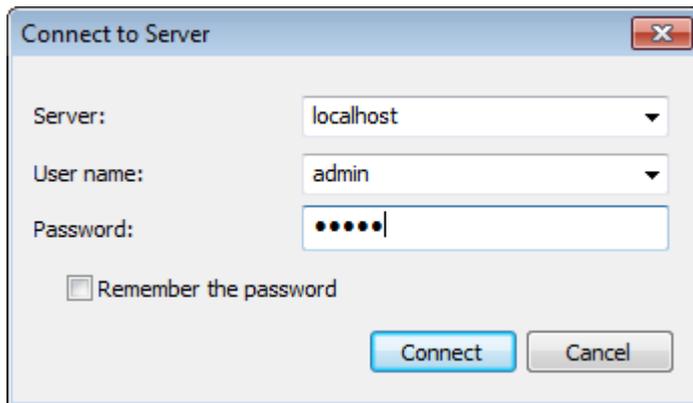
2.2 File - Open

This is the same as clicking the **Open Last**  button in the **Main** toolbar or pressing **Ctrl+O**.

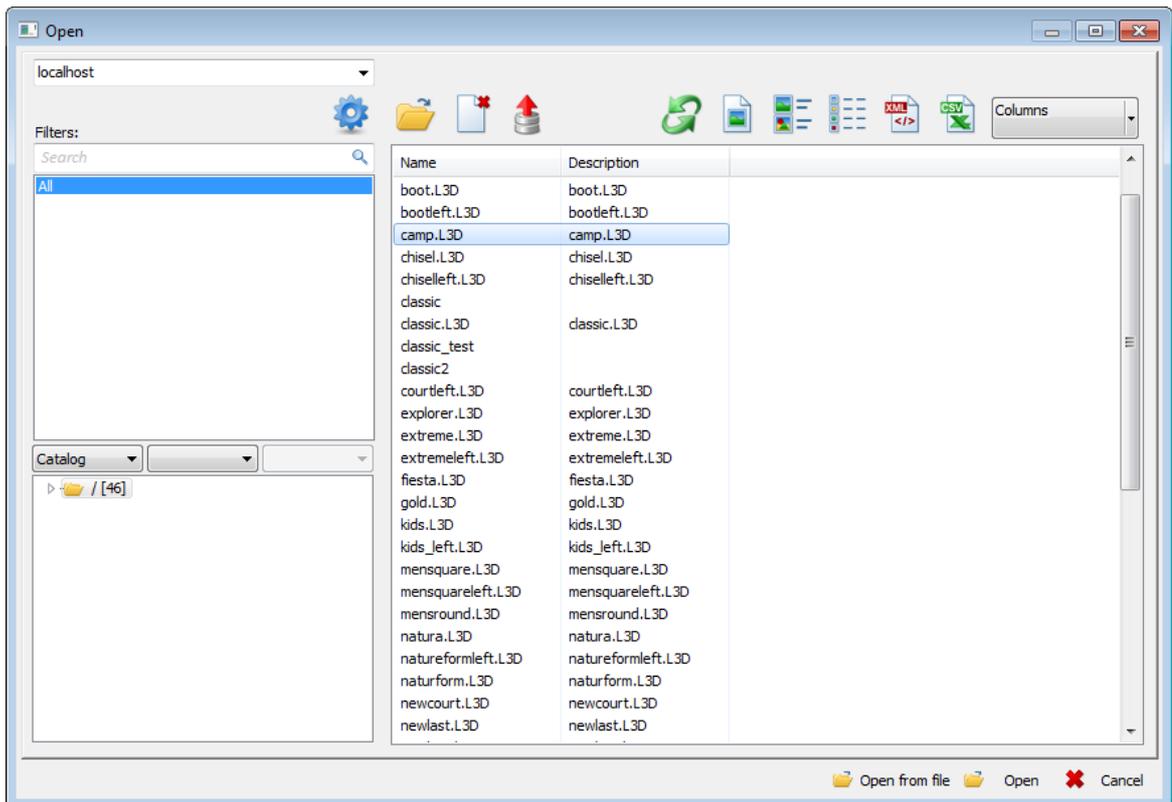


Use this option to open any of your lasts from a central **database**.

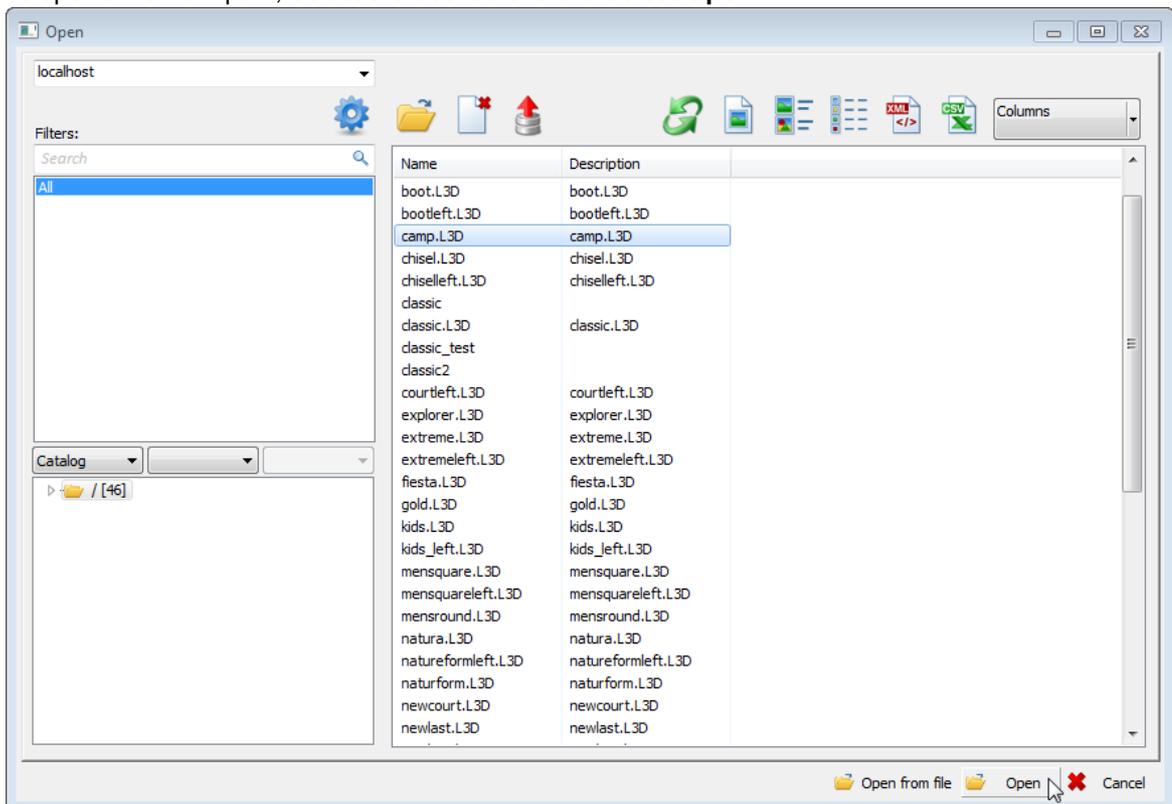
Insert the server, user and password and press Ok.

A dialog box titled "Connect to Server" with a close button (X) in the top right corner. It contains three input fields: "Server:" with a dropdown menu showing "localhost", "User name:" with a dropdown menu showing "admin", and "Password:" with a text field containing six dots. Below the password field is a checkbox labeled "Remember the password" which is unchecked. At the bottom are two buttons: "Connect" and "Cancel".

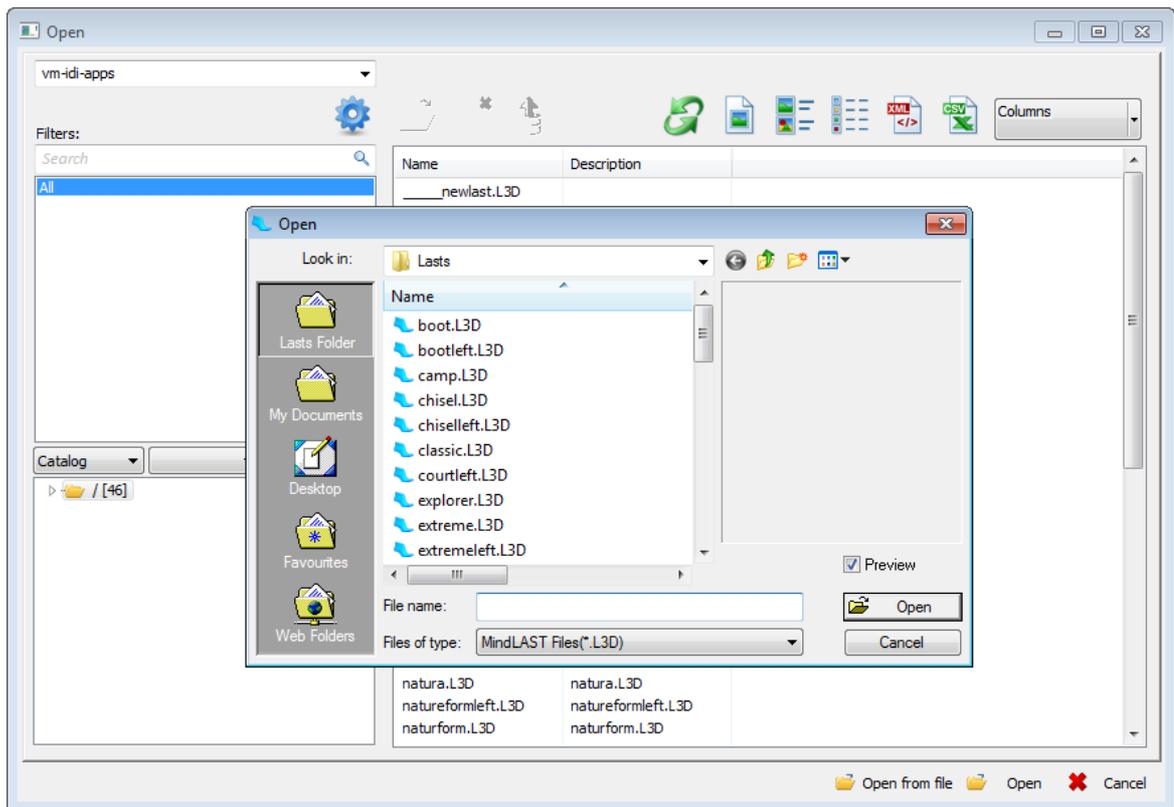
The follow window will appear.



To open a file from pdm, select the desired one and select **Open**.

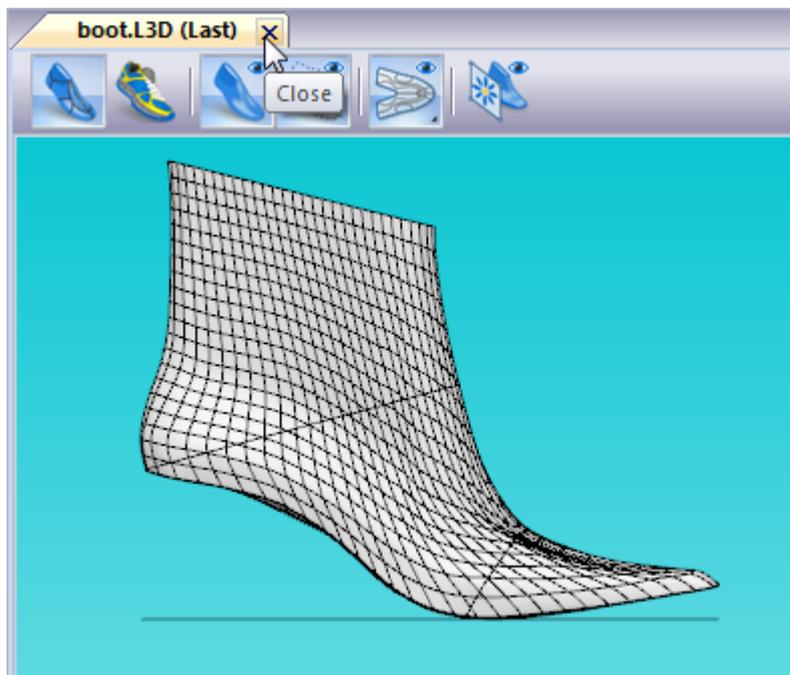


To open a stand alone file, select the **Open from file** button and select the file to open.



2.3 File - Close

This is the same as clicking the X button in the corner of any window.



Use this option to close the current last.

2.4 File - Save



This is the same as clicking the **Save Last** button in the **Main** toolbar or pressing **Ctrl+S**.

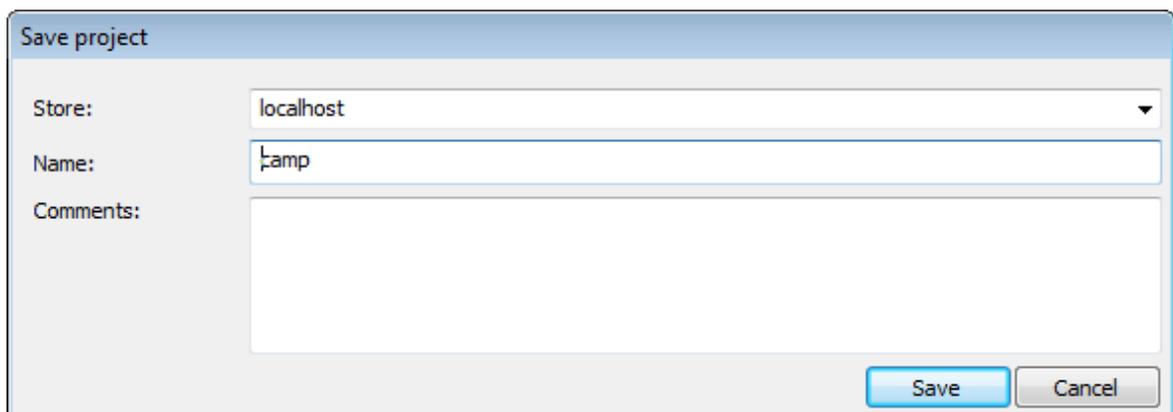


Use this option to save the current last with the current name to a central **database**. (*L3D Format*)

2.5 File - Save as

Use this option to save the current last with a new name (*L3D Format*).

This option allows you to **save** the current project in a different **store** and with a different **name**.

A dialog box titled "Save project" with a light blue header. It contains three fields: "Store:" with a dropdown menu showing "localhost", "Name:" with a text input field containing "lamp", and "Comments:" with a large empty text area. At the bottom right, there are two buttons: "Save" and "Cancel".

2.6 File - Import

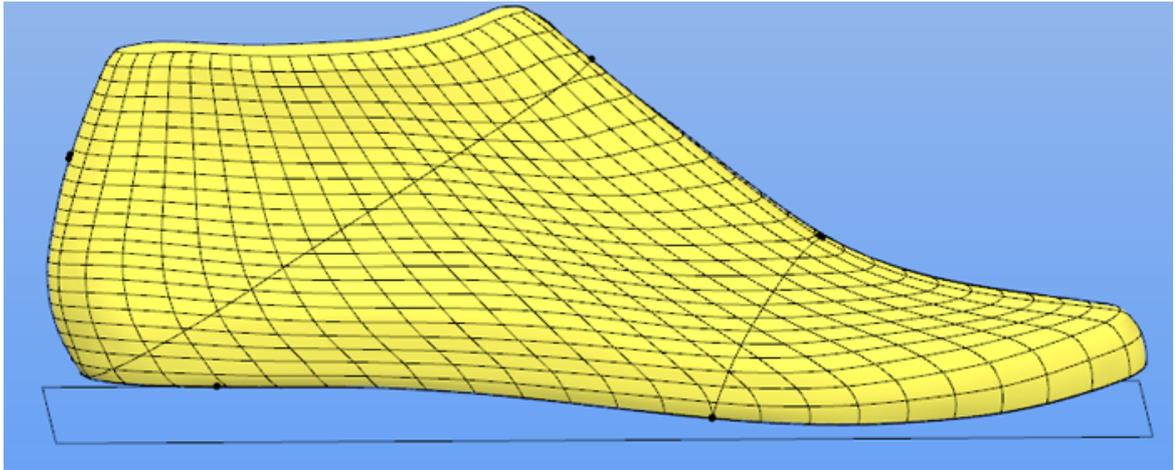
The import menu has different options enabled, depending on which window is active.

from Generic 3D

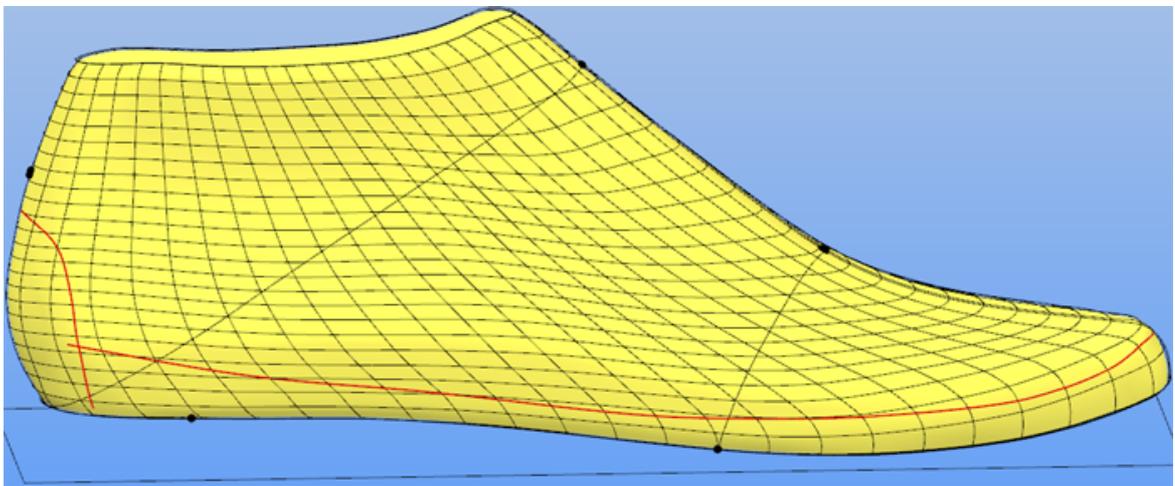
2.6.1 File - Import - from Generic 3D

Use this option to import curve geometry from an **IGES** file.

1. Open file (**IGS, IGES..**)

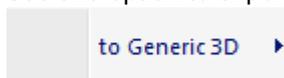


2. Import *Iges* file (curves)



2.7 File - Export

Use this option to export the current last to other software packages.



2.7.1 File - Export - to Generic 3D

This option let you export the last to a Generic 3D format.

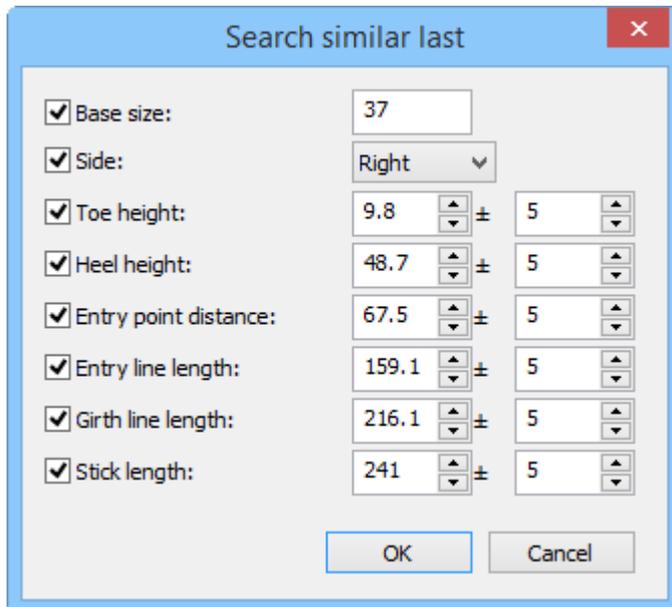
Select between *IGES* or *Waverofront (OBJ)* format.

to IGES

to Wavefront (OBJ)

2.8 Search similar last

Use a search engine to find lasts similar to the current one.
The search is made in the current loaded data base.

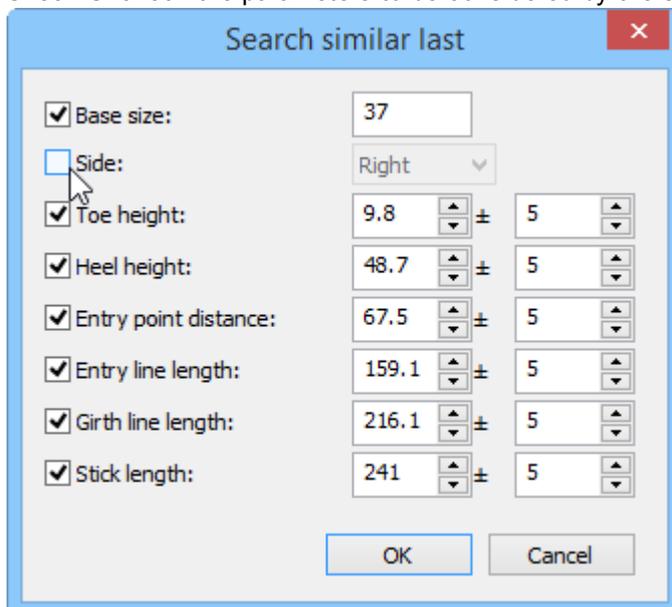


The dialog box titled "Search similar last" contains the following parameters:

Parameter	Value	Tolerance
<input checked="" type="checkbox"/> Base size:	37	
<input checked="" type="checkbox"/> Side:	Right	
<input checked="" type="checkbox"/> Toe height:	9.8	± 5
<input checked="" type="checkbox"/> Heel height:	48.7	± 5
<input checked="" type="checkbox"/> Entry point distance:	67.5	± 5
<input checked="" type="checkbox"/> Entry line length:	159.1	± 5
<input checked="" type="checkbox"/> Girth line length:	216.1	± 5
<input checked="" type="checkbox"/> Stick length:	241	± 5

Buttons: OK, Cancel

Check/Uncheck the parameters to be considered by the search engine.



The dialog box titled "Search similar last" contains the following parameters:

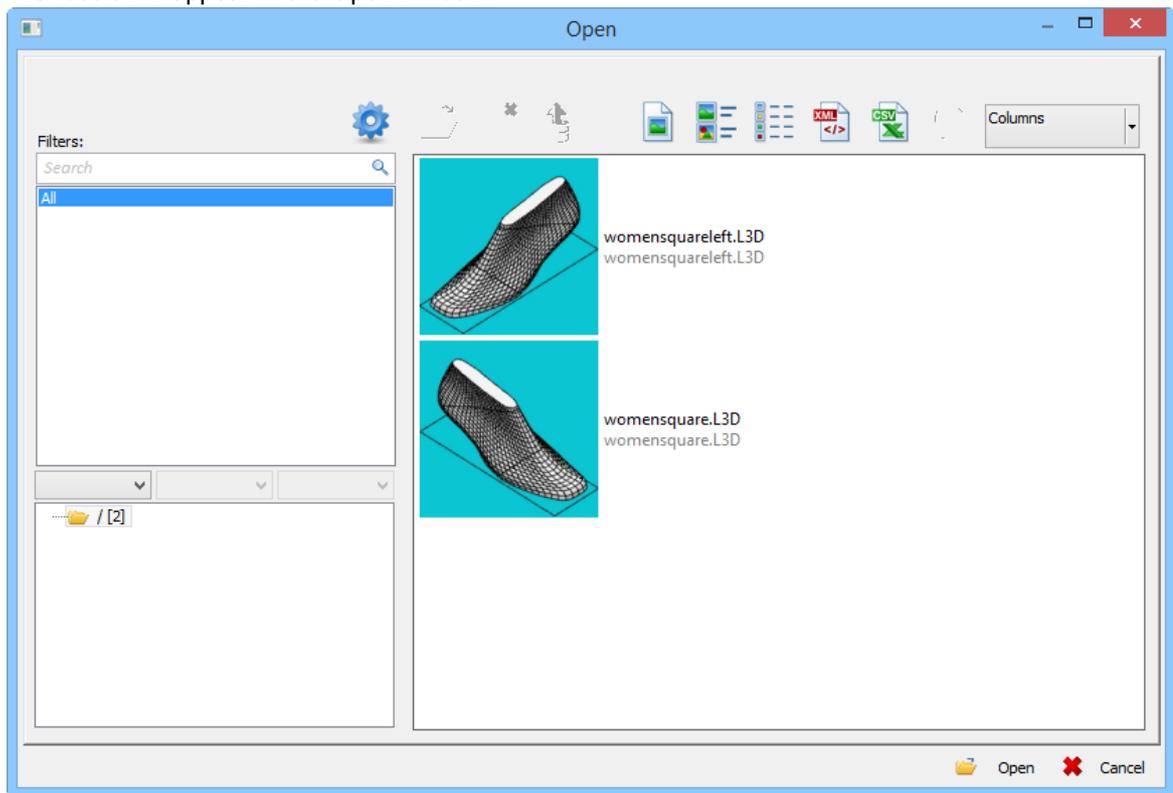
Parameter	Value	Tolerance
<input checked="" type="checkbox"/> Base size:	37	
<input type="checkbox"/> Side:	Right	
<input checked="" type="checkbox"/> Toe height:	9.8	± 5
<input checked="" type="checkbox"/> Heel height:	48.7	± 5
<input checked="" type="checkbox"/> Entry point distance:	67.5	± 5
<input checked="" type="checkbox"/> Entry line length:	159.1	± 5
<input checked="" type="checkbox"/> Girth line length:	216.1	± 5
<input checked="" type="checkbox"/> Stick length:	241	± 5

Buttons: OK, Cancel

Each parameter is configurable.

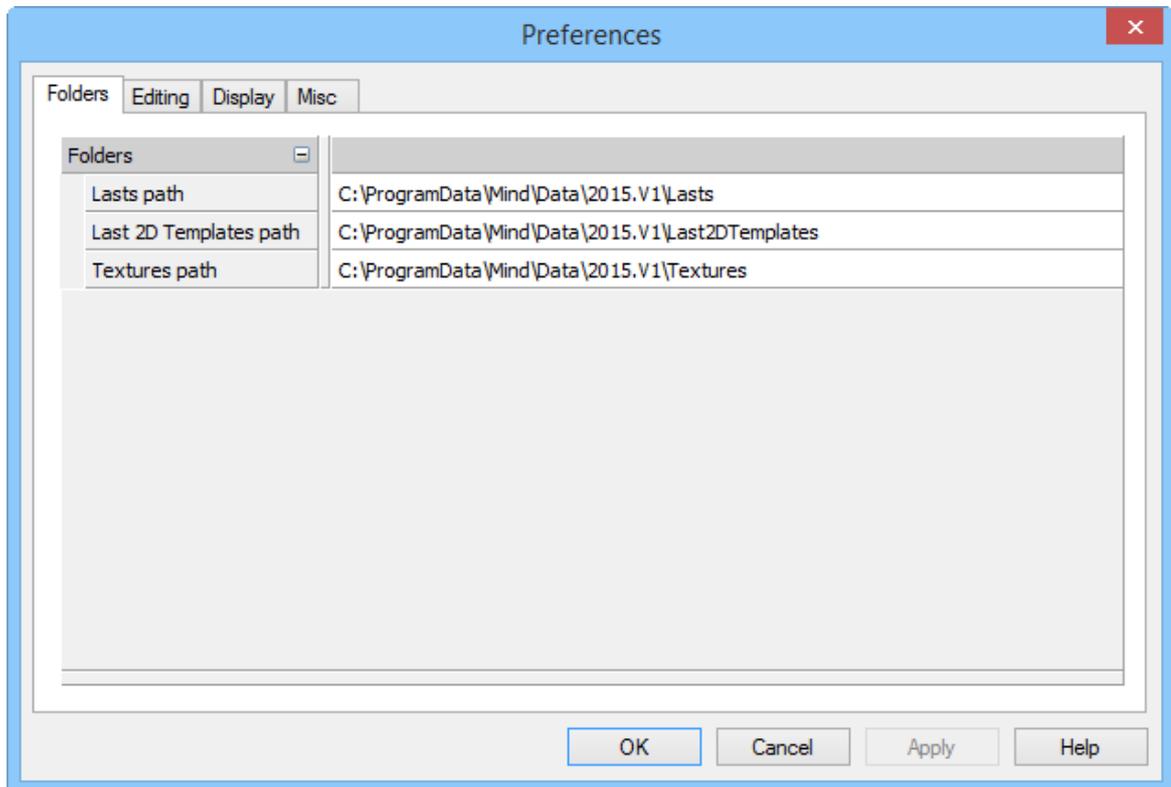
Press Ok to start the search, or Cancel to close.

The result will appear in the Open window.



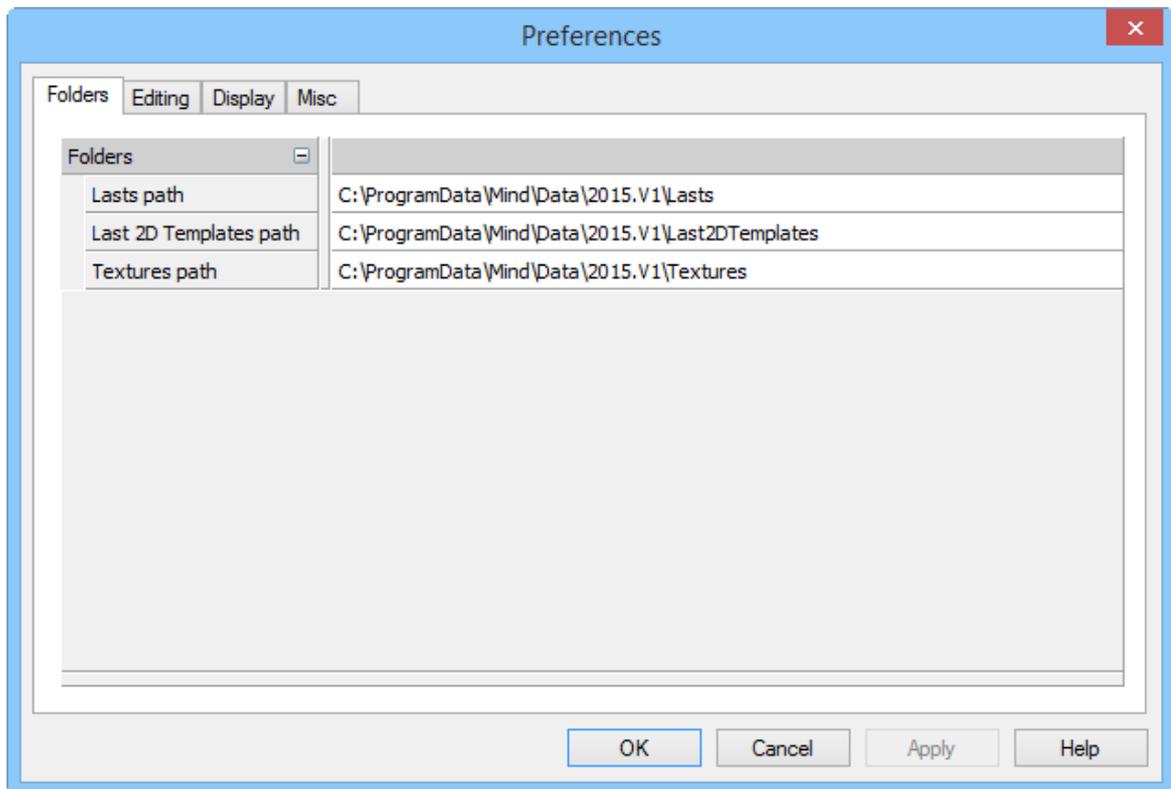
2.9 File - Preferences...

Use these options to define the properties of such things as your directories, colours and language.



2.9.1 File - Preferences - Folders

Use these options to set your preferred directories.



Lasts path

Where lasts are stored. Select the directory by using the  **Browse** button.

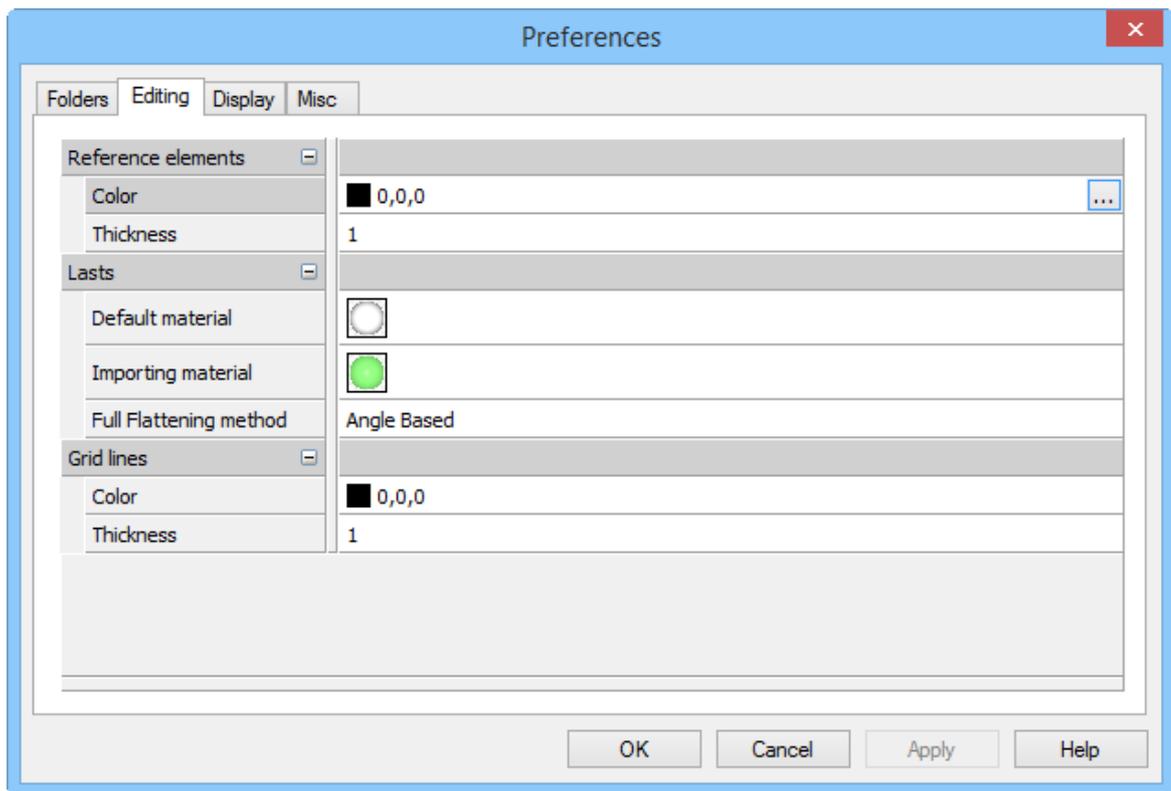
Last 2D Templates path

Where the last 2D templates are stored. Select the directory by using the  **Browse** button.

Texture path

Where textures are stored. Select the directory by using the  **Browse** button.

2.9.2 File - Preferences - Editing



Reference elements

Preferred colour and thickness for the reference elements.

Lasts

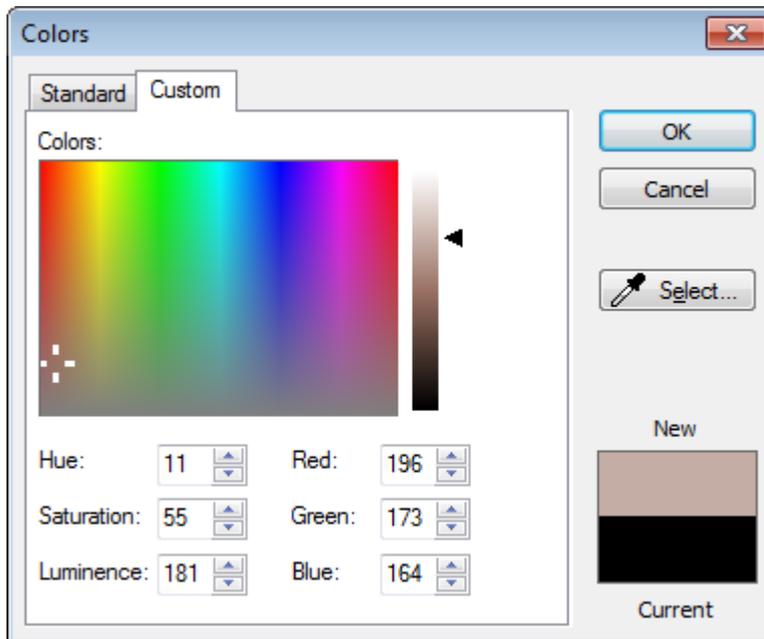
Preferred flattening method, default and imported material.

Grid Lines

Preferred colour and thickness for the grid lines.

2.9.2.1 Mixing Colors

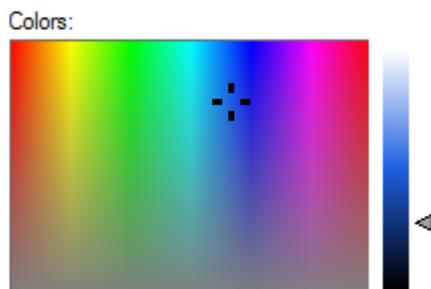
This dialogue box lets you mix single colors.



2.9.2.2 Selecting colors

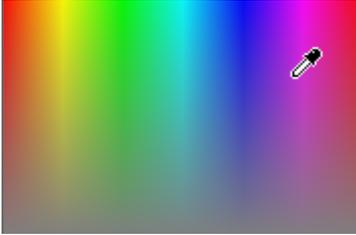
1. Use the square to select the color required.

Place the cursor in the square, hold down the left mouse button and move it to the color required. Releasing the mouse button to complete the operation.



Other way to select the color is to press the Select Button 

Move the mouse over the colors, to select the color do a left click over it.



The new color will be displayed next to the current (original) color so you can see the changes.



2. Use the lateral bar to select the shade of colour; use the left mouse button as before.

2.9.2.3 Using values to change colours

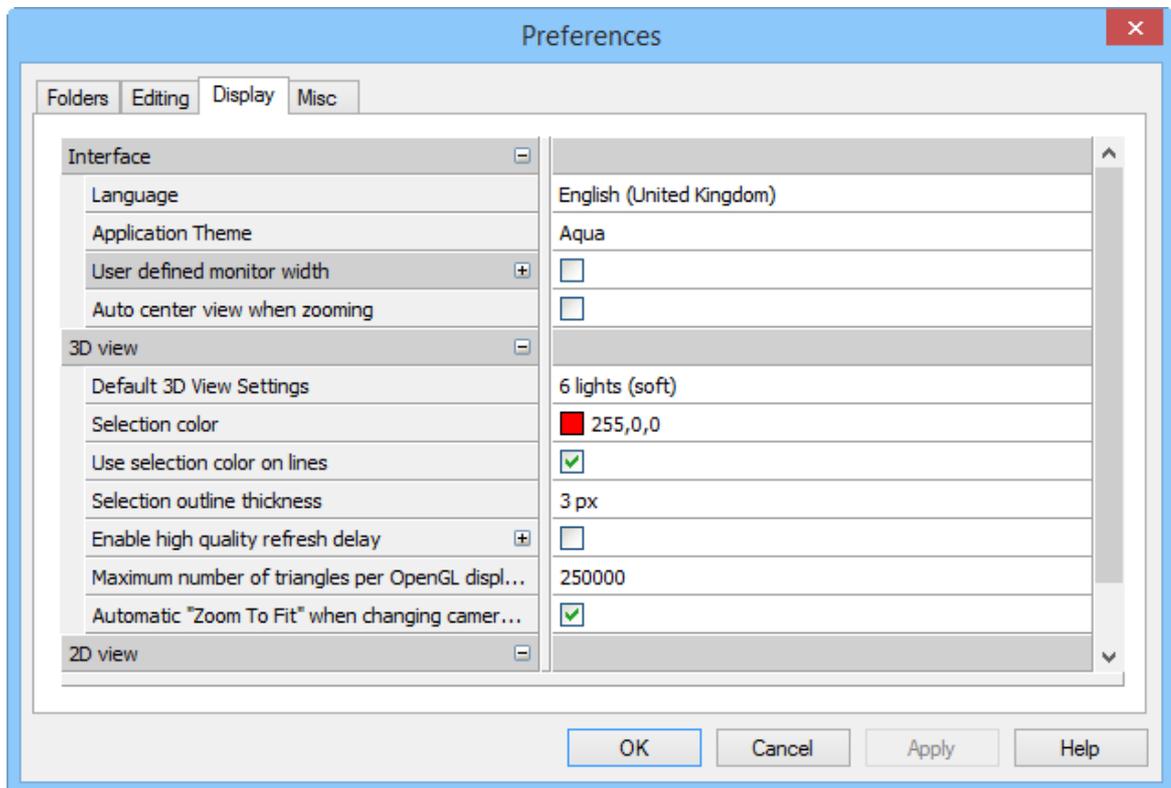
During the colour selection process the values of the current colour will also be displayed.



These values can be changed by using the up and down arrows next to the value or by entering a new value in the relevant box.

2.9.3 File - Preferences - Display

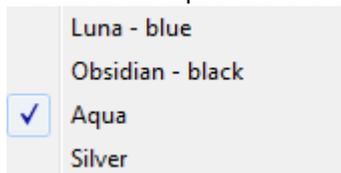
Use these options to set your preferred language, flattening version and automatic girth line generation.



Interface

Language - Select your preferred language from the **Language** drop down list.

Application Theme - Select the application theme using the browse button . There are four options available.



Monitor horizontal size (mm) - Tick **User defined Horizontal width of the monitor** to specify the dimensions of your monitor.

Auto center view when zooming - Enable/disable auto centring the graphics when zooming.

3D View

Default 3D view settings - Preferred initial 3D view settings.

Selection Color - Choose the selection color.

Use selection Color on lines - Enable/disable the Selection Color use for the lines.

Selection outline thickness - Choose the thickness in px

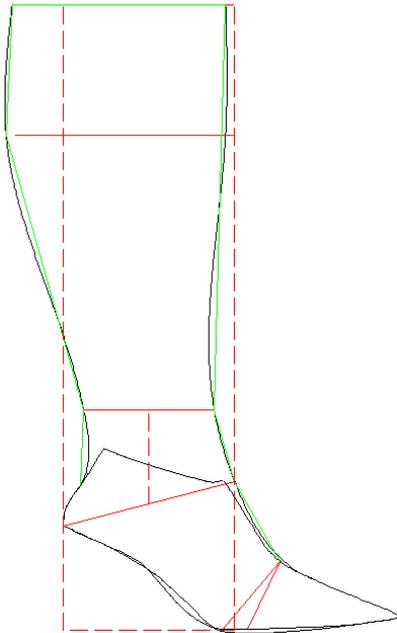
Enable high quality time delay - Tick this option to set delay value (ms). To control the delay between the regular fast visualization mode and the activation of the high quality rendering mode. Set this value to **0 (zero)** if you want to work always in high quality mode.

Maximum number of triangles per OpenGL display list - Choose the maximum number of triangles.

Automatic "Zoom to Fit" when changing camera view - Enable/disable the zoom to fit option, when the last point of view is changed.

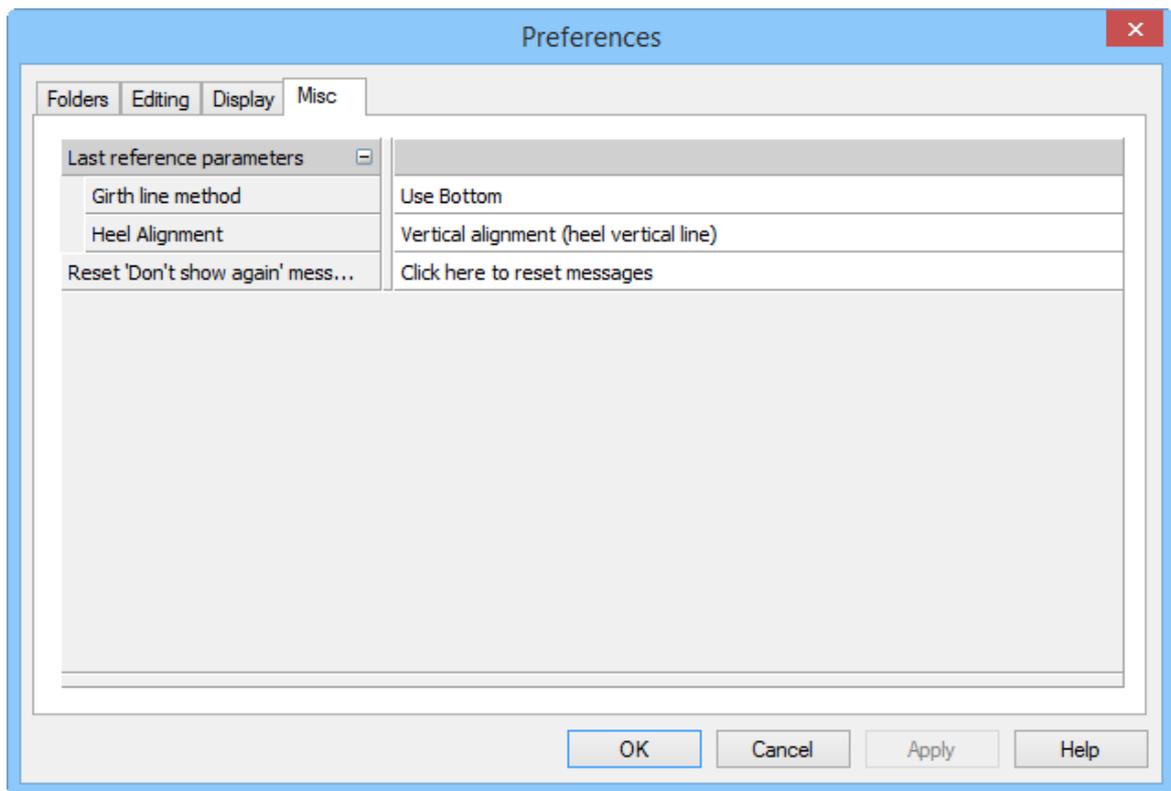
2D View

2D background color - Preferred colour for the 2D background where the lines are displayed on. The background option has one colour that can be set.



Draw quality - Select Fast or Quality mode.

2.9.4 File - Preferences - Misc



Last reference parameters

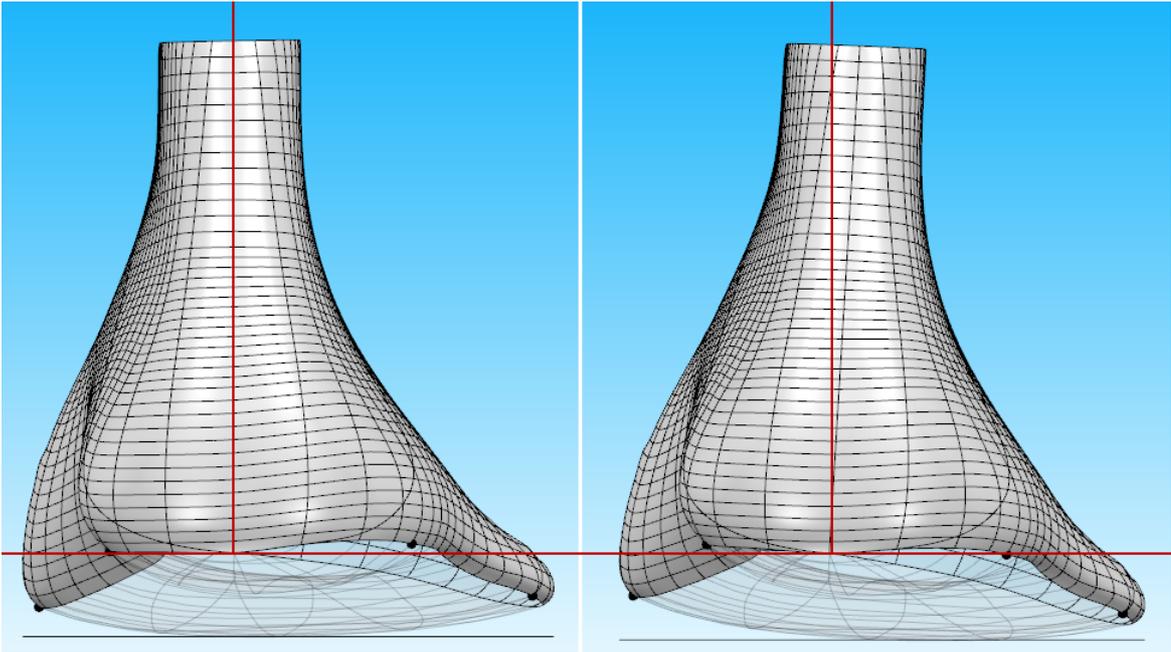
Girth Line Method - Select the preferred method for girth line generation.

- Use Bottom
- Use Upper

Heel Alignment - Select the align method for imported lasts (New - From external format).

Vertical alignment (heel vertical line)

Horizontal alignment (heel base)



Clear 'Don't show again' flags

Clear 'Don't show again' flags

[Click here to clear flags](#)

Clear

Press the clear to reset the option, like the one below. This way the program will ask again the question, instead of doing what the user select as default.



2.10 File - Print...



This is the same as clicking the **Print** button in the **Main** toolbar.



Use this option to print your images

2.11 File - Print Preview

Use this option to preview your print before sending to the printer.

2.12 File - Printer Setup...

Use this option to select a printer and set it to your requirements.

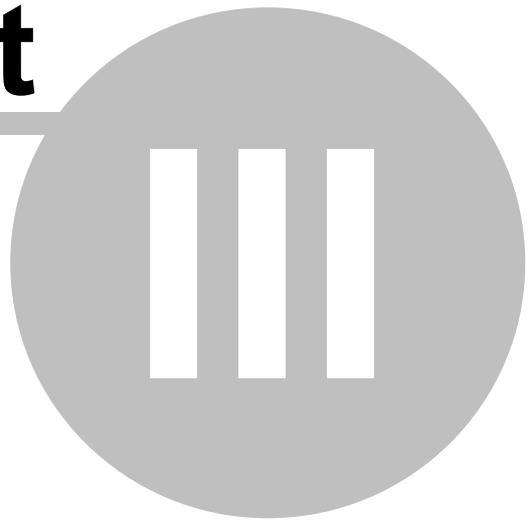
2.13 File - file list

Use this option to open a recently used last. The last four last names are displayed for quick selection.

2.14 File - Exit

Use this option to exit the program.

Part



3 Edit Overview

This menu lets you carry out some of the editing commands, it also allows you to undo edits that have been made, and restrict editing of items that are correct.



3.1 Edit - Undo

This option undoes the last editing command.

This is the same as clicking the **Undo**  button in the main toolbar or pressing **Ctrl+Z**



3.2 Edit - Redo

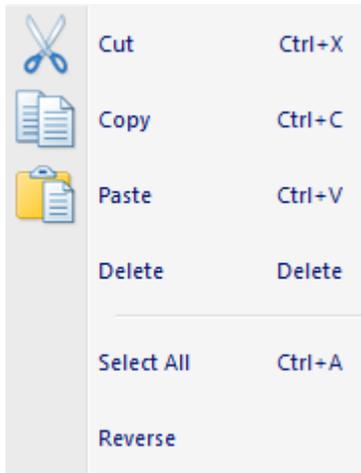
This option is under development, and will redo the last Undo command.

This is the same as clicking the **Redo**  button in the main toolbar or pressing **Ctrl+Y**



3.3 Edit - Clipboard

This menu lets you, cut, copy, paste or delete selected objects, it also allows to select all objects or reverse the current selection.



3.3.1 Edit - Clipboard - Cut

This option cuts the currently selected items. Cut copies the selected items to the paste buffer, then deletes the selected items.

This is the same as clicking the **Cut**  button in the main toolbar or pressing **Ctrl+X**



3.3.2 Edit - Clipboard - Copy

This option copies the currently selected items into the paste buffer.

This is the same as clicking the **Copy**  button in the main toolbar or pressing **Ctrl+C**



3.3.3 Edit - Clipboard - Paste

This option pastes the contents of the paste buffer (filled by cut or copy) into the current window.

This is the same as clicking the **Paste**  button in the main toolbar or pressing **Ctrl+V**



3.3.4 Edit - Clipboard - Delete

This option deletes the currently selected items. This is the same as pressing the delete key on your keyboard.

3.3.5 Edit - Clipboard - Select All

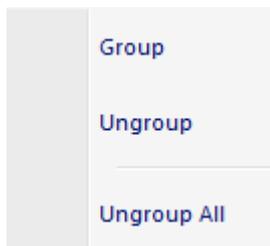
This option selects all items. This is the same as pressing **Ctrl+A**

3.3.6 Edit - Clipboard - Reverse

This option allows to reverse the current selection.

3.4 Edit - Grouping

This menu lets you group and ungroup lines.



3.4.1 Edit - Grouping - Group

This option lets you treat a number of lines as a single object. If any line within a group is selected all the other lines in the group will be selected as well.

1. Select the lines that you wish to make into a group.
2. Select **Group** from the **Grouping** options in the **Edit** Menu

3.4.2 Edit - Grouping - Ungroup

This option lets you return lines within a group to individual lines.

1. Select any line in a group.
2. Select **Ungroup** from the **Grouping** options in the **Edit** Menu

3.4.3 Edit - Grouping - Ungroup All

This option lets you return all the lines within groups to individual lines.

1. Select **Ungroup All** from the **Grouping** options in the **Edit** Menu.

3.5 Edit - Locking

This menu lets you lock and unlock items.



3.5.1 Edit - Locking - Lock

This lets any selected item to be locked, if an item is locked, it cannot be edited.

1. Select items to be locked.
2. Select **Lock** from the **Locking** options in the **Edit** Menu.

3.5.2 Edit - Locking - Unlock

This lets locked items which cannot be edited become editable again.

1. Select items to be unlocked.
2. Select **Unlock** from the **Locking** options in the **Edit** Menu.

3.5.3 Edit - Locking - Unlock All

This lets all the locked items which cannot be edited become editable again.

1. Select **Unlock All** from the **Locking** options in the **Edit** Menu.

3.6 Edit - Visibility

This menu lets you hide and show items.

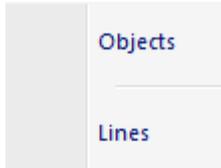


3.6.1 Edit - Visibility - Hide

This option allows to temporarily hide any selected items.

3.6.2 Edit - Visibility - Show all

This menu allows to select which items are supposed to become visible. It's possible to select between **Objects** and **Lines**.



3.7 Edit - Constrains

This menu allows to activate or deactivate the constrains options.



3.7.1 Edit - Constrains - Drag Constrain

This allows to control whether a line(s) can be dragged (moved), rotated or scaled.

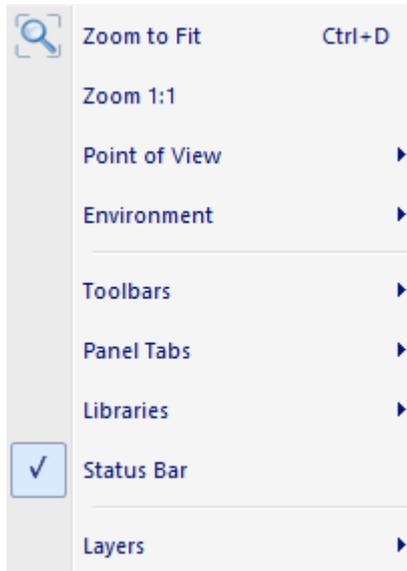
When the cursor is over a line(s) and displayed as a cross  it is possible to drag, rotate and scale the line(s) if **Drag Constrain**  **Drag Constrain** is *OFF*.

Part

IV

4 View Overview

This menu lets you control what is displayed on the screen, you can use it to turn on or off, toolbars and layers.



4.1 View - Zoom to Fit

This option lets you scale any graphics, so that it fits onto the screen. This is the same as clicking

the **Zoom to fit** button  in the **Main** toolbar.



4.2 View - Zoom 1:1

When this option is used, the graphics are scaled to the correct physical dimensions. If Zoom 1:1 doesn't work please go to the File - Preferences - Display and specify the correct value (in mm) of your monitor.

This is the same as pressing **Ctrl+Shift+D**.

4.3 View - Point of View

This option shows all the options for displaying toolbars.



4.3.1 View - Point of View - Lateral

This is the same as clicking the **Lateral**  button in the **Views** toolbar or **CTRL+4**.



Use this option to view your last from the outside view point.

4.3.2 View - Point of View - Medial

This is the same as clicking the **Medial**  button in the **Views** toolbar **CTRL+6**.



Use this option to view your last from the inside view point.

4.3.3 View - Point of View - Top

This is the same as clicking the **Top**  button in the **Views** toolbar **CTRL+5**.



Use this option to view your last from the top view point.

4.3.4 View - Point of View - Bottom

This is the same as clicking the **Bottom**  button in the **Views** toolbar **CTRL+0**.



Use this option to view your last from the bottom view point.

4.3.5 View - Point of View - Toe

This is the same as clicking the **Toe**  button in the **Views** toolbar **CTRL+8**.



Use this option to view your last from the toe view point.

4.3.6 View - Point of View - Heel

This is the same as clicking the **Heel**  button in the **Views** toolbar **CTRL+2**.



Use this option to view your last from the heel view point.

4.3.7 View - Point of View - $\frac{3}{4}$

This menu allows you to select $\frac{3}{4}$ views of the last

	Toe lateral	Ctrl+9
	Toe medial	Ctrl+7
	Heel lateral	Ctrl+3
	Heel medial	Ctrl+1

4.3.7.1 View - Point of View - $\frac{3}{4}$ - Toe lateral

This is the same as clicking the **Toe lateral**  button in the **Views** toolbar **CTRL+9**.



Use this option to view your last from the outside toe view point.

4.3.7.2 View - Point of View - $\frac{3}{4}$ - Toe medial

This is the same as clicking the **Toe medial**  button in the **Views** toolbar **CTRL+7**.



Use this option to view your last from the inside toe view point.

4.3.7.3 View - Point of View - $\frac{3}{4}$ - Heel lateral

This is the same as clicking the **Heel lateral**  button in the **Views** toolbar **CTRL+3**.



Use this option to view your last from the outside heel view point.

4.3.7.4 View - Point of View - $\frac{3}{4}$ - Heel medial

This is the same as clicking the **Heel medial**  button in the **Views** toolbar **CTRL+1**.



Use this option to view your last from the inside heel view point.

4.3.8 View - Point of View - Previous

This is the same as clicking the **Previous**  button in the **Views** toolbar.



Use this option to go back to your previous view point.

4.4 View - Environment

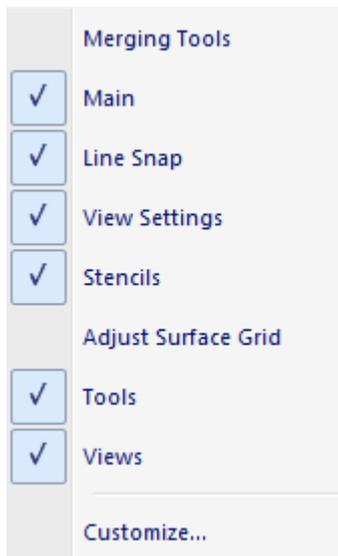
This menu allows to **change** between the **environments** and to **edit** the current one.
This is the same as changing the environment in **View setting selector** on the **View Settings Bar**.



4.5 View - Toolbars

This option shows all the options for displaying toolbars.

To access this menu you can also do a right click over the toolbars area.



4.5.1 View - Toolbars - Merging Tools

This is the option to turn *on/off* the **merging** toolbar. This toolbar is available in the **flattening mode**.



4.5.2 View - Toolbars - Main

This is the option to turn *on/off* the **main** toolbar. It is recommended that this menu is displayed at all times.



4.5.3 View - Toolbars - Line Snap

This is the option to turn *on/off* the **Line Snap** toolbar.



4.5.3.1 Line Snap - Nearest Line

Use this option to make all editing and drawing operations snap to the nearest line, when the cursor is close to it.



This is the same as clicking the **Nearest Line**  button in the **Line Snap** toolbar

4.5.3.2 Line Snap - Nearest Intersection

Use this option to make all editing and drawing operations snap to the nearest intersection between lines, when the cursor is close to it.



This is the same as clicking the **Nearest Intersection**  button in the **Line Snap** toolbar

4.5.3.3 Line Snap - Nearest End

Use this option to make all editing and drawing operations snap to the nearest line end, when the cursor is close to it.



This is the same as clicking the **Nearest End**  button in the **Line Snap** toolbar

4.5.3.4 Line Snap - Nearest Point

Use this option to make all editing and drawing operations snap to the nearest point on a line and to the geometric centre on symmetry shapes when the cursor is close to it.



This is the same as clicking the **Nearest Point**  button in the **Line Snap** toolbar

4.5.3.5 Line Snap - Nearest Grid

Use this option to make all editing and drawing operations snap to the grid when the cursor is close to it. In addition,

- When the cursor is on a grid line, the *grid* is displayed in blue.
- When the cursor is on a grid intersection, *grid intersection* is displayed in red.



This is the same as clicking the **Nearest Grid**  button in the **Constrain** toolbar

4.5.4 View - Toolbars - View Settings

This is the option to turn on/off the **View Settings** toolbar.

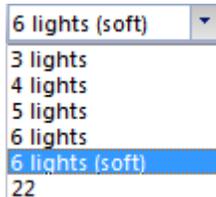


Use this tool bar to control the project setting and save them.

4.5.4.1 Configure View Setting

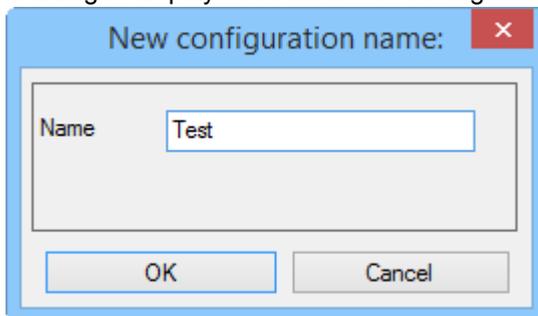
Use this option to configure the project setting.

1. The **View setting selector** allows you to change between setting previous configured.



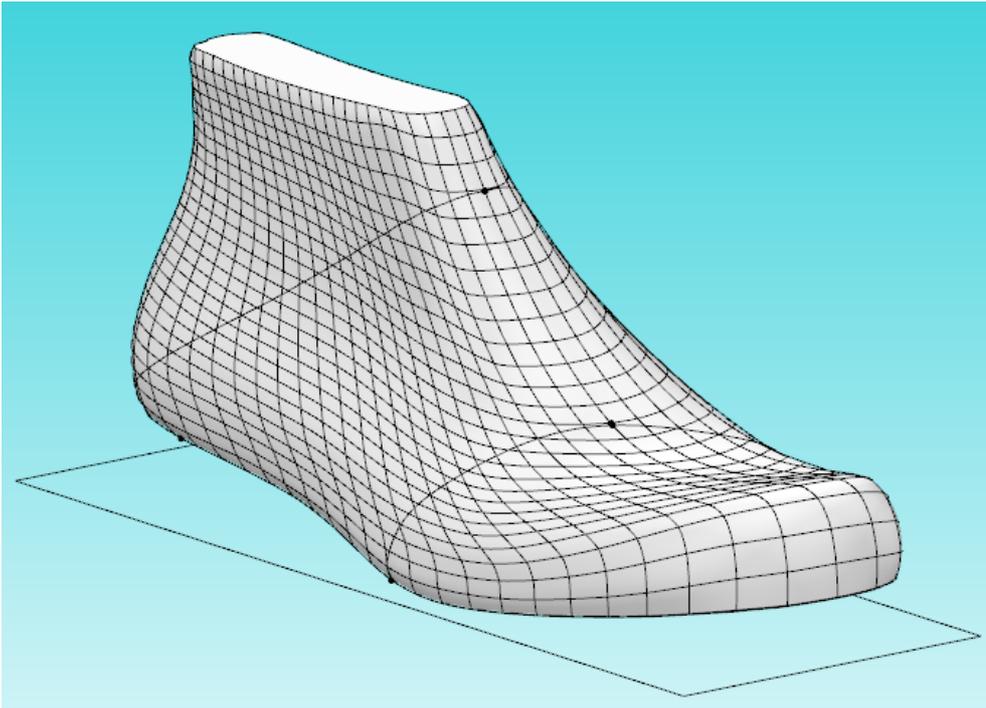
2. Click in the **Create New Settings** button  in the toolbar to create a new project setting.

A dialog is displayed for insert the setting name:

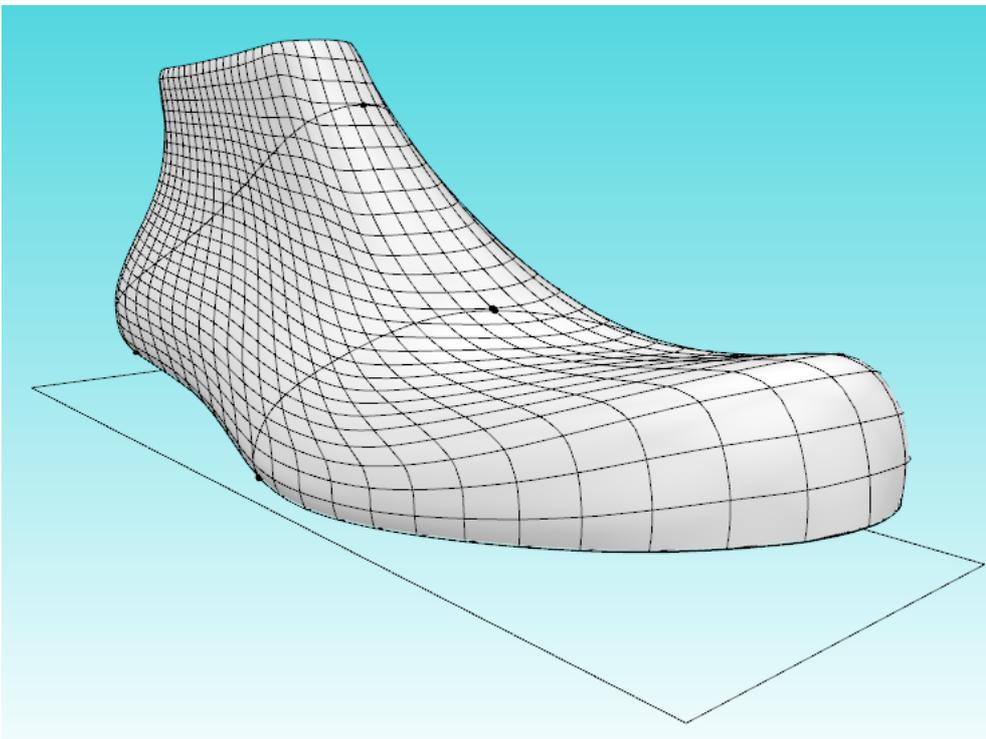


Press **Ok** and the new configuration is saved. To edit the setting press the button Edit Settings.

3. Click in the **Delete Settings** button  in the toolbar to delete settings of the setting selector.
4. Click in the **Edit Settings** button  in the toolbar to change the settings.
5. Click in the **Save Settings** button  in the toolbar to save settings changes.
6. Click in the **Orthogonal Projection** button  in the toolbar to change the projection.



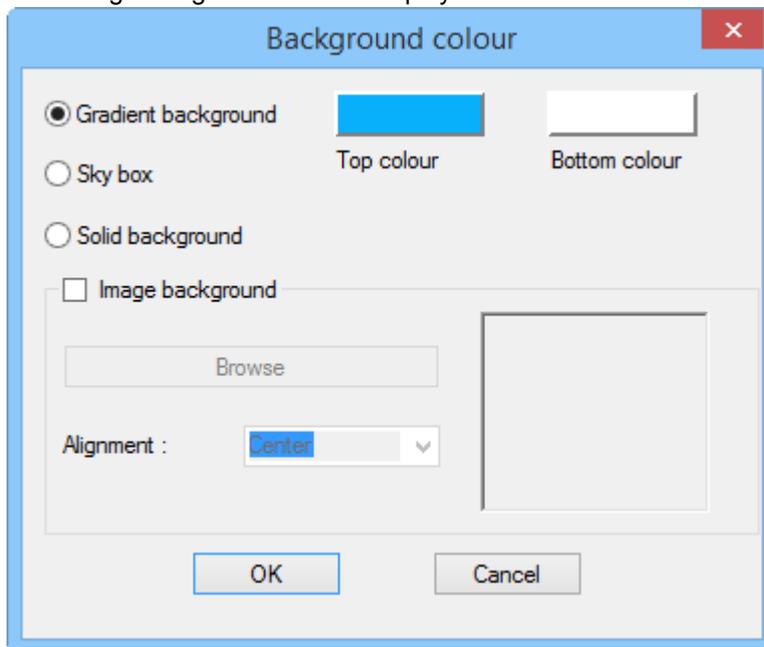
7.  - **Perspective Projection** button allows you to change the perspective, its possible to alter the angle through the **Perspective field of view angle**  10.00 .



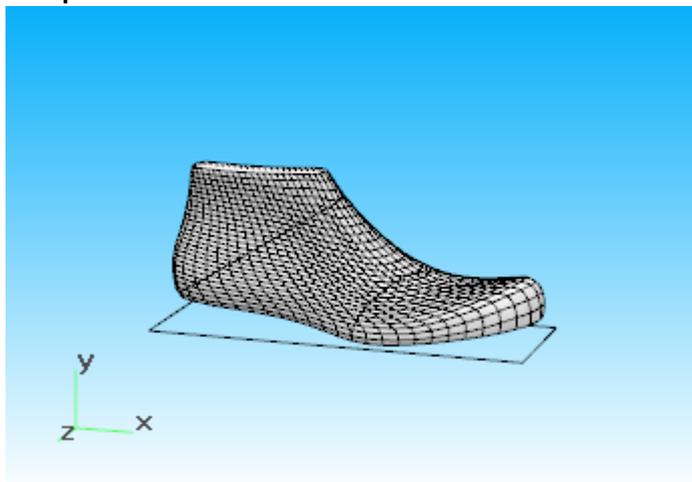
8. Click in the **Shadows Effect** button  in the toolbar to enable or disable the shadows.

9. Click in the **Configure Background** button  in the toolbar to to configure 3D - Background.

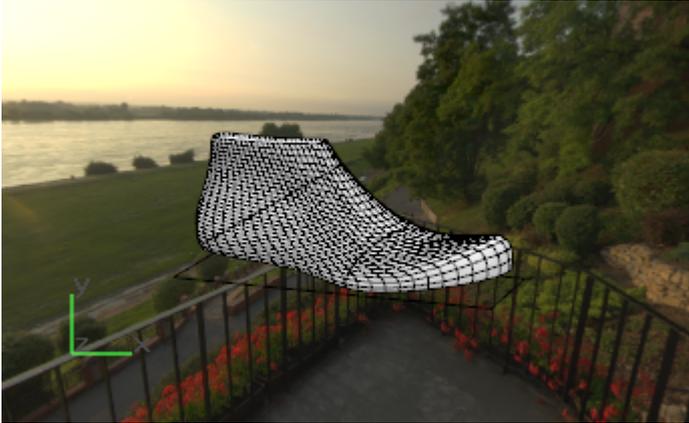
The dialog Background color is displayed:



- **Gradient Background** - The background is displayed as a graded range of colour between the **Top colour** and the **Bottom colour**



- **Sky box** - To provide an even more natural look, the user may select to visualize the IBL map as a sky box around the model.



- **Solid Background** - A single color is used for the background;

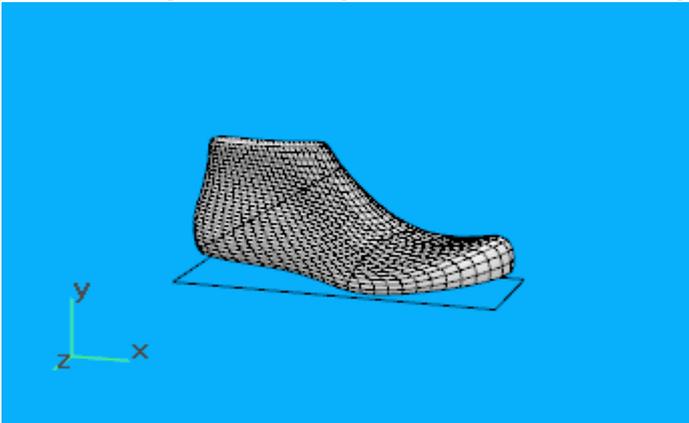


Image background - The user choose the image file and how to align it on your working area.

10. Click in the **Texture Mode** button  in the toolbar to enable or disable the texture mode.

11. The **Environment mapping image** allows you to change the environment image, to supply a last with indirect lighting.

to the menu Last - Modify - By Resurface.



Recalculate toe line - If by last editing, the area of the Toe Line is affected, there is the need to recalculate the Toe Line (Girth Line). This process is fully automatic without user intervention. This is the same as going to the menu Last - References - Recalc Girth.



Adjust Centre and Heel Lines - When selecting this option the current front and heel lines can be adjusted using the mouse. This is the same as going to the menu Last - References - Adjust Centre and Heel Lines.



Change Last by editing sections - This allows to modify the last by sections. This is the same as going to the menu Last - Modify - By Sections.



Change Last Shape - Allows to edit last shape. This is the same as as going to the menu Last - Modify - By Shape.



Adjust Surface Grid - Allows to edit last surface grid. This is the same as as going to the menu Last - Modify - By Surface.



Free measurement - This tool take measurements over the last surface without being restricted to lines. This is the same as as going to the menu Tools - Measurements - Free.



Line measurement tool - This tool take measurements over along a line. This is the same as as going to the menu Tools - Measurements - Line.



Generate boot upper - After activation of this button, a wizard is launched, guiding the creation of the bootleg. This is the same as as going to the menu Last - Boot Leg - Shell.



Last Grading - This option lets you create a graded last. This is the same as as going to the menu Last - Grading.



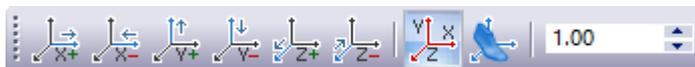
Flatten Last Upper - This option lets flatten the upper surface of the last. This is the same as as going to the menu Last - Flattening - Flatten Last Upper.



Flatten Last bottom - This option flattens the bottom surface of the last. This option lets flatten the upper surface of the last. This is the same as as going to the menu Last - Flattening - Flatten Last Bottom.

4.5.6 View - Toolbars - Adjust Surface Grid

This is the option to turn *on/off* the **Adjust Surface Grid** toolbar. This toolbar is active when using the modify by surface tool.



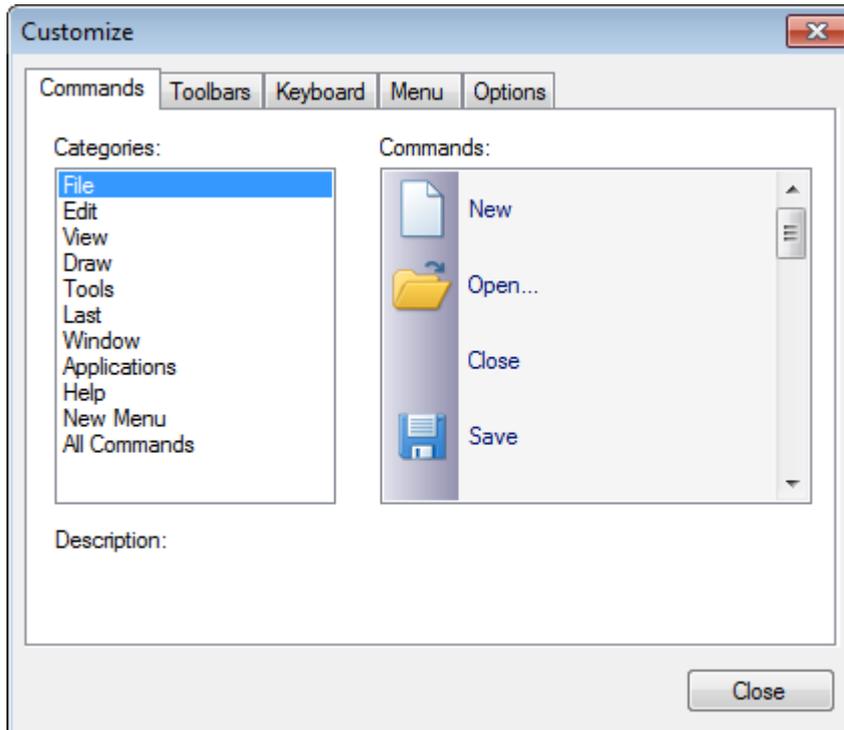
4.5.7 View - Toolbars - Views

This is the option to turn on/off the **Views** toolbar.



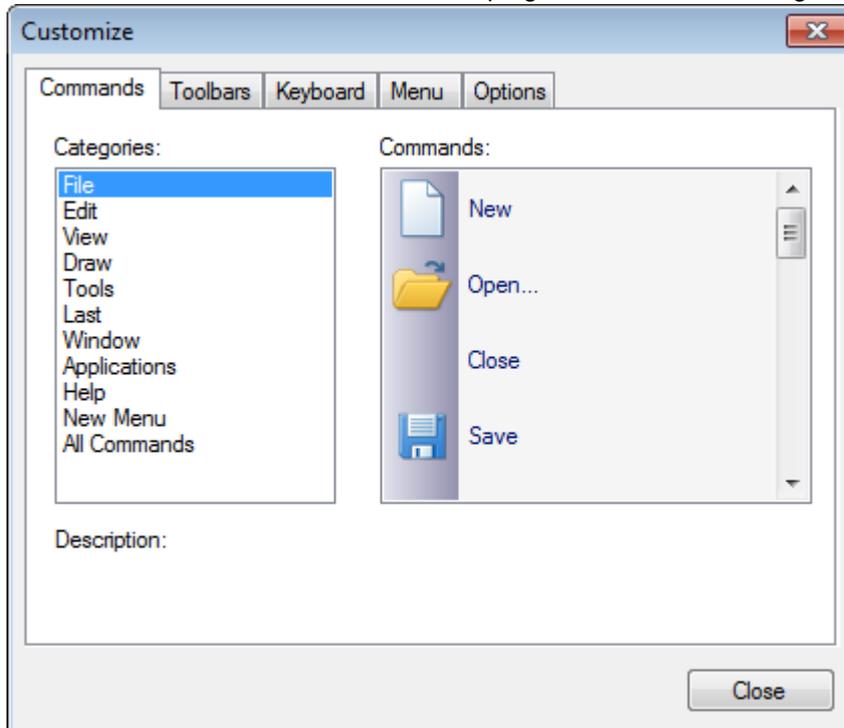
4.5.8 View - Toolbars - Customize

This allows advanced interface customization.



4.5.8.1 View - Toolbars and Docking Windows - Customize - Commands

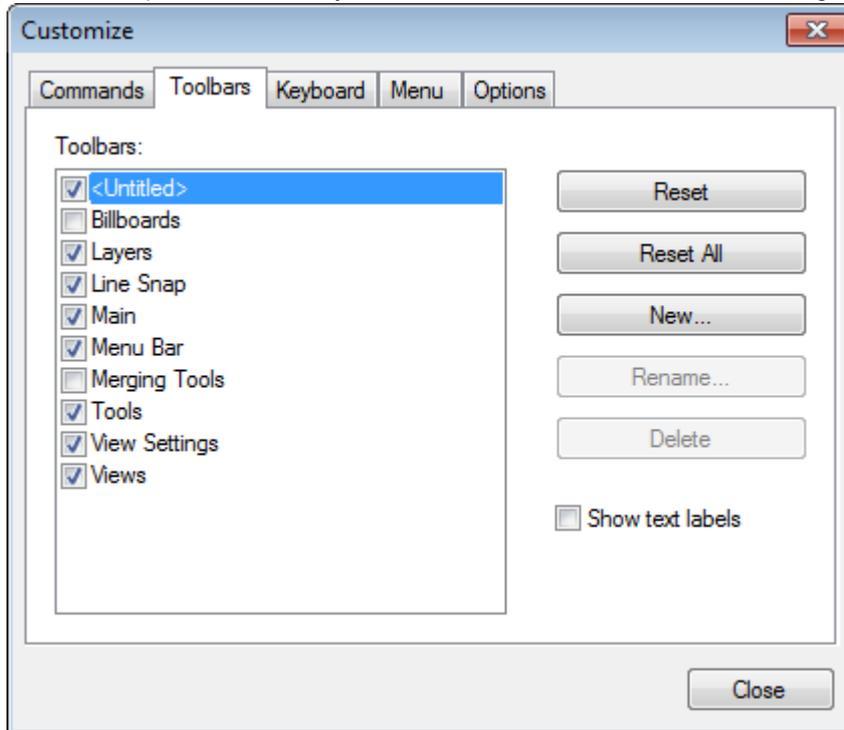
In the commands tab are available all the program commands, arranged by Categories.



The user can drag any command to the toolbars.

4.5.8.2 View - Toolbars and Docking Windows - Customize - Toolbars

Use these options to create your own toolbars and to reset the existing ones.



To add a customized toolbar please follow this sequence:

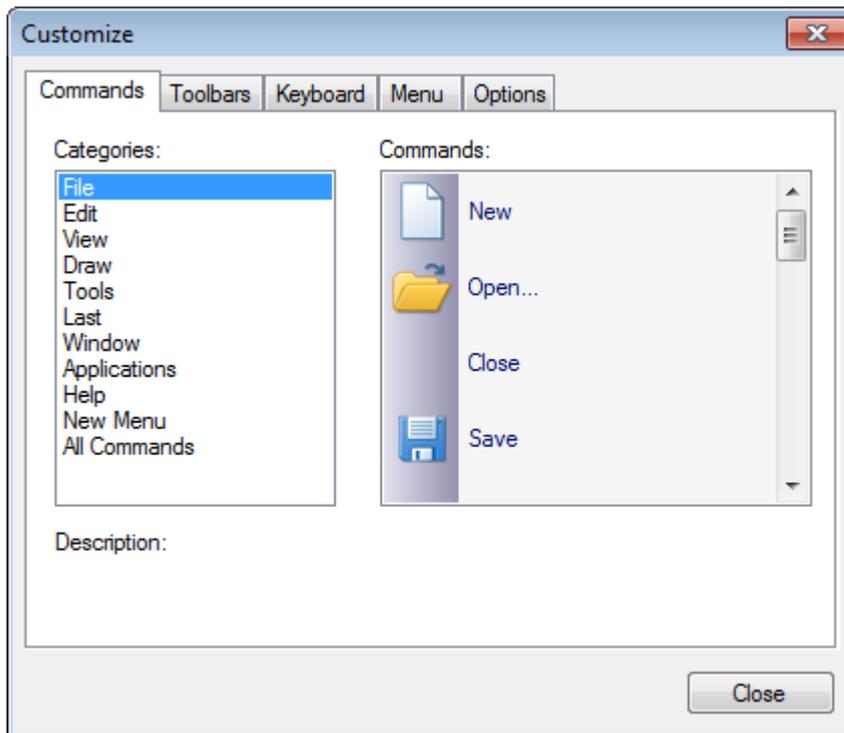
1. On the Toolbars tab, click New



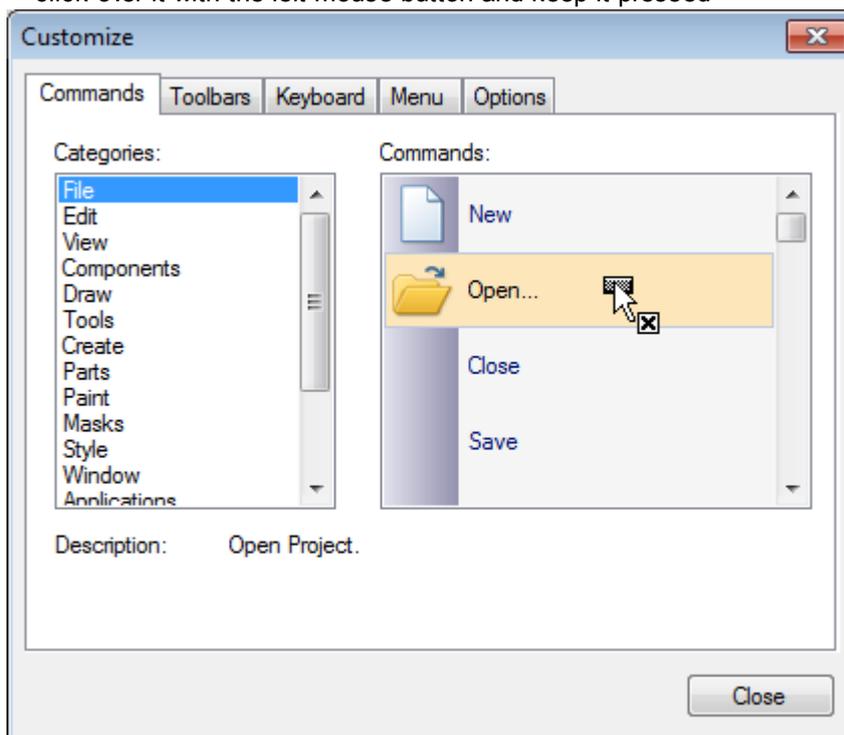
2. Insert the name and press OK, the new bar will appear.



3. In the commands tab are available all the program commands, arranged by Categories



4. Select the required command button and Drag and drop to the toolbar. To drag the command, click over it with the left mouse button and keep it pressed



5. When the mouse button is over the toolbar, you can let go of the left mouse button



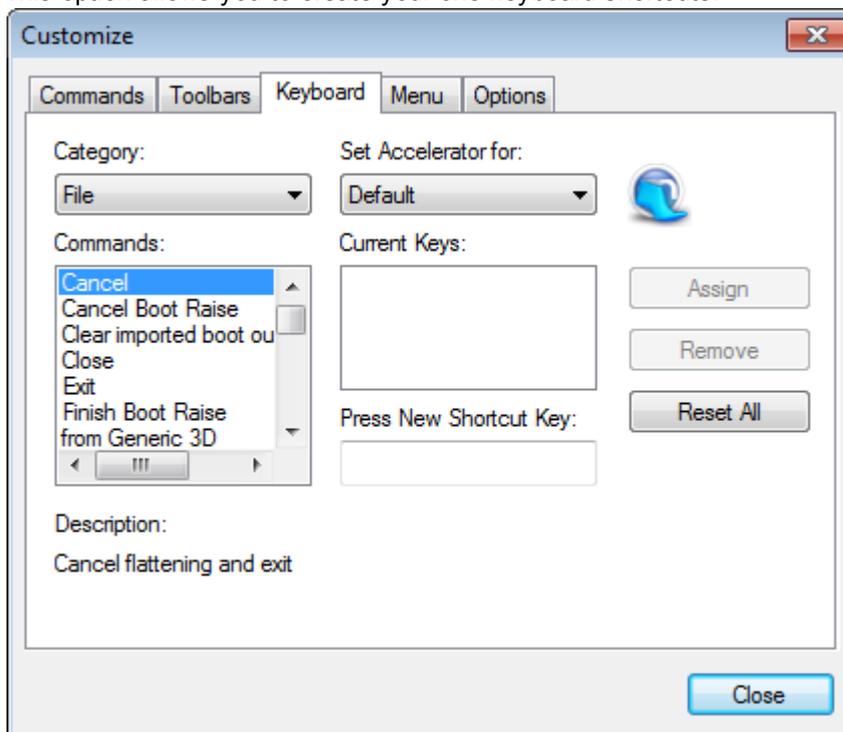
6. The button will be added to the toolbar



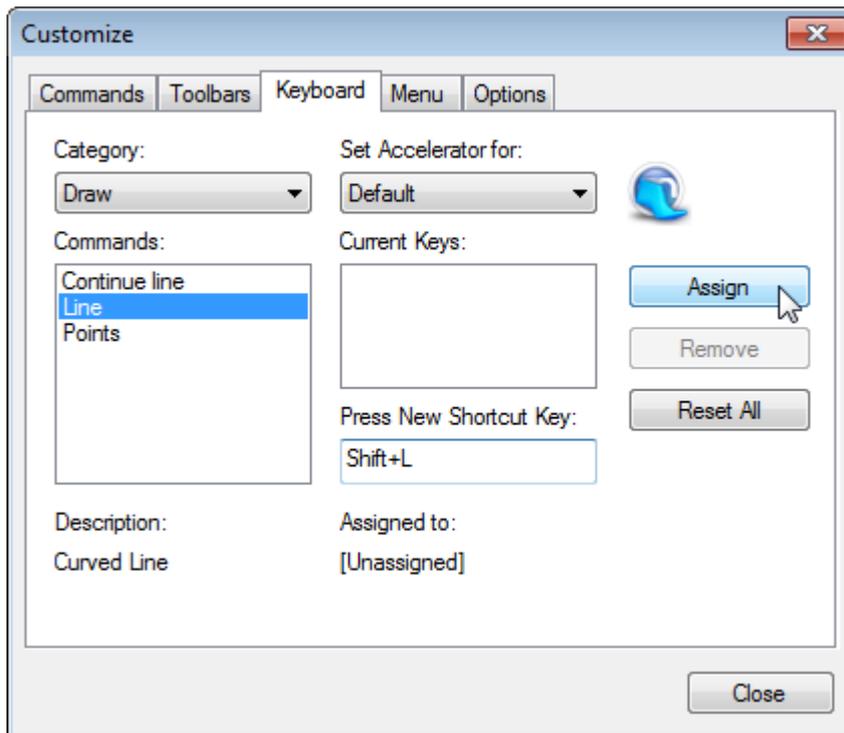
7. To remove a button from the **current toolbar**, select the button and drag and drop it to the commands list.

4.5.8.3 View - Toolbars and Docking Windows - Customize - Keyboard

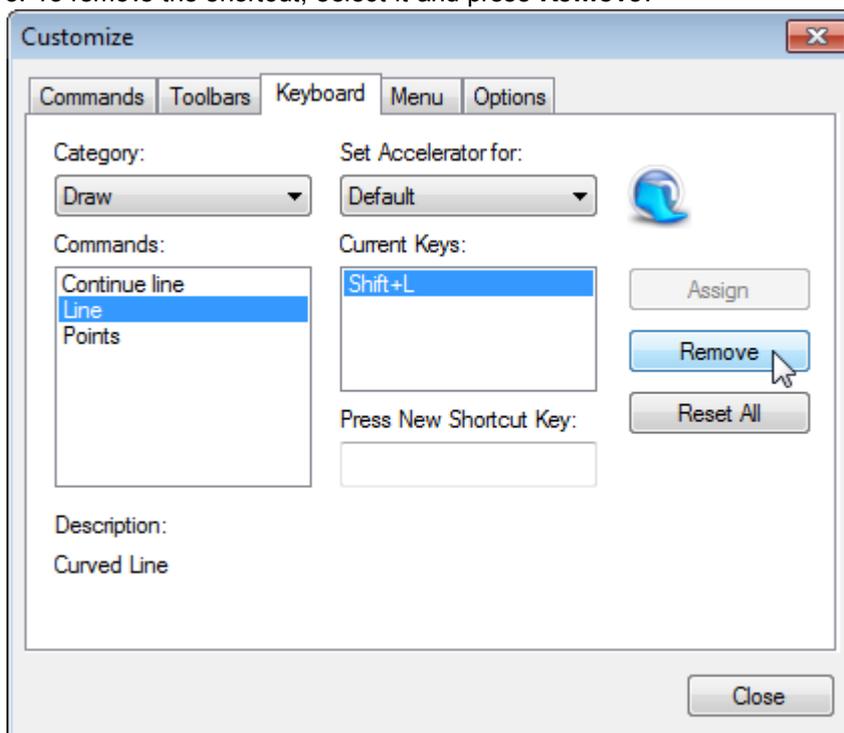
This option allows you to create your own keyboard shortcuts.



1. Select the **Category** and the **Command** to add the shortcut.
2. Select the text box **Press New Shortcut Key** and press keys to assign to add the shortcut.

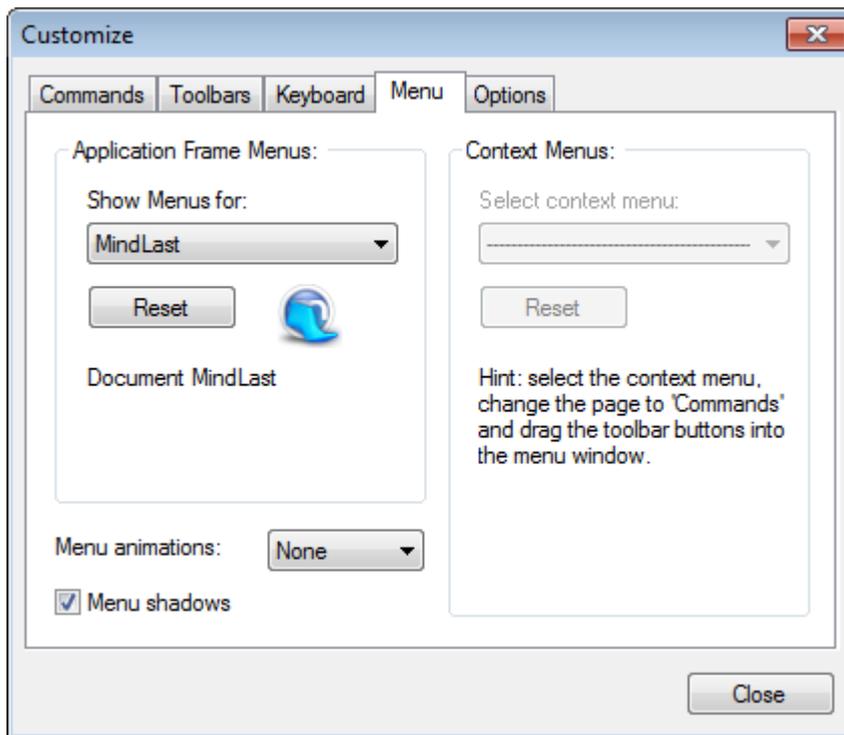


3. To remove the shortcut, select it and press **Remove**.

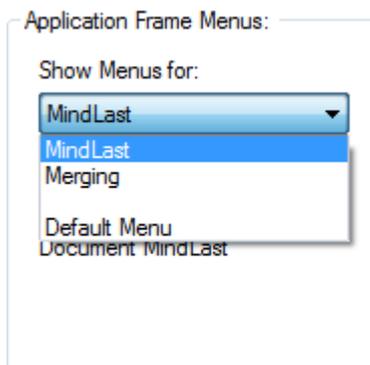


4. The button **Reset All** allows to set the original shortcut and delete the custom ones.

4.5.8.4 View - Toolbars and Docking Windows - Customize - Menu

**Application Frame Menu**

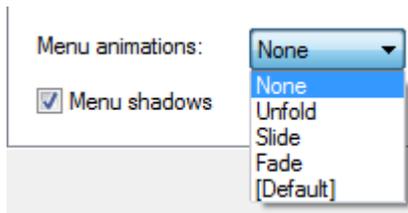
Select the desired menu to reset from the "Show menus for:"



After selecting the menu, press the **Reset** button, when you do that the menus will return to the original state.

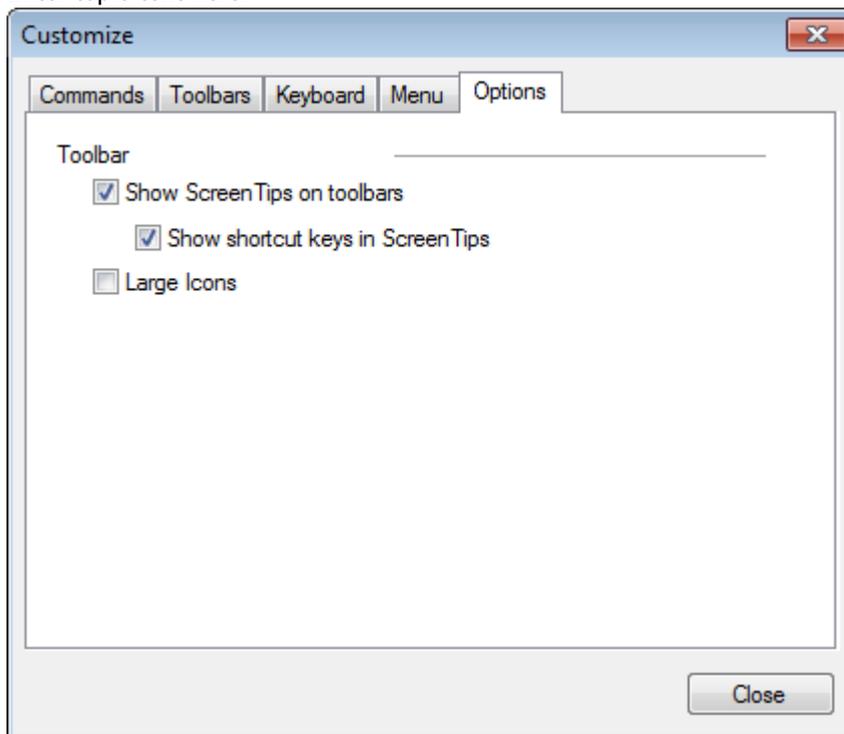
Menu Animations

It's possible to select animations for the menus.



4.5.8.5 View - Toolbars and Docking Windows - Customize - Options

Enter topic text here.



Toolbar

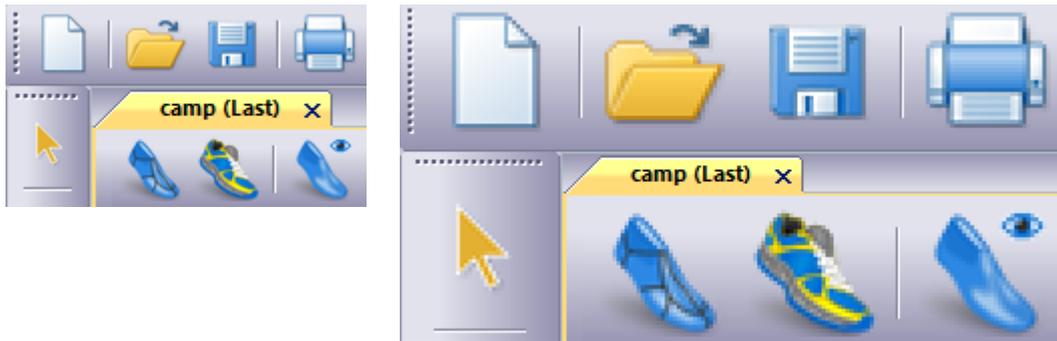
Show Screen Tips on toolbars - Enable/ Disable the tooltips

- **Show shortcut keys in Screen Tips** - This option is available only when the **Show Screen Tips on toolbars** is enable.

Large icons - Select this option to see the icons larger.

Normal icons

Large icons



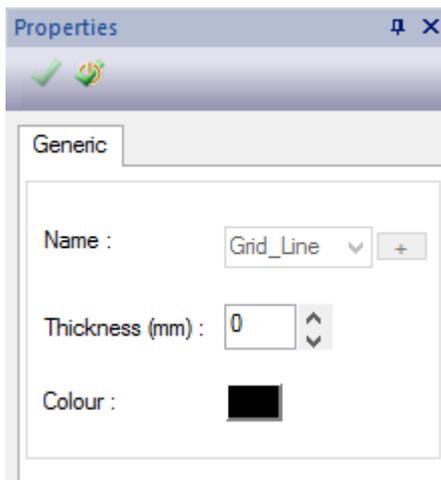
4.6 View - Panel Tabs

This option shows all the options for displaying panel tabs.



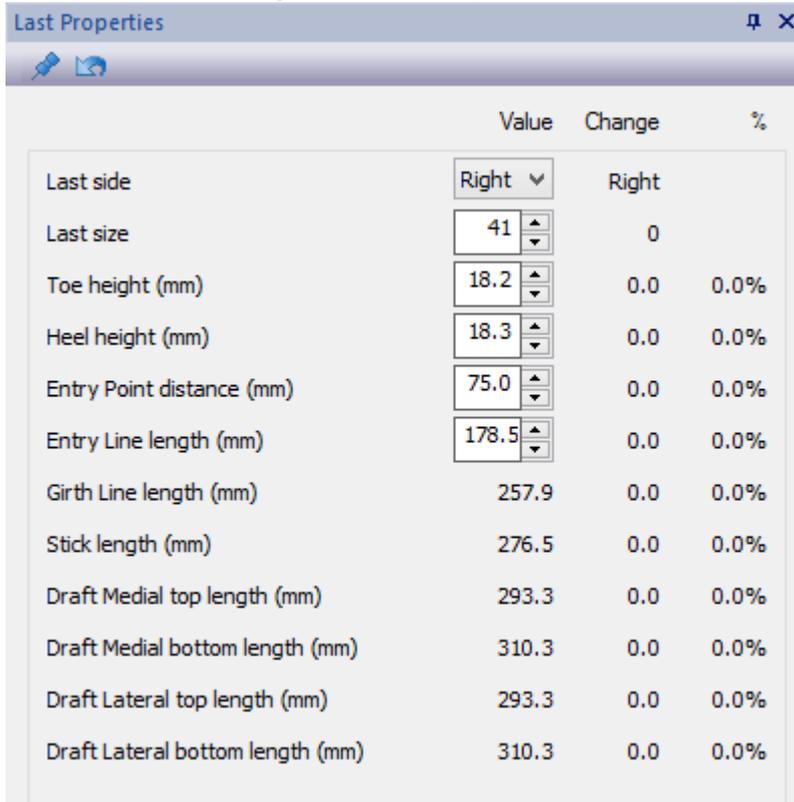
4.6.1 View - Panel Tabs - Properties

This is the option to turn on/off the **Properties** panel tab.



4.6.2 View - Panel Tabs - Last Properties

Use this option to change last technical parameters. It also allows to track the Last changes.



	Value	Change	%
Last side	Right	Right	
Last size	41	0	
Toe height (mm)	18.2	0.0	0.0%
Heel height (mm)	18.3	0.0	0.0%
Entry Point distance (mm)	75.0	0.0	0.0%
Entry Line length (mm)	178.5	0.0	0.0%
Girth Line length (mm)	257.9	0.0	0.0%
Stick length (mm)	276.5	0.0	0.0%
Draft Medial top length (mm)	293.3	0.0	0.0%
Draft Medial bottom length (mm)	310.3	0.0	0.0%
Draft Lateral top length (mm)	293.3	0.0	0.0%
Draft Lateral bottom length (mm)	310.3	0.0	0.0%

To keep track of the last changes, press the button **Set reference values** 

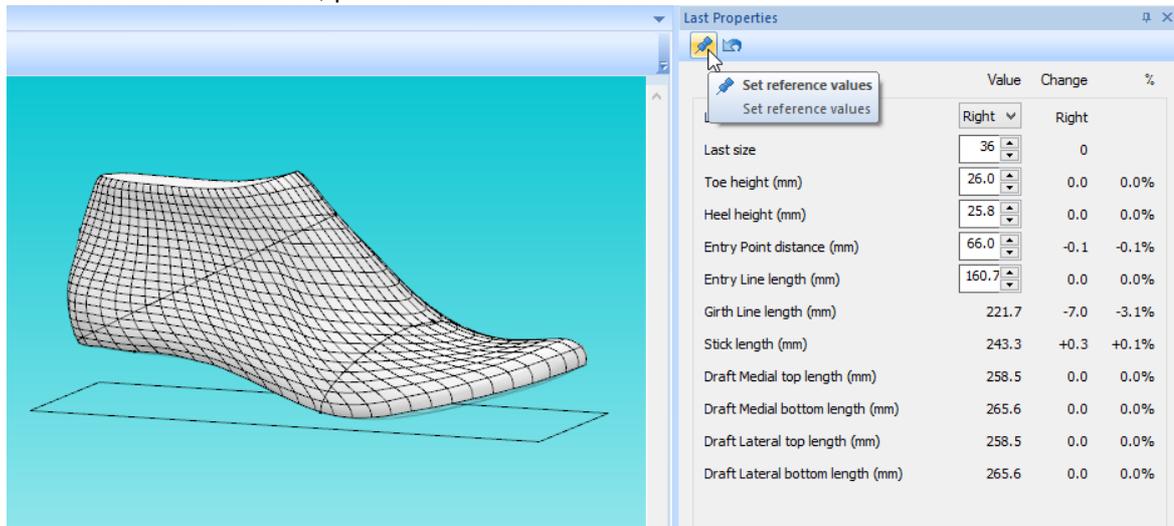
From the moment the set reference values buttons is pressed, its possible to track where the last was affected.

To undo the Last changes, press the button **Restore the reference values** , the last will return to the initial parameters.

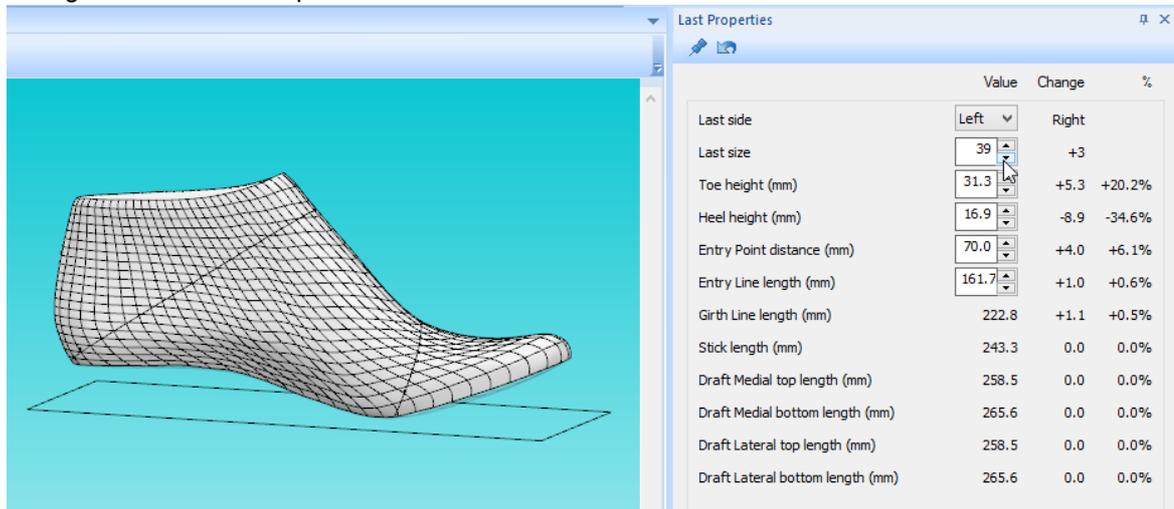
In the Last Properties tab, it's also possible to change the Last Side, Last Size, Toe height, heel height, Entry point distance and Entry line length.

4.6.2.1 Last Properties

Before start the last edition, press **Set Reference values** button.



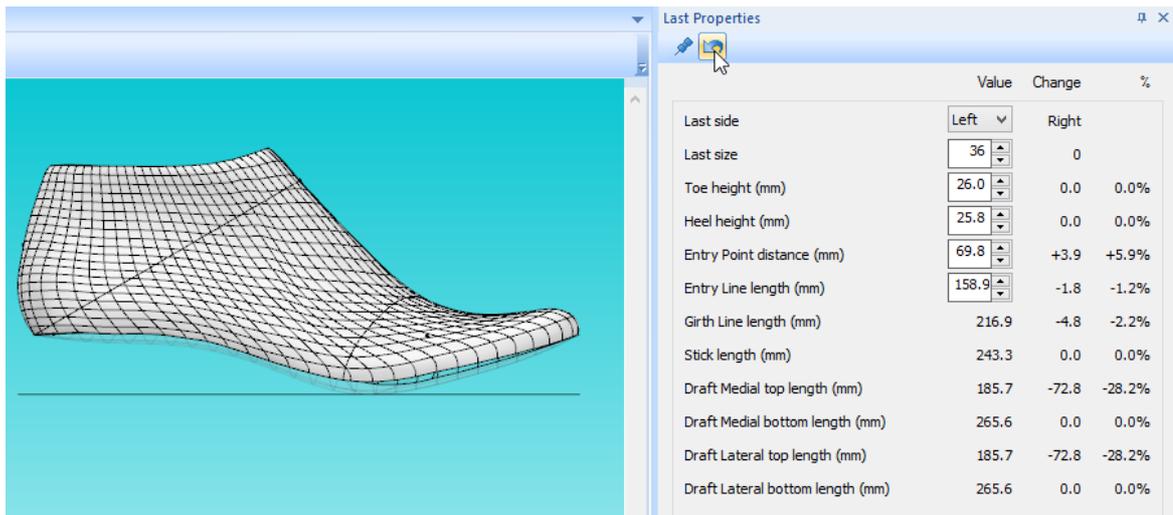
Change some of the last parameters.



If you check the values in the columns **Change** and **%**, its possible to check what parameters actually changed.

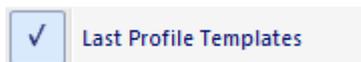
This track of changes will work in any modifications made in the Last, for example modify by shape or by section, etc.

Press the button **Restore to reference values**, and the last will be restored to is original state.



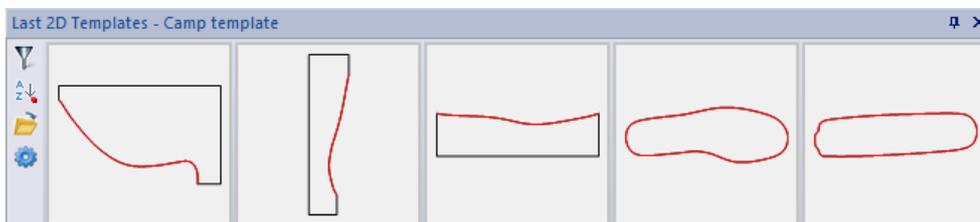
4.7 View - Libraries

This menu allows to see the available library for **MindCAD 3D Last** and hide/show it.

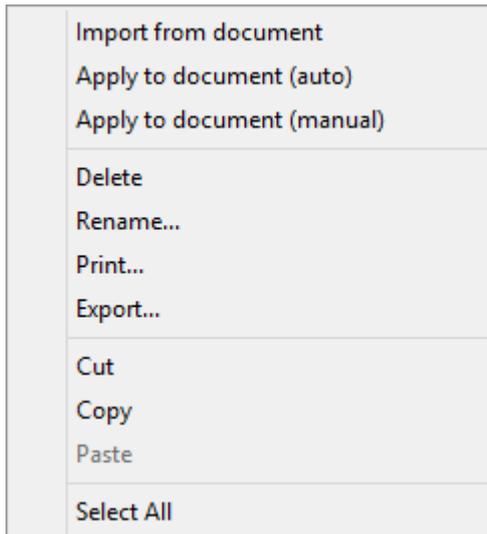


4.7.1 Last Profile Templates

This library allows to save from current or open last profiles templates.



Do a right click over the library area and to see the contextual menu:



Import from the document - This option will import the last main templates lines (front line, heel line, sole lateral, sole outline and top outline).

Apply to document (auto) - The selected template is automatically applied to the current project.

Apply to document (manual) - The selected template is applied to the current project, allowing the user to control the process.

Delete - The selected template(s) is deleted.

Rename... - Rename the selected template.

Print... - Print the selected template(s).

Export... - Export the selected profile.

Cut - Cut the selected template(s).

Copy - Copy the selected template(s).

Paste - Pastes the template of the paste buffer (filled by cut or copy) into the current library.

Select all - Select all the templates from the current library.

4.7.1.1 Apply to document

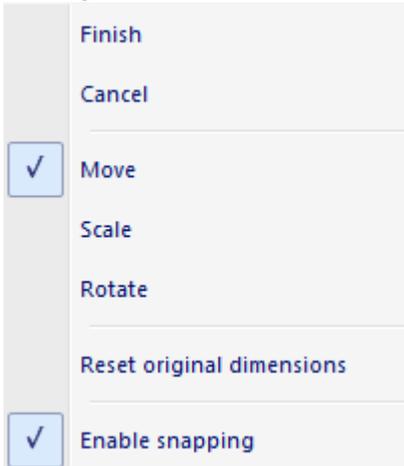
To apply a last template to the current project:

- do a right click over the template and select Apply to document;
- or click and drag the template and release over the last.

The red line represent the new Heel line, from template. And the black line, the original heel line, from the last.



Do a right click to access the contextual menu:



Finish - To apply the changes to the last

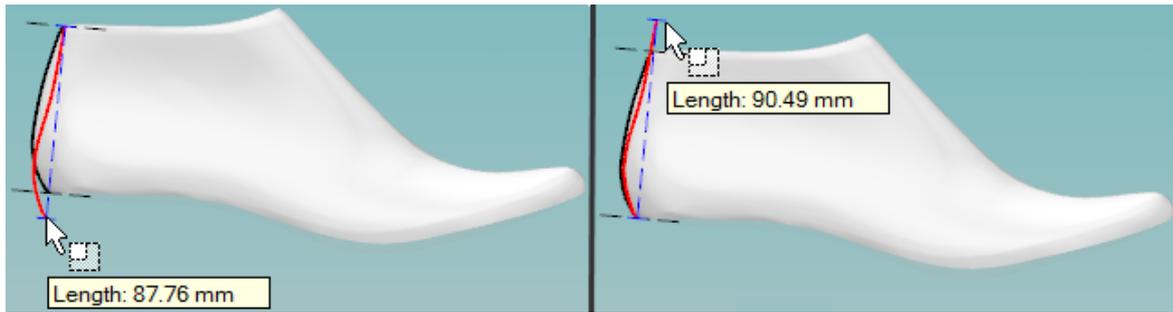
Cancel - To cancel the changes made.

Move - Its possible to click and drag the new line, to better position. A feedback of the x,y movement in mm is provided.

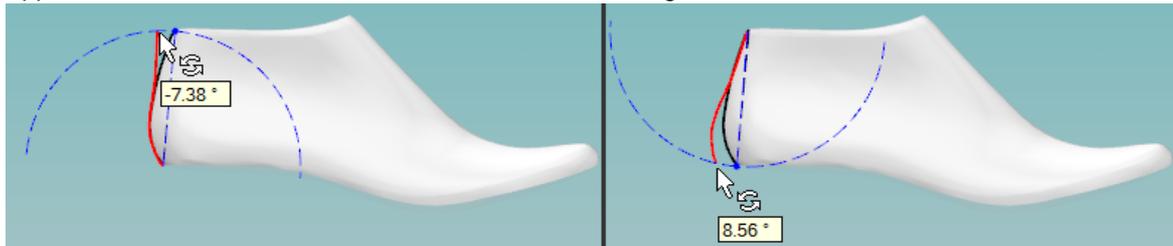


Scale - Allows to scale the line from template. Additional information about the line length is provided.

Click and drag the line ends.



Rotate - Allows to rotate the line from template. A feedback of the angle is provided. Approach the mouse cursor to the line end, click and drag the dialer to the desired rotation.



Reset original dimensions - The heel line from template, when placed into the Last automatically adjust his size to the original line size. Select this option to reset the template line to his original size.

Automatically adjusted line



Original size



Enable snapping - Enable/disable the snap to the original line points. A visual feedback is provided, for an easier identification when this option is enable/disable.

Snapping Enabled. Bullets in the line ends

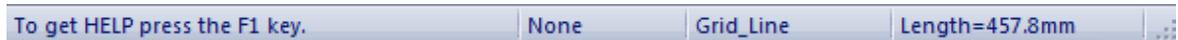


Snapping Disabled



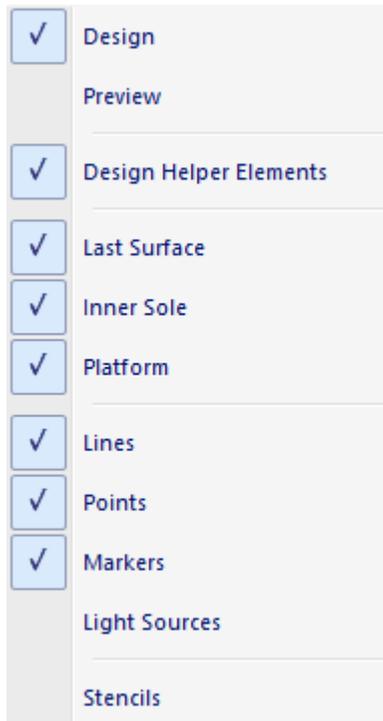
4.8 View - Status Bar

This is the option to turn *on/off* the status toolbar. It is recommended that this menu is displayed at all times.



4.9 View - Layers

This option shows all the options for displaying layers.



4.9.1 View - Layers - Design

This is the option to turn on/off the design layer. This is the same as clicking the **Design Mode**

button  in the **Layers** toolbar.



The design layer is actually a combination of the other layers; it allows you to quickly set all the required layers for designing.

4.9.2 View - Layers - Preview

This is the option to turn on/off the preview layer. This is the same as clicking the **Preview Mode**

button  in the **Layers** toolbar.



The preview layer is actually a combination of the other layers; it allows you to quickly set all the required layers to see a preview of the finished Last without the lines.

4.9.3 View - Layers - Design Helper Elements

This is the option to turn *on/off* the design helper elements layer.

Design helper elements are lines which are needed to give the designer more information about the last. They normally are the centre line of the last at the back and front, the feather edge and island (around the top of the last) lines.

Using the **Design** and **Preview** layer options, means that under normal circumstances this option is not required.

4.9.4 View - Layers - Last Surface

This is the option to turn *on/off* the last surface layer. This is the same as clicking the **Show/hide**

last button  in the **Layers** toolbar.

4.9.5 View - Layers - Inner Sole

This is the option to turn *on/off* the preview layer. This is the same as clicking the **Show/hide inner**

sole button  in the **Layers** toolbar.

4.9.6 View - Layers - Platform

This is the option to turn *on/off* the platform layer.

4.9.7 View - Layers - Lines

This is the option to turn *on/off* the lines layer. This is the same as clicking the **Show/hide lines**

button  in the layers toolbar.

4.9.8 View - Layers - Points

This is the option to turn *on/off* the helper points layer.

Points are positions on the surfaces with special significance, they will be specific to the current last, and been added at the last digitizing stage. They include, vamp depth, back height, under ankle heights and any others specified by the user when digitizing the last.

4.9.9 View - Layers - Markers

This is the option to turn *on/off* the markers layer.

Markers are points placed on the last surfaces. They can be positioned when using the measure options, they are displayed as red cones on the 3D surfaces.

4.9.10 View - Layers - Light Sources

This is the option to turn *on/off* the light sources layer.

The light sources can be modified using the options Light sources from Layers options in the View menu.

4.9.11 View - Layers - Stencils

This is the option to turn on/off the **Stencils** layer. This is the same as clicking the **Stencils** button in the **Layers** toolbar. 

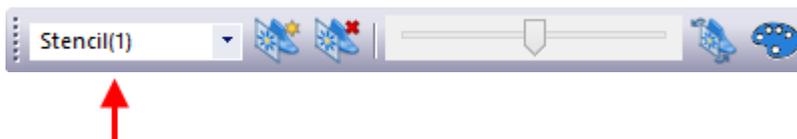
Stencils are images that can be loaded into the background. The last and the stencil image can be scaled and moved to become aligned. The billboard can have its intensity changed so that the image is displayed over the last. Lines can then be drawn onto the last to imitate the image.

The **Stencils** toolbar is displayed when the layer is turned on.



4.9.11.1 View - Layers - Stencils - List

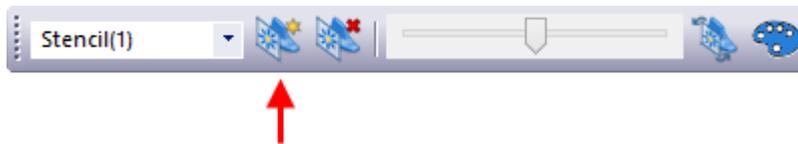
This option lets you select any opened stencil.



Select the required stencil from the drop down list.

4.9.11.2 View - Layers - Stencils - Open

This option lets you open stencils.



This option will open a standard windows selection menu.

The stencil files can be of jpg, jpeg or bmp format.

4.9.11.3 View - Layers - Stencils - Delete

This option will delete the current stencil.



4.9.11.4 View - Layers - Stencils - Adjust

This option adjusts the transparency of the stencil.



Move the slider; the left side is less transparent, the right side is more transparent.

4.9.11.5 View - Layers - Stencils - Size and Position

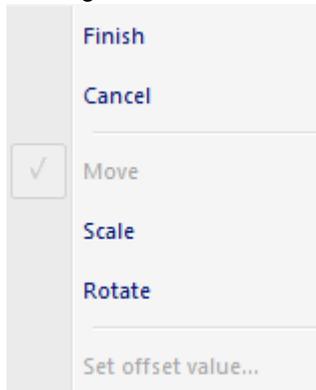
This option lets you move and scale the stencils.



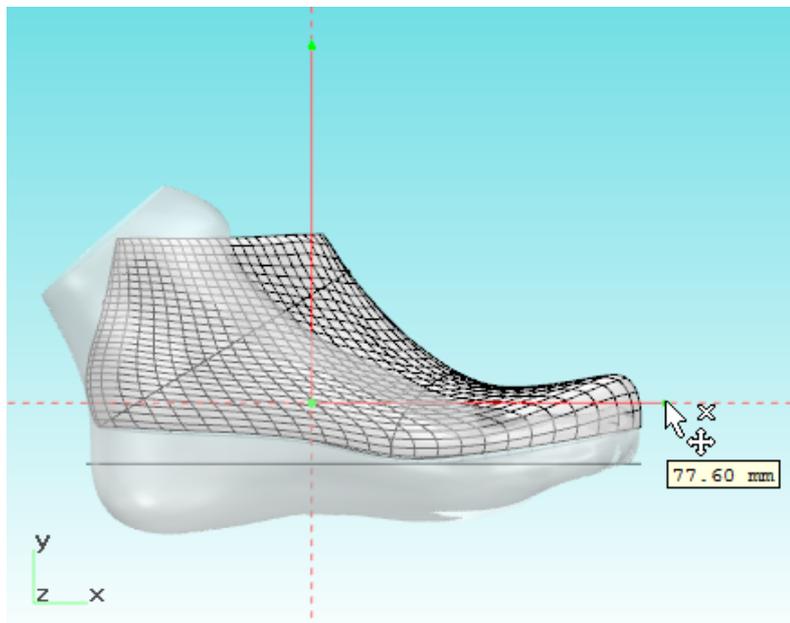
By default the tool move is the first to be activated.

Align a 3D Stencil:

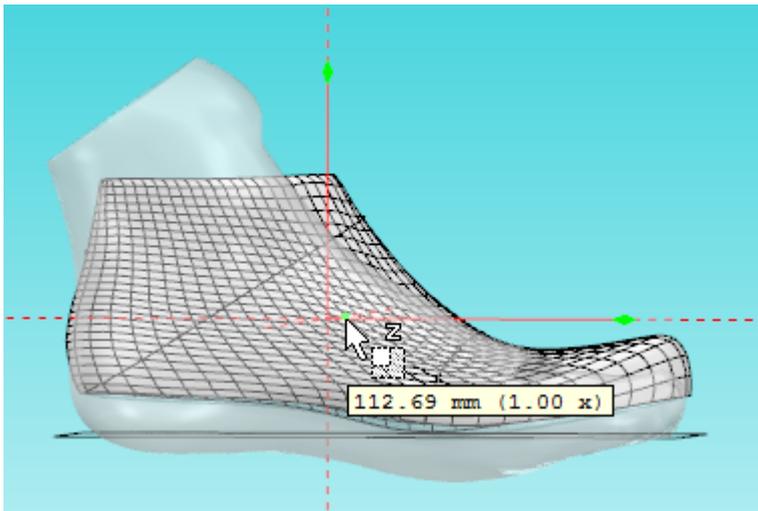
Do a right click to access the contextual menu:



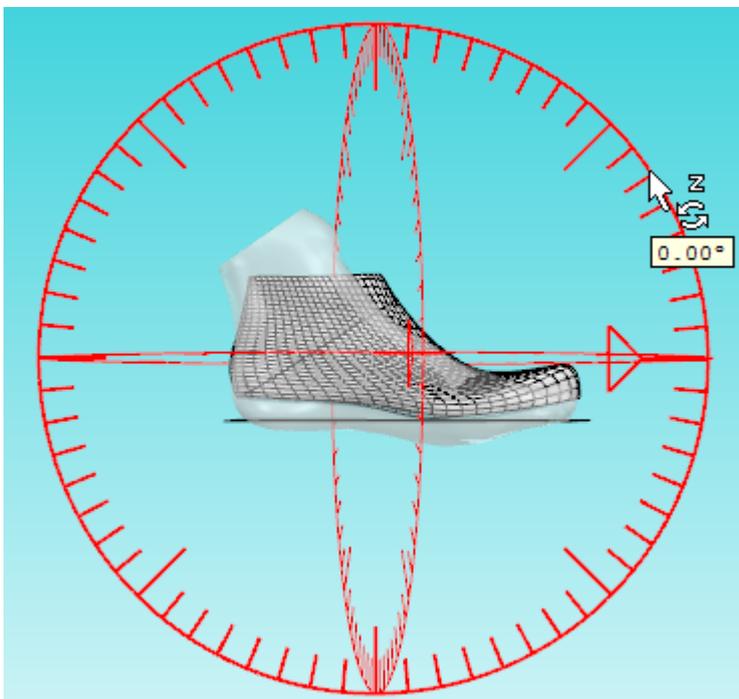
- **Finish:** store current view settings in the selected stencil.
- **Cancel:** to cancel the changes, and exit the tool.
- **Move:** Click and drag the desired axis (x,y,z), the stencil will move accordingly.



- **Scale:** Click and drag the desired axis (x,y,z), the stencil will scale accordingly.



- **Rotate:** Click and drag the dial to the desired rotation, feedback of the angle is provided



Align a 2D Stencil:

To move the stencil:

1. Using the **left mouse button**, click and drag over the stencil. Move the mouse, the image will move accordingly.
2. Release the mouse button to complete the operation.

To scale the stencil:

1. Hold down the **CTRL** key and using the **middle mouse button**, click and drag over the stencil. Move the mouse to scale the image.

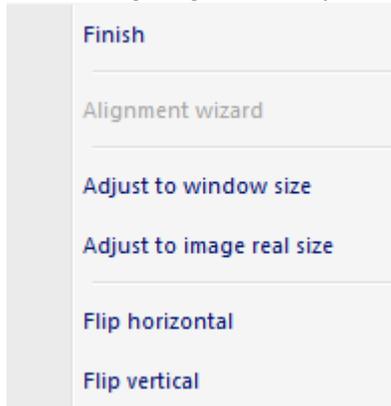
2. Release the mouse button to complete the operation.

To rotate the stencil:

1. Hold down the **CTRL** key and using the **right mouse button**, two clicks to define the rotation axis. Move the mouse and the stencil will rotate accordingly.
2. Other right click to complete the operation.

To finish adjusting the size and position right click and choose **Finish**.

When doing a right click anywhere on the screen the following options are available.



- **Finish:** store current view settings in the selected stencil.
- **Adjust to window size:** will resize the image to match the current viewport, keeping the original aspect ratio.
- **Adjust to image real size:** will return the image to its original size on screen.
- **Flip horizontal:** flip the image horizontally
- **Flip vertical:** flip the image vertically

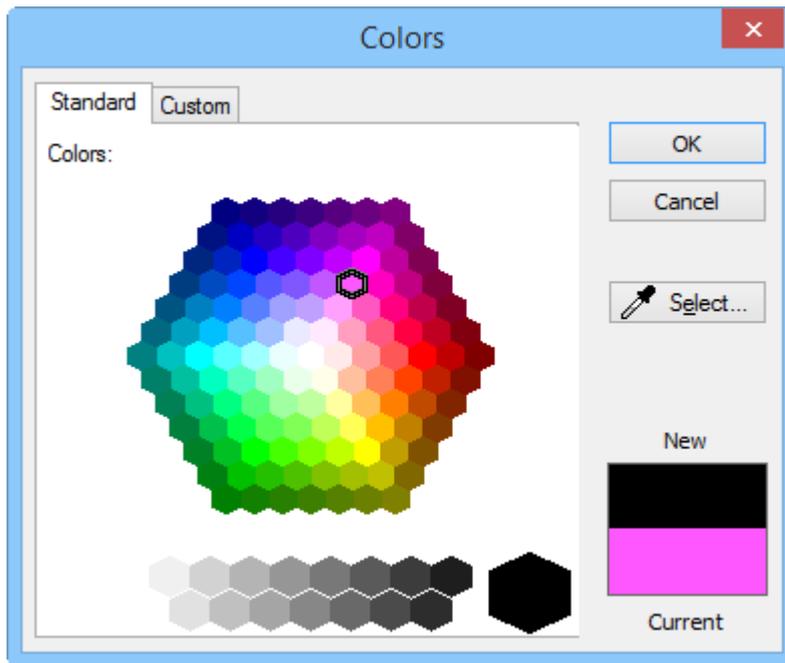
4.9.11.6 View - Layers - Stencils - Set color

This option allows to define the stencils color.



If you have more than one stencil open, you can assign different colors for each stencil.

The colors window will open, select the desired color and press Ok.

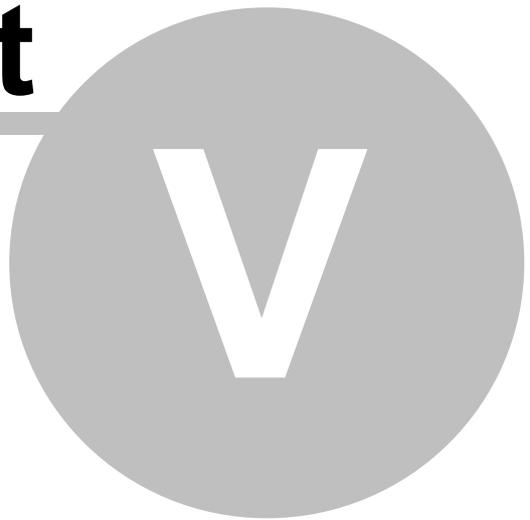


4.9.11.7 View - Layers - Stencils - Close

This is the option to close the stencils toolbar.



Part



5 Draw - Overview

This option shows all the options for drawing.



5.1 Draw - Line

This is the same as clicking the **Draw Line**  button in the **Tools** toolbar.



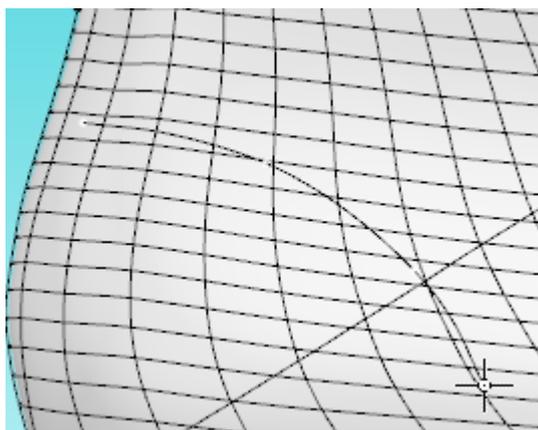
Use this option to draw lines over the last. By default the lines will be curved, but corners can be added at any time.

Curved line

1. Select **Line** from the **Draw** Menu.
2. The cursor will be displayed as a cross

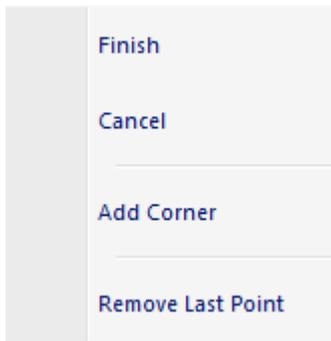


3. Insert points on the last using the left mouse button.



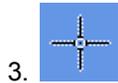
4. To finish the line either double click the left mouse button or press the right mouse button and

select **Finish** from the menu.

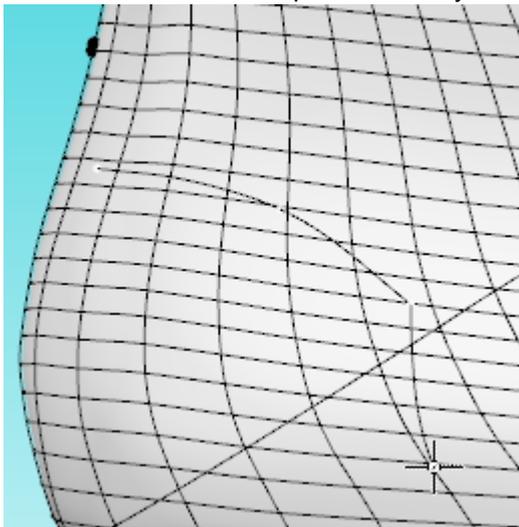


Curved line with corner

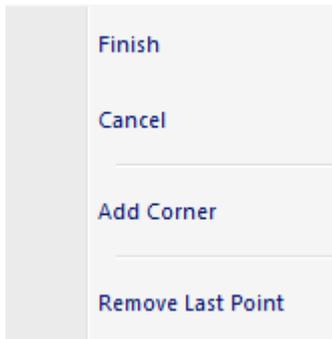
1. Select **Line** from the **Draw** Menu.
2. The cursor will be displayed as a cross.



- 3.
4. To add a corner either press **Ctrl** as you add the point,



5. Or when the cursor is in the correct position for the point, press the right mouse button and select **Add Corner** from the menu



6. The corner option can be used repeatedly in any line to create a zigzag effect.

Tips

- use as few points as you can to create your desired curve.
- avoid drawing across the cone and heel centre lines if possible, as these lines will not give the desired result when mirrored
- use the snap functions in the constrain menu to keep lines (points) accurate.
- use both 3D and 2D windows.

Line editing - Move point

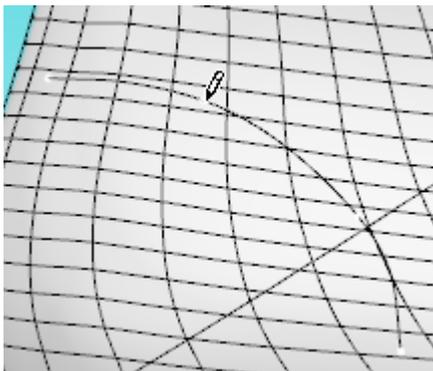
1. Select **Object selection** from the **Tools** bar.

2. The cursor will be displayed



3. Select the line to be edited.

4. As you approach a point on the selected line the cursor will change to a pen.



5. Press and hold down the left mouse button, as you move the mouse the point will move. To finish the edit release the left mouse button.

6. Repeat on any point on the selected line.

Line editing - Add/Delete point

To add a point to a line

1. Select **Object selection** from the **Tools** bar.
2. The cursor will be displayed



3. Select the line to be edited.
4. Hold down the **Shift** button, approach the selected line between original points, the cursor will change to a pen with a plus sign. 
5. Press the left mouse button to add a point at this position.

To delete a point from a line

1. Select **Object selection** from the **Tools** bar.
2. The cursor will be displayed



3. Select the line to be edited.
4. Hold down the **Shift** button, approach the point to be deleted, the cursor will change to a pen with a minus sign. 
5. Press the left mouse button to delete the point.

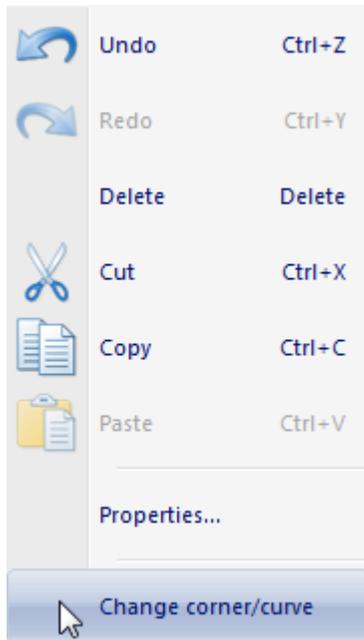
Line editing - Changing a Corner/Curve point

To change the corner/curve property of a point,

1. Select **Object selection** from the **Tools** bar.
2. The cursor will be displayed



3. Select the line to be edited.
4. Approach the point to be edited and get the pen cursor displayed.
5. Press the right mouse button and select the **Change corner/curve** option from the menu.



Line editing - Dragging/Scaling/Rotating a line(s)

Full information on **Drag Constrain** is in the **Edit** chapter. Click here for information on **Drag Constrain**.

1. Select **Object selection** from the **Tools** bar.
2. The cursor will be displayed



3. Select the line(s) to be edited.
4. With the pointed cursor displayed



5. Press the left mouse button and hold it down to drag the lines.
6. Press the **Ctrl** button and the middle mouse button to scale the lines with the cursor
7. Press the **Ctrl** button and the right mouse button to select the rotation point. Then press the right

mouse button to start rotation. Move the cursor to rotate the line(s) and another press of the left mouse button will complete the operation.

5.2 Draw - Points

Use this option to place points over the last.

The colour of this reference points can be changed globally for new points under **File - Preferences - Editing - Reference Elements - Color** dialog option.

For further details please refer to File - Preferences - Editing section.

5.3 Draw - Continue Line

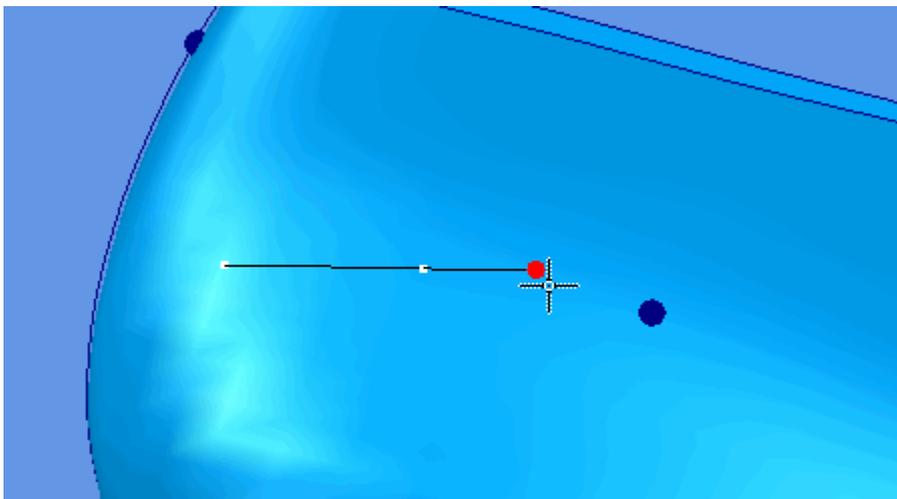
Use this option to continue drawing a line from another.

This option lets you add points to the ends of lines.

1. Select Continue line from the **Draw** menu.
2. The cursor will be displayed as a cross



3. As you approach the end of a line the end will highlight



4. You can now add points to the end of the line using the left mouse button, finish the edit by double clicking the left mouse button, or use the finish option in the menu displayed by clicking the right mouse button.

Part

VI

6 Tools Overview

This menu lets you take measurements between points on the last and along any lines



6.1 Tools - Measurements

These options let you take measurements between points on the last and along any lines.



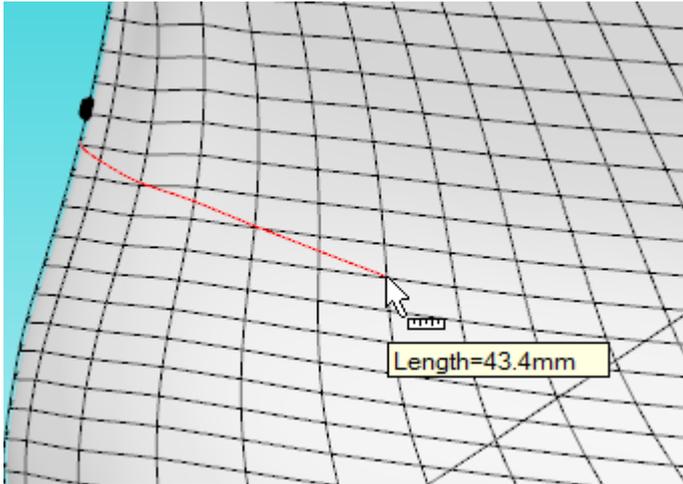
6.1.1 Tools - Measurements - Free

This is the same as clicking the **Free measurement**  button in the **Tools** toolbar.



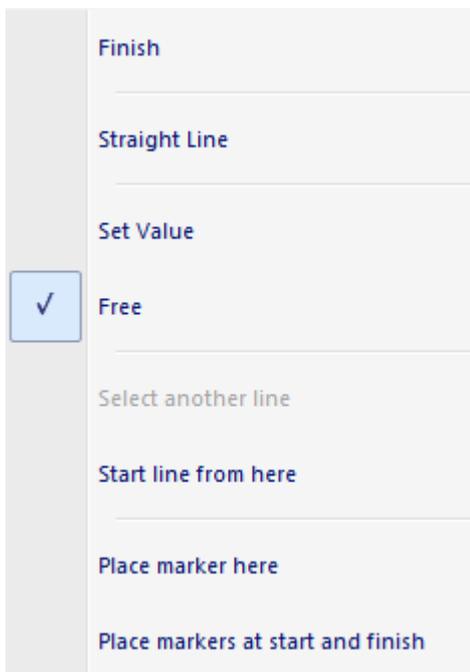
For measure the operator should:

1. Select **Free** from the **Measurements** options of the **Tools** menu.
2. Select a point on the last, using the left mouse button.
3. As you move the cursor the distance from the first point will be displayed.



4. Click the left mouse button again to finish the operation.

While measuring, doing a right click the following options are available:



Finish - Finalize the measurement operation.

Straight Line - Measures the straight distance between two points.

Set Value - Enter measurement value.

Free - No restriction in the measurement line length.

Select another line - Only available when doing measurements over a line.

Start line from here - Enables the curve drawing tool, starting a line from the measure end point.

Place marker here - Place a marker at the measure end point.

Place markers at start and finish - Place markers at both ends of the measure line.

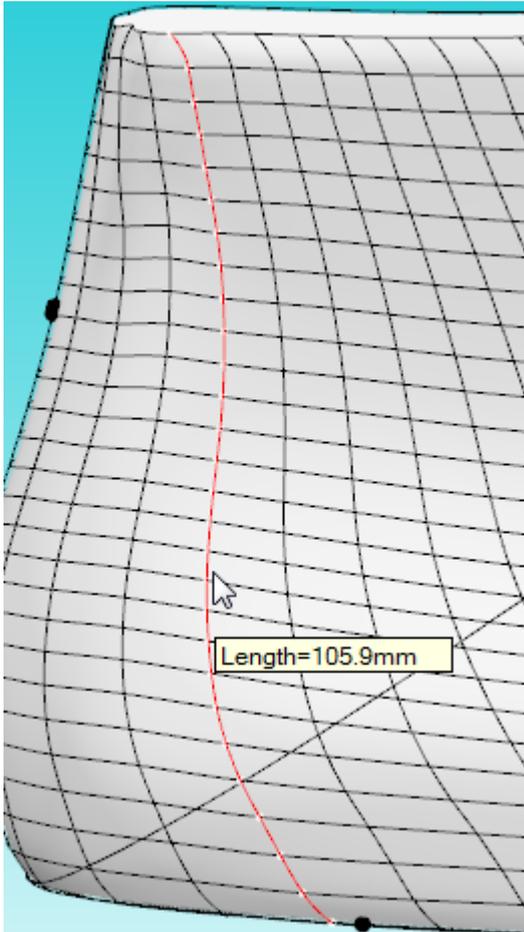
6.1.2 Tools - Measurements - Line

This is the same as clicking the **Line measurement**  button in the **Tools** toolbar.

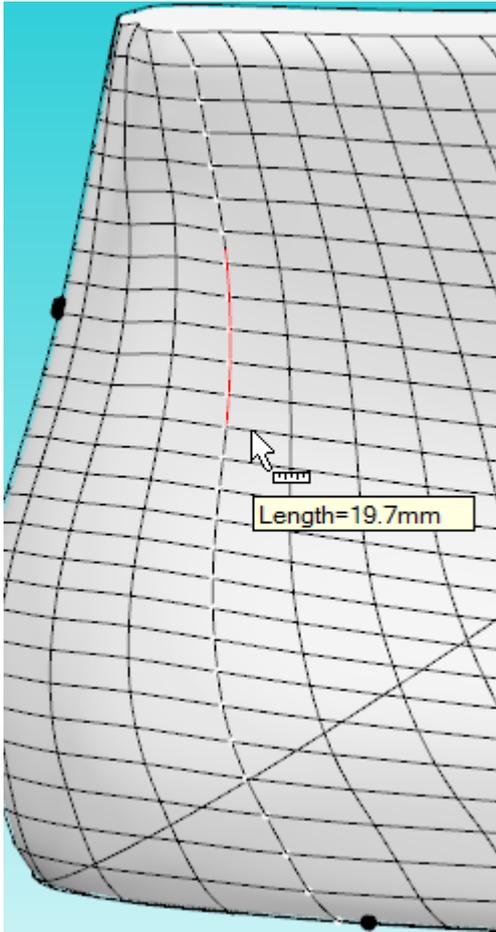


For measure the operator should:

1. Select a line.
2. Select **Line** from the **Measurements** options of the **Tools** menu.

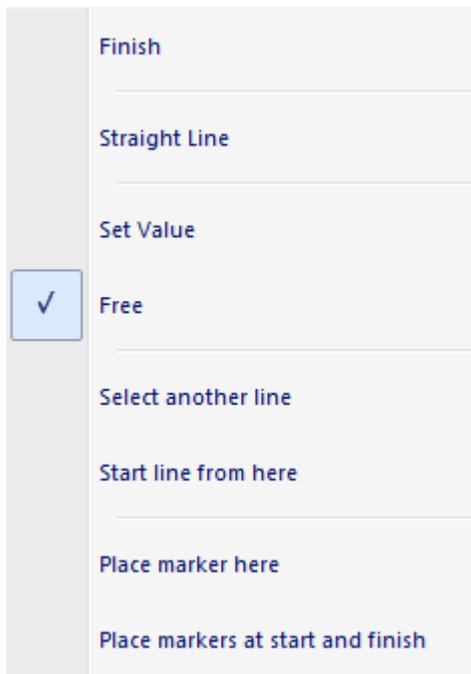


3. Use the mouse to select a point on the currently selected line.
4. As you move the cursor, the distance from the first point, measured along the line will be displayed, and the measurement highlighted.



5. Click the left mouse button again to finish the operation

While measuring, doing a right click the following options are available:



Finish - Finalize the measurement operation.

Straight Line - Measures the straight distance between two points.

Set Value - Enter set measurement value.

Free - No restriction in the measurement line length.

Select another line - Only available when doing measurements over a line.

Start line from here - Enables the curve drawing tool, starting a line from the measure end point.

Place marker here - Place a marker at the measure end point.

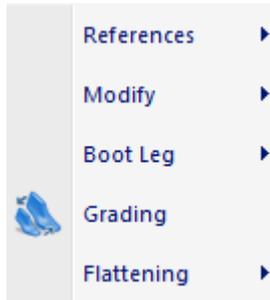
Place markers at start and finish - Place markers at both ends of the measure line.

Part

VII

7 Last Overview

In this menu is available the options to edit the Last and see its properties.



7.1 Last - References

This menu allows to **adjust center and heel lines** and to **recalc girth**.

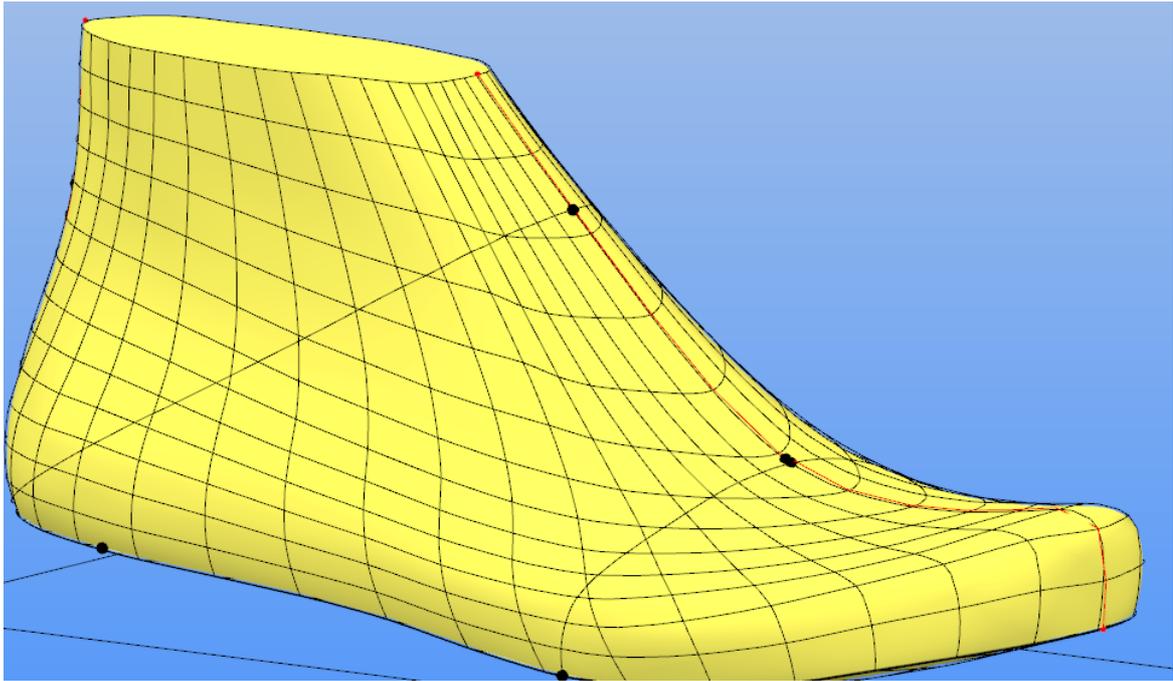


7.1.1 Last - References - Adjust Center and Heel Lines

This is the same as clicking the **Adjust Centre and Heel Lines**  button in the **Tools** toolbar.



When selecting this option the current front and heel lines appears with special handles.



The front and heel lines can be adjusted using the mouse by handling the red points. Careful adjustment of those lines position is critical for division of inside and outside, leading to a proper flattening.

You will have to reflaten your last for use in **MindCAD 3D Design & Engineering**

7.1.2 Last - References - Recalc Girth

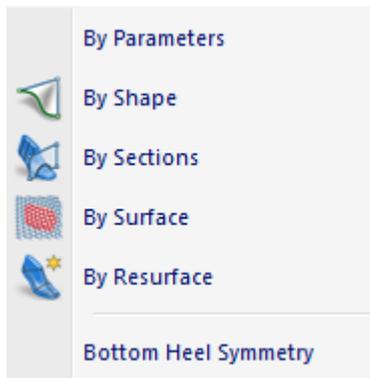
This is the same as clicking the **Recalc Toe Line**  button in the **Tools** toolbar.



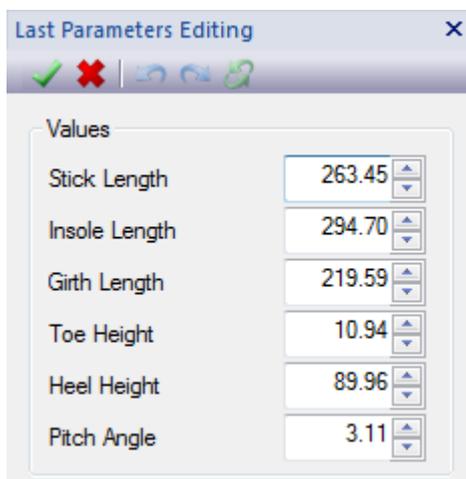
If by last editing, the area of the Toe Line is affected, there is the need to recalculate the Toe Line (Girth Line). This process is fully automatic without user intervention.

7.2 Last - Modify

In this menu is available several that allows to modify the Last, by parameters, shape, section, surface and resurface.



7.2.1 Last - Modify - By Parameters



Values

Stick Length

This option allows to change the value of the Stick length

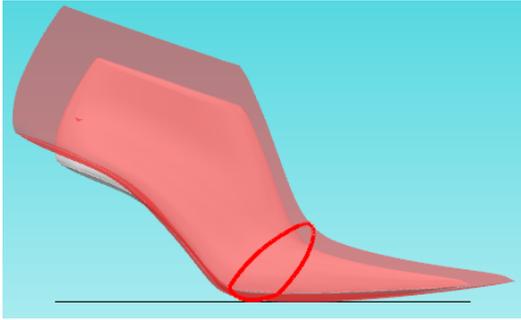
Options

- **Lock toe spring and Heel height**

If this option is activated when you change the stick length the toe and heel height will stay the same.

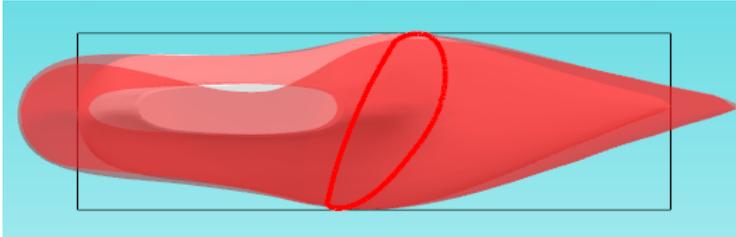


If this option is deactivated when you change the stick length the toe and heel height will also change.

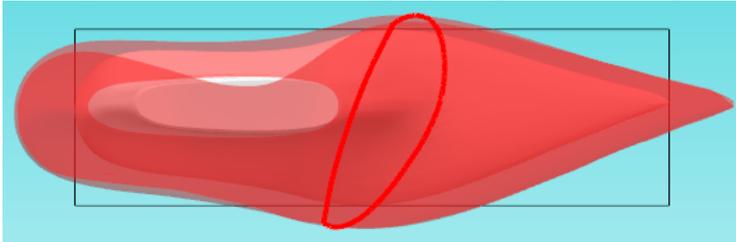


- **Lock Width**

If this option is activated when you change the stick length the last width will stay the same.

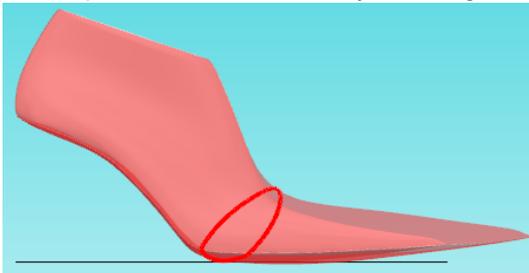


If this option is deactivated when you change the stick length the last width will also change.

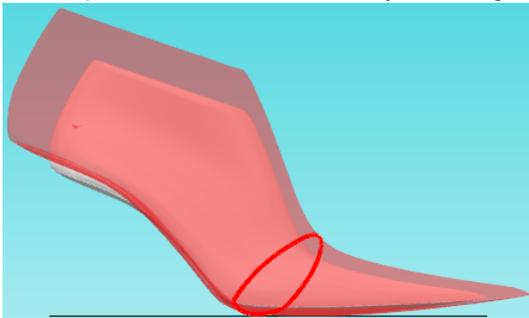


- **Lock Back**

If this option is activated when you change the stick length the back width will stay the same.

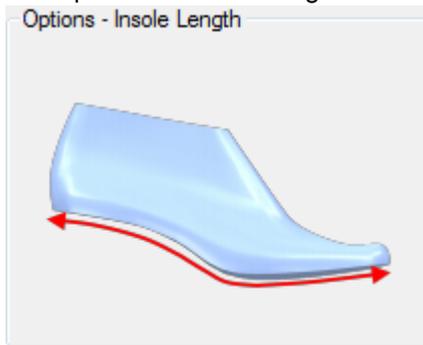


If this option is deactivated when you change the stick length the back width will also change.

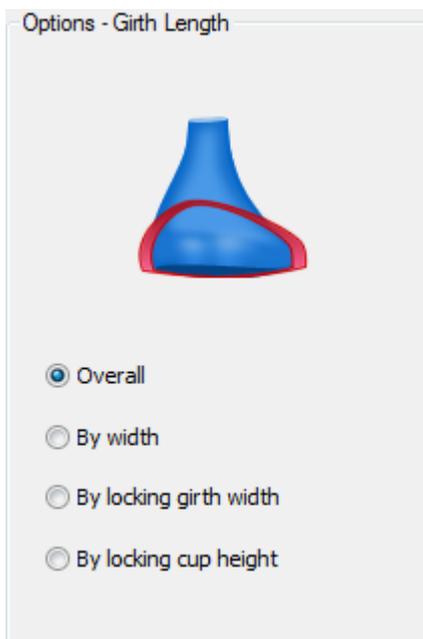


Insole Length

This option allows to change the value of the insole length.



Girth Length



Options

- Overall
- By Width
- By locking girth width
- By locking cup height

Toe Height

This option allows to change the value of the toe height.



Heel Height

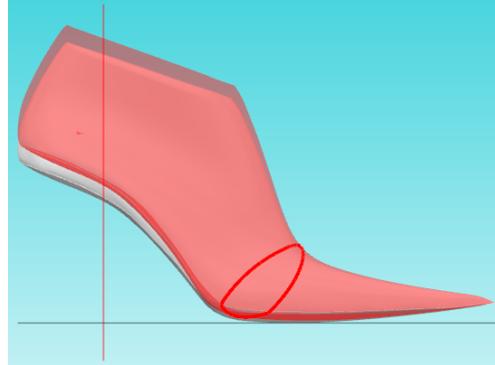
This option allows to change the heel height.



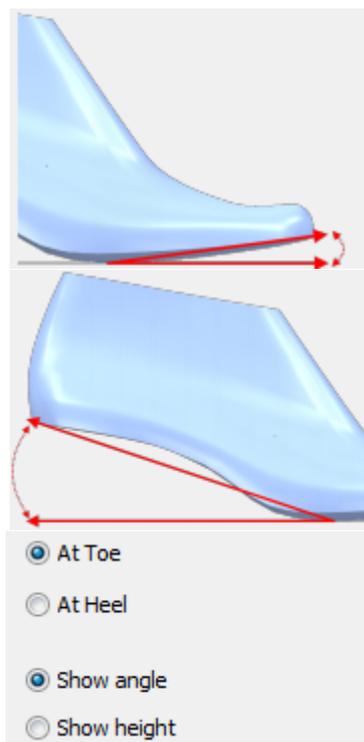
Options

- **Heel seat length**

The heel seat length doesn't change when the Heel height is change.



Pitch Angle



Options

- At Toe

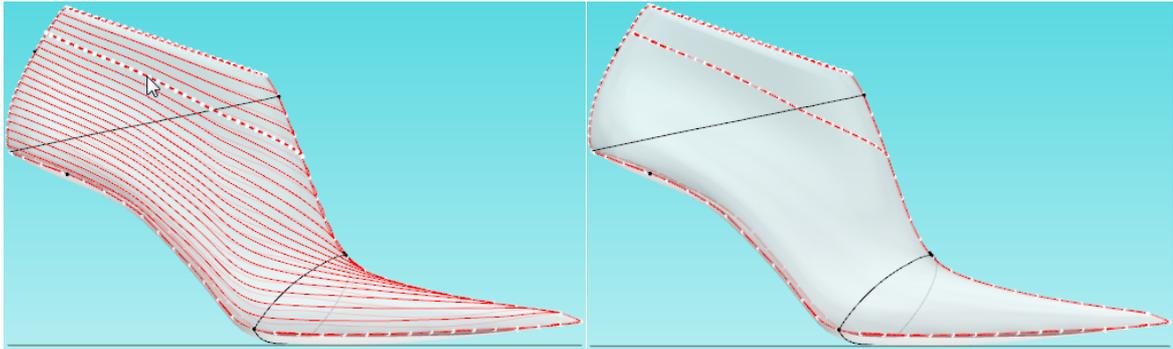
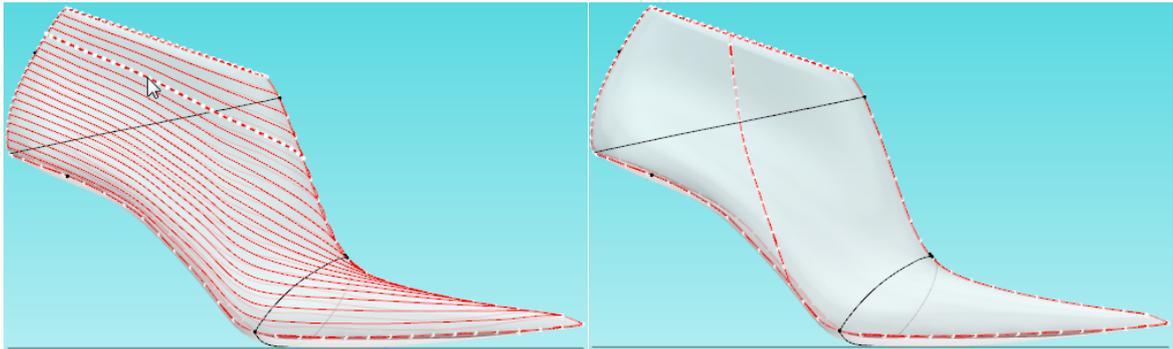
- At Heel

- Show angle

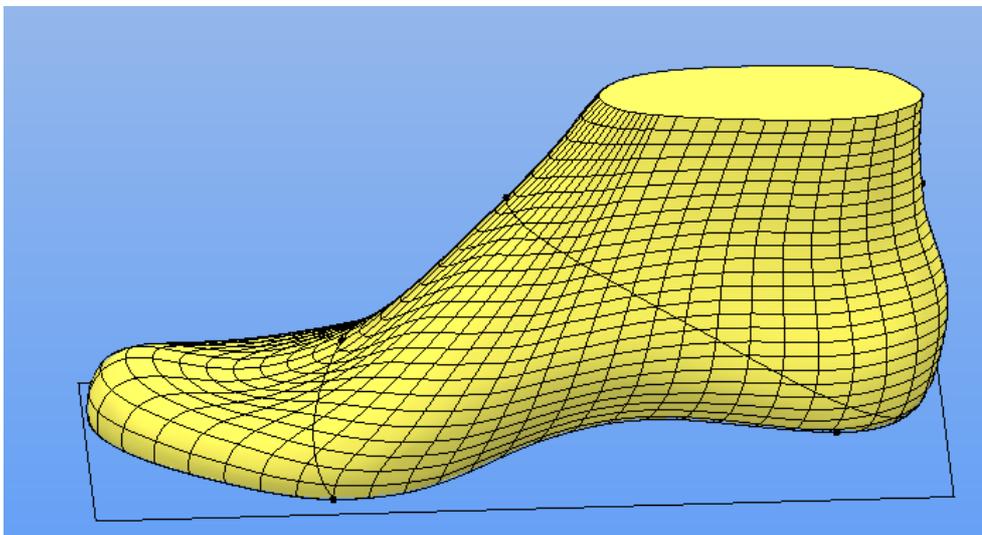
- Show height

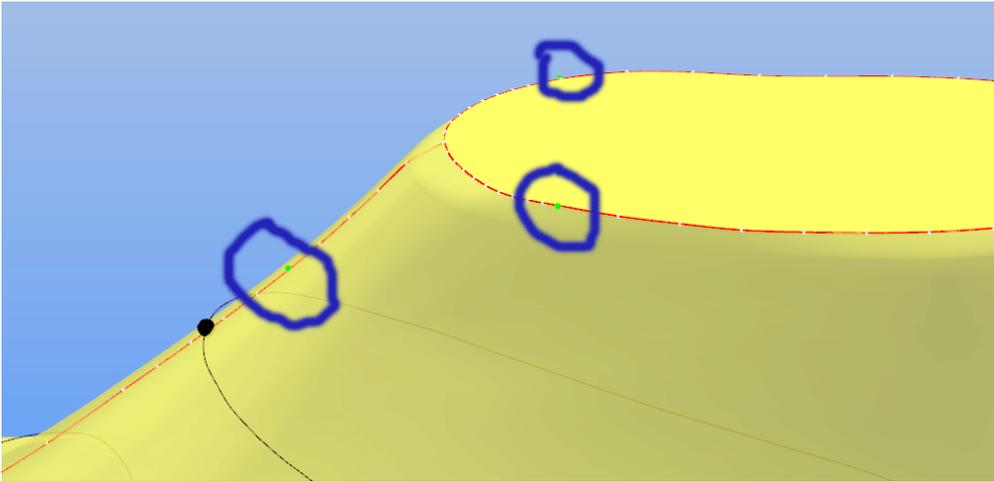
7.2.2 Last - Modify - By Shape

This is the same as clicking the **Adjust Shape**  button in the **Tools** toolbar.

**Vertical Line**

3. Select **Add nail** or **Remove nail** with the mouse on the desired location over the profile line (if **Symmetric mode** is enabled then a symmetric nail will be placed);

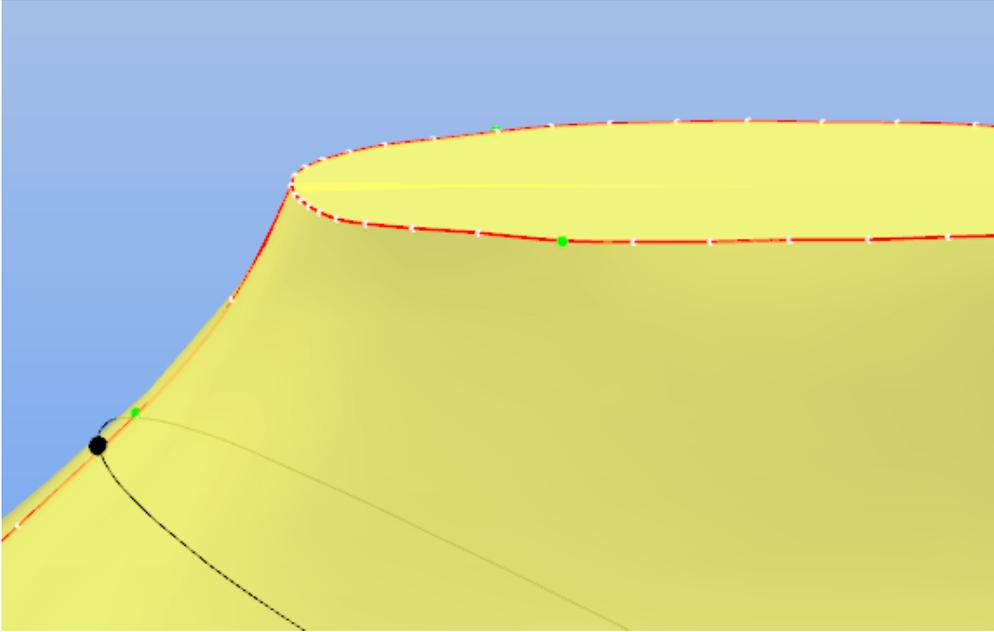




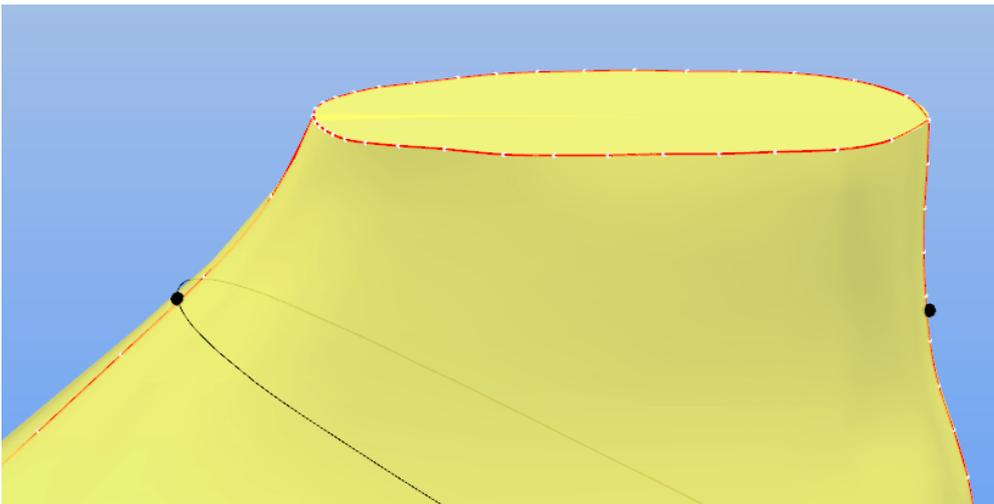
3. Pick and drag the handle to be controlled, this will change the attached profiles limited by the placed nails;



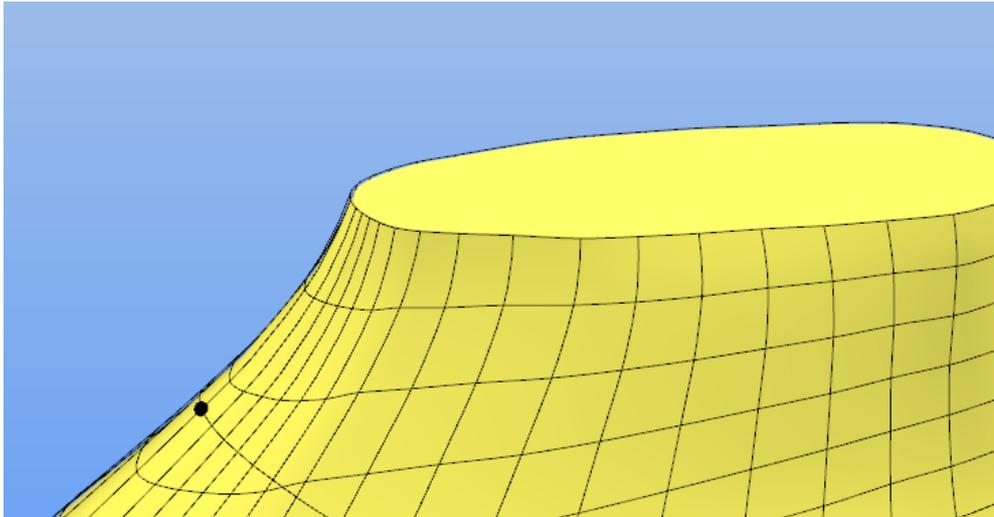
4. When finished, do a right click and choose **Apply to Last**



5. Do a right click and choose **Clear Nails**



6. Do a right click and choose **Finish**

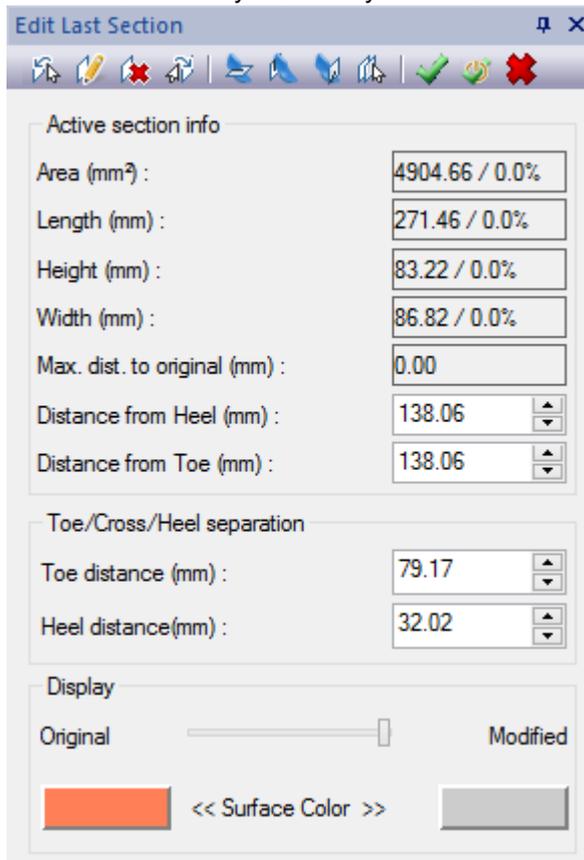


You will have to re-flatten your last for use in **MindCAD 3D Design & Engineering**

7.2.3 Last - Modify - By Section

This is the same as clicking the **Change Last by editing sections**  button in the **Tools** toolbar.

This allows to modify the last by sections.



Press the button **Previous section**  or **Next section**  to navigate through the existing sections.

Press the button **Edit section**  to enter de edit current section mode.

Press the button **Delete**  to delete the current section.

Press the button **Create cross section**  to create a new cross section.

Press the button **Create heel section**  to create a new heel section.

Press the button **Create toe section**  to create a new toe section.

Press the button **Copy current section**  to copy the current section.

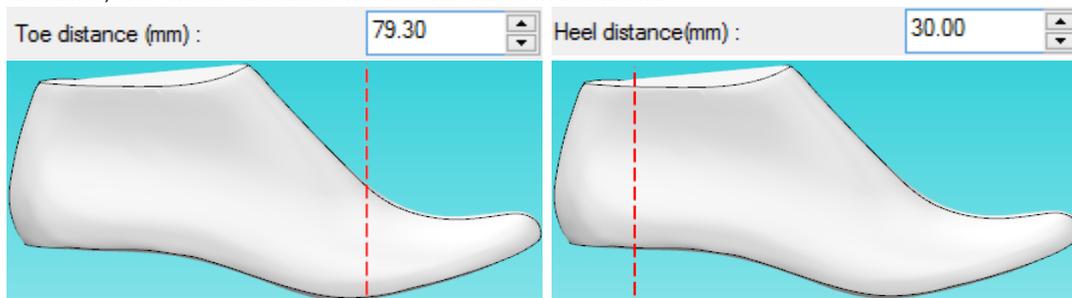
Press the button **Confirm changes**  to apply the changes and close the tool.

Press the button **Apply changes**  to apply the changes and continue the edition.

Press the button **Cancel changes**  to cancel the changes and close the tool.

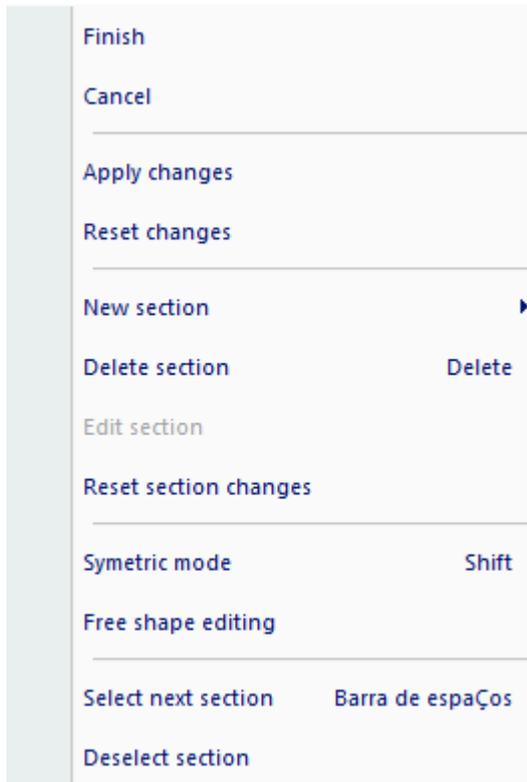
Active section info - Allows to check the area, length, height, width, Max. distance to original, distance from heel and distance from toe, about the active section.

Toe/cross/Heel separation - Allows to define each section range. Define the toe distance and heel distance, the cross distance will be the value in between.



Display - Allows to control the Last view between is original state and the modified. It's possible to define a color for the each state.

Do a right click to access the contextual menu:



Finish - Allows to stop edition and close the tool.

Cancel - Allows to cancel all the changes and close the tool.

Apply changes - Allows to apply the changes and continue the edition.

Reset changes - Allows to cancel all the changes made.

New section - Allows to create a new cross, heel or toe section or to copy the selected section.

Delete section - Erase the selected section

Edit section - Allows to edit the selected section.

Reset section changes - Allows to cancel the changes made in the selected section.

Symetric mode - Enable/Disable the symmetric edition mode.

Free shape editing - Enable/Disable the free shape edition mode.

Select next section - Allows to navigate through the existing sections

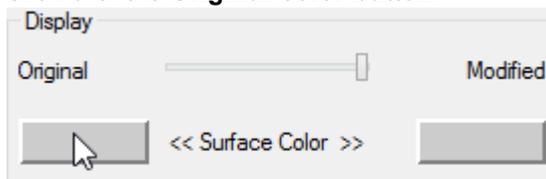
Deselect section - Allows to delete the selected section

7.2.3.1 Section Display

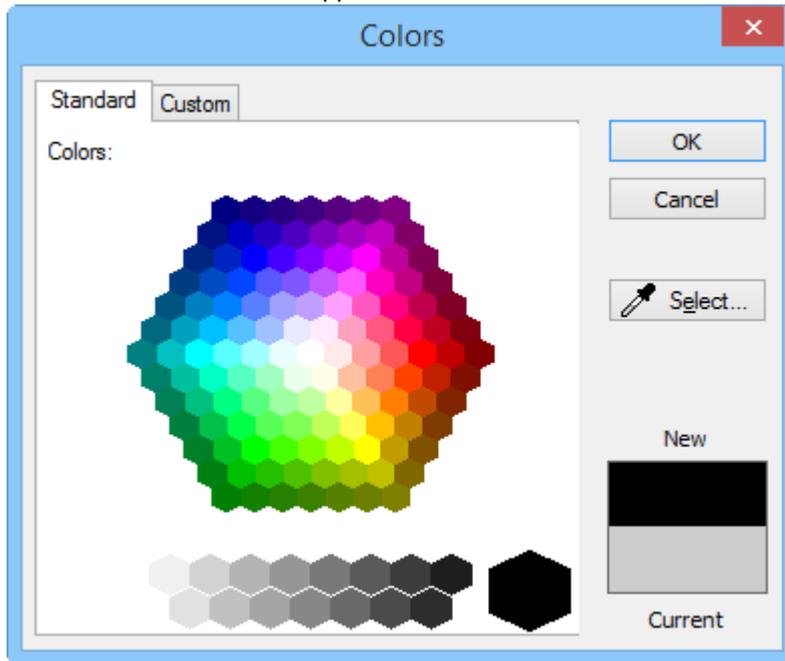
Allows to control the Last view between is original state and the modified.

It's possible to define a color for each state.

Click over the **Original color button**:

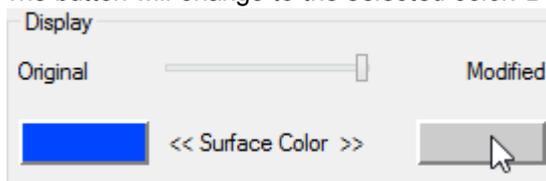


The **Colors windows** will appear:

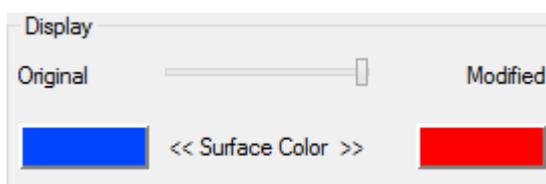


Select the **color** and press **OK**.

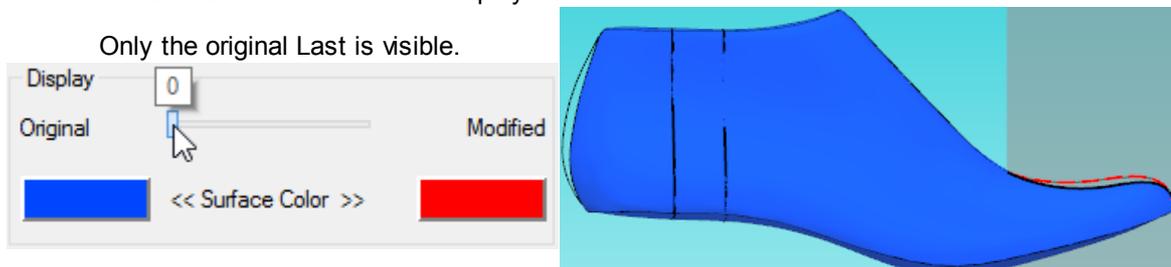
The button will change to the selected color. Do the same process for the **Modified last color**.



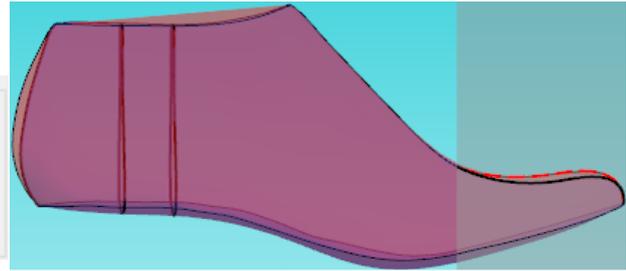
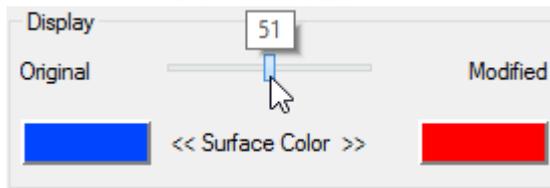
We define the original color as Blue and de modified color as Red.



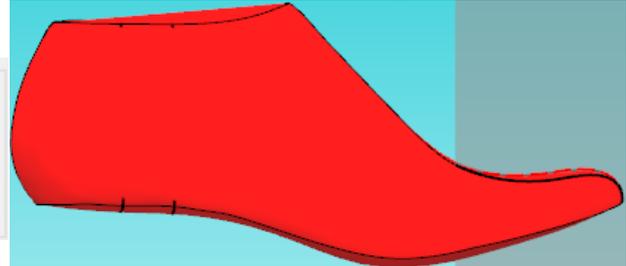
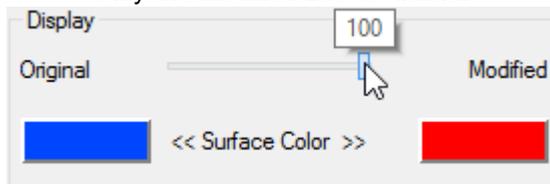
Move the **slide bar** to control what is displayed.



It's possible to see both, original and modified Last's.

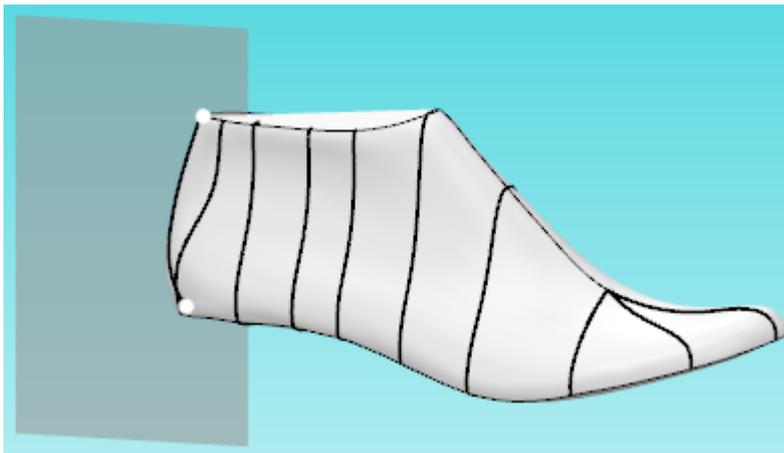


Only the modified Last is visible.



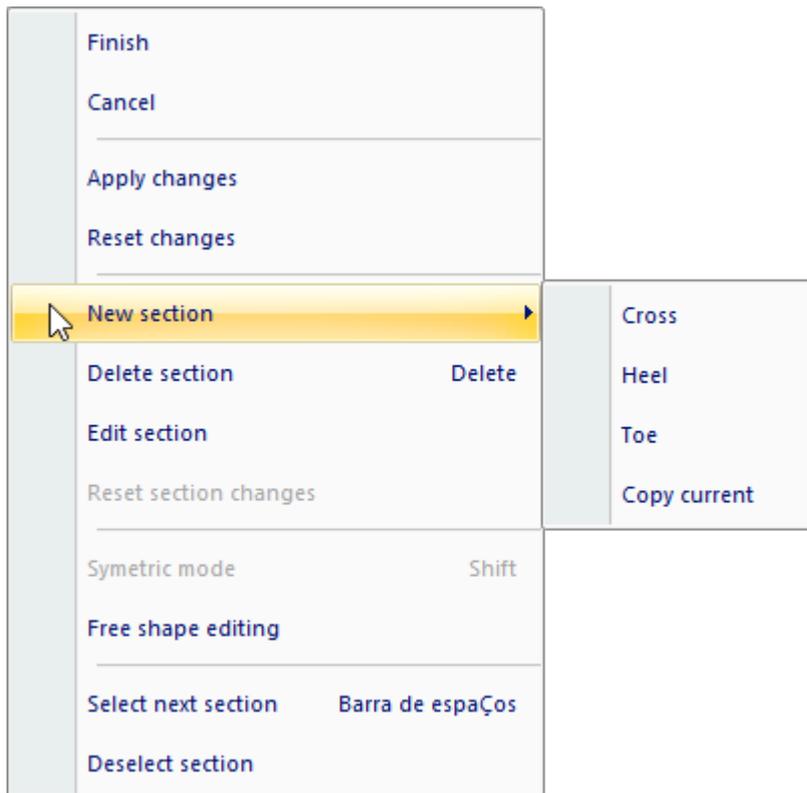
7.2.3.2 Create a Section

Its possible to create as many section as required.



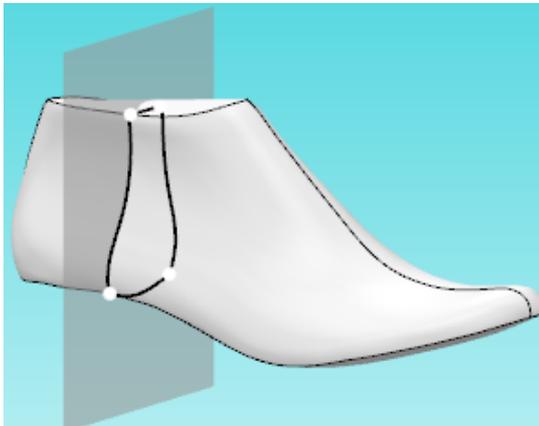
To create a new section click in the create section buttons  on the edit last section panel.

Or do a right click, select New Section on the contextual menu, and select one of the options:



The user can create section in three different areas of the last:

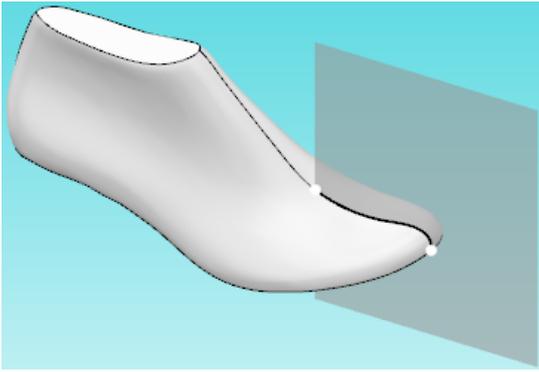
Cross - 



Heel - 

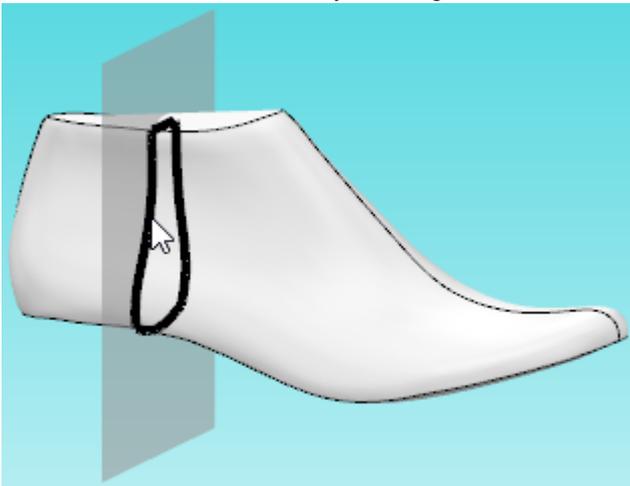


Toe - 



In alternative it's also possible to copy an existing section:

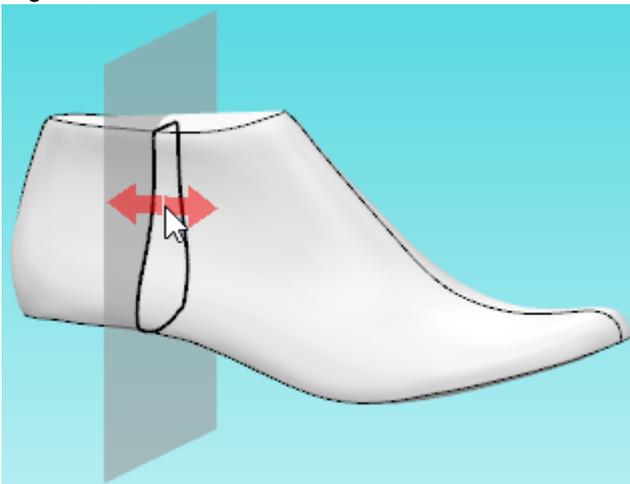
Select the desired section, by clicking over it.



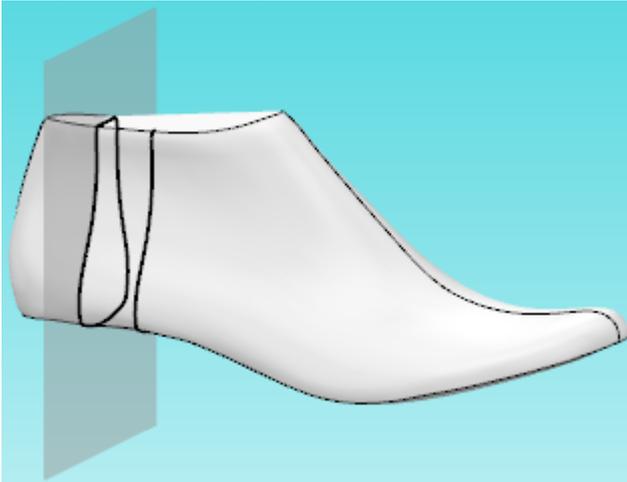
To copy the section click in the **Copy current section** button , or do a right click and select the option **Copy current** under the New section option, from the contextual menu.

The copy will be made, the new section is placed exactly over the original.

To move the copied section, place the mouse cursor over the section, until the red arrows feedback is given,



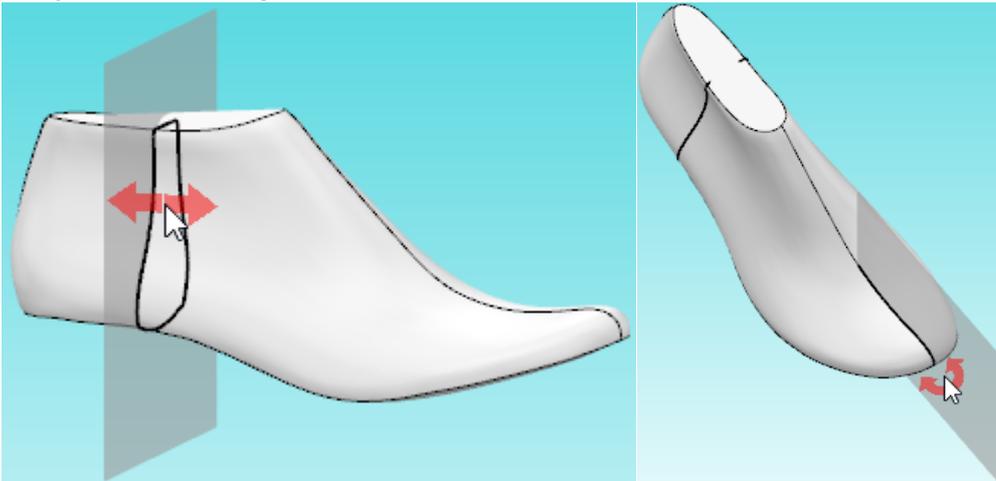
then just click and drag to see both section.



7.2.3.3 Edit a Section

Select the section to edit, by clicking over it, by using the **Previous section**  or **Next section**  or clicking in the Space bar, to navigate through the sections.

To move the section, place the mouse cursor over the section, until the red arrows feedback is given, then just click and drag to move the section.



In alternative its also possible to control the section positioning in the Edit Last Section bar.

Distance from Heel (mm) : 138.06  

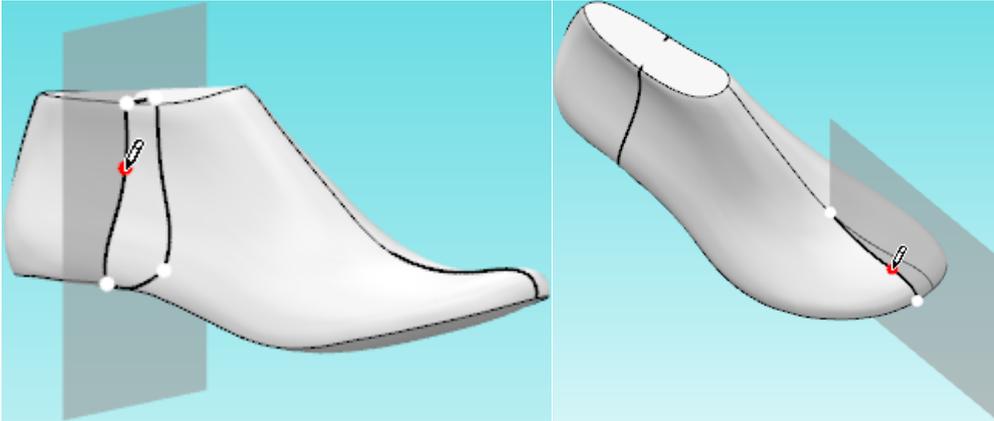
For cross sections: Distance from Toe (mm) : 138.06  

For heel section: Angle around Heel (deg.) : 41.27  

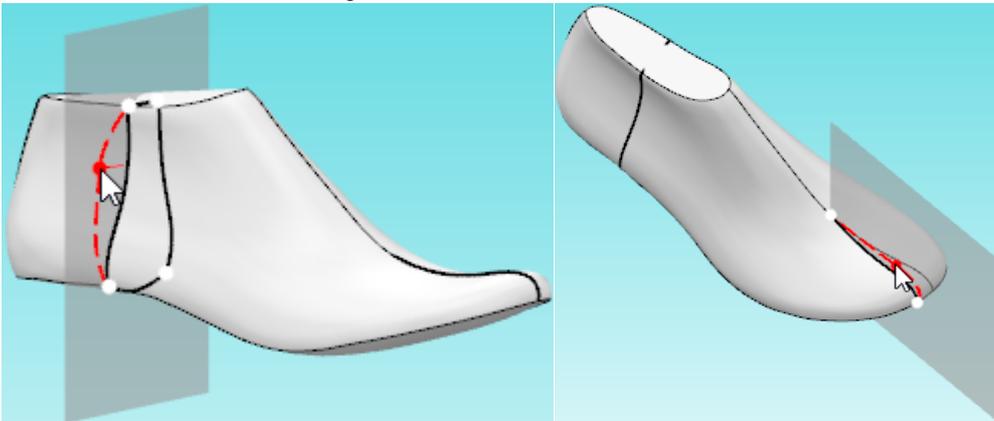
For toe section: Angle around Toe (deg.) : -24.65  

To start the edition, click over the selected section again or click the button **Edit section** .

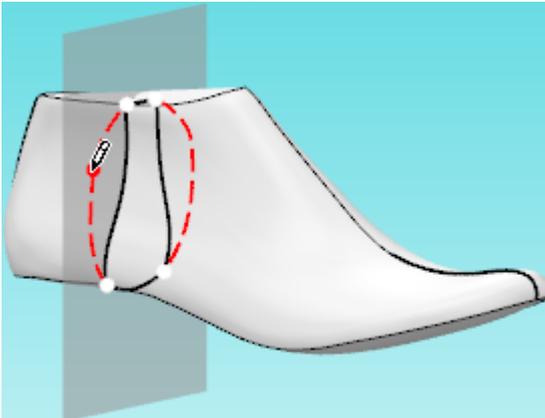
Place the mouse cursor over the section area to edit.



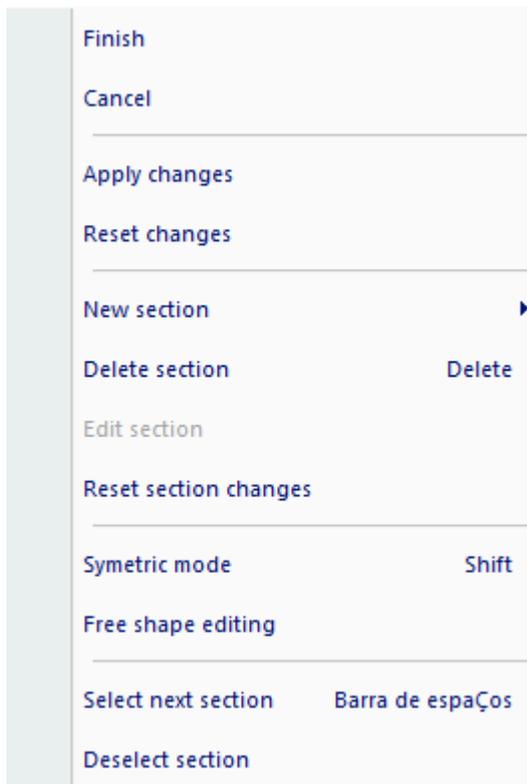
Click over the section and drag.



To edit both sides symmetrically, keep **SHIFT** pressed and click and drag the section, or do a right click and active the **Symmetric mode** from the contextual menu.

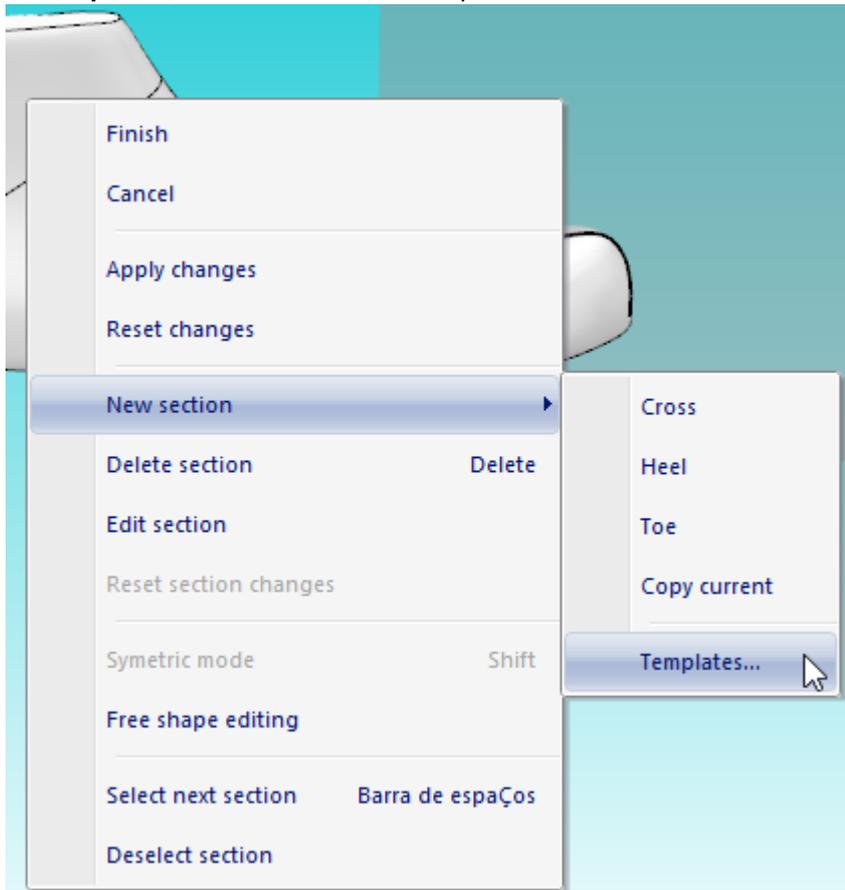


To apply the changes press the button **Apply changes** , or do a right click and select **Apply changes** from the contextual menu.

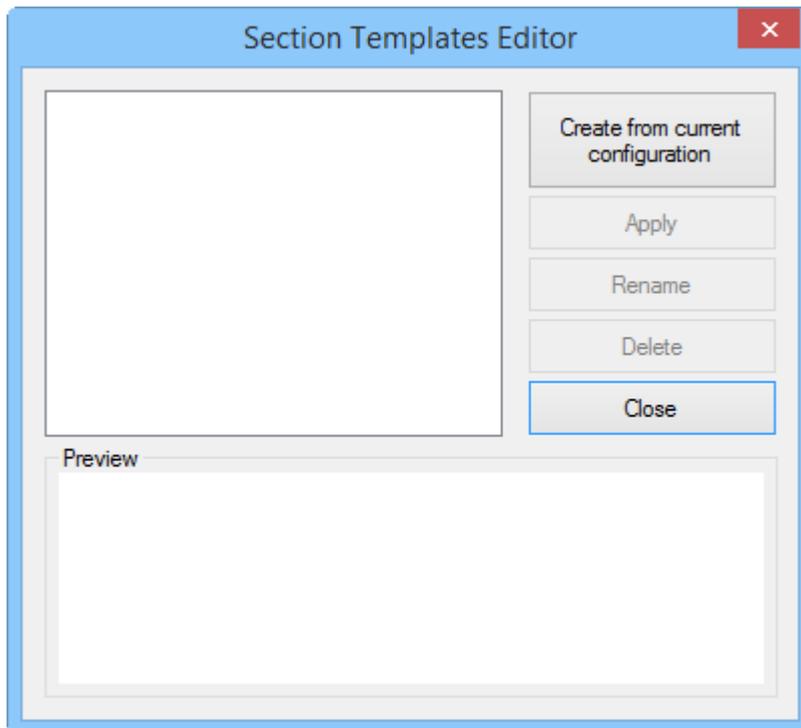


7.2.3.3.1 Section templates Editor

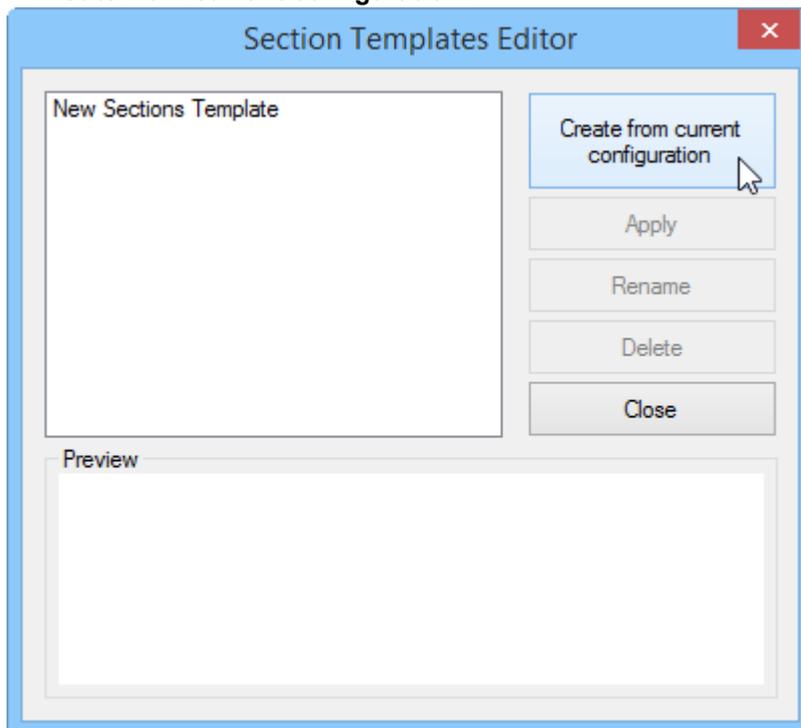
1. In the Edit Last Template context, do a right click to open the context menu and select **Templates**, under the new section options.



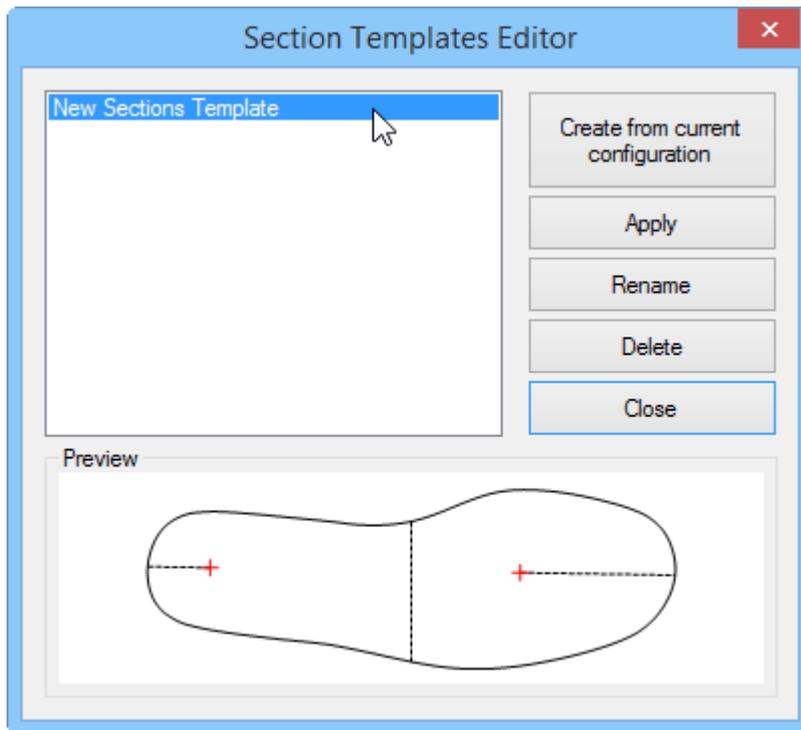
2. The section templates editor window will open.



3. Now its possible to create a new template from the current configuration, click in the button **Create from current configuration**.



4. The new section template will appear. Click over it to access the other options.



Apply - to apply the selected template to the model.

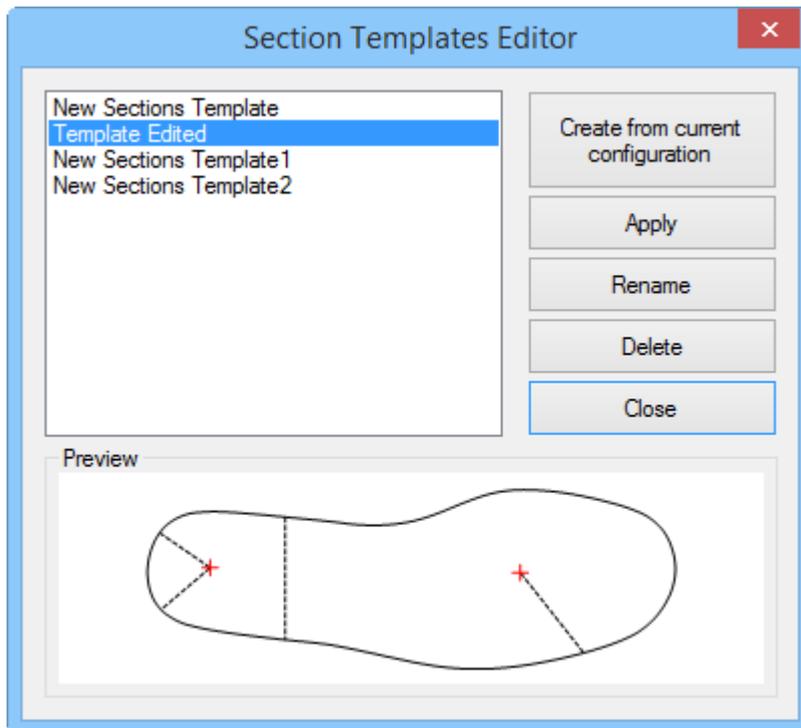
Rename - To edit the selected template name.

Delete - To delete the selected template.

Close - To close the Section Templates Editor window.

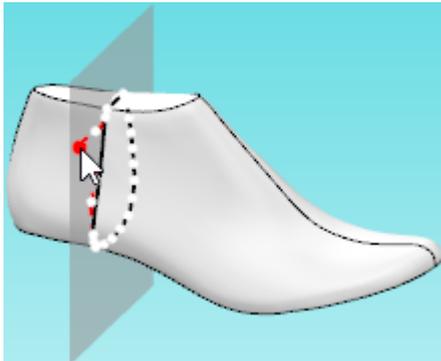
Preview - Shows a template preview.

5. Its possible to have several templates.

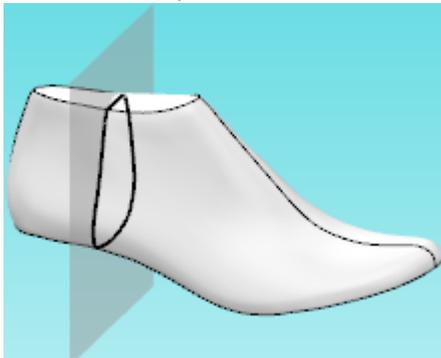


7.2.3.4 Free shape editing

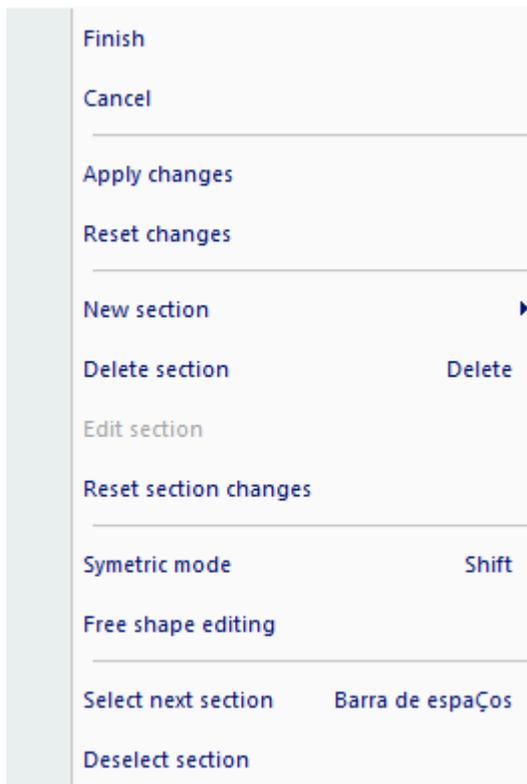
Free shape edition mode allows to edit the section point by point.



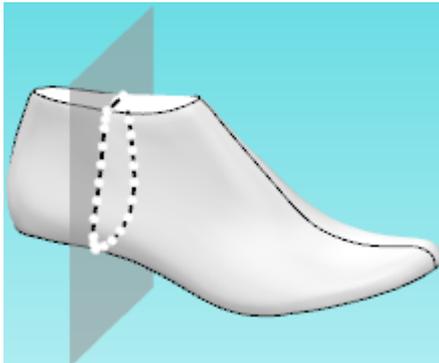
To active this option, select the section,



do a right click and select **Free shape editing** from the contextual menu.



To the section line, will be added more edition points.

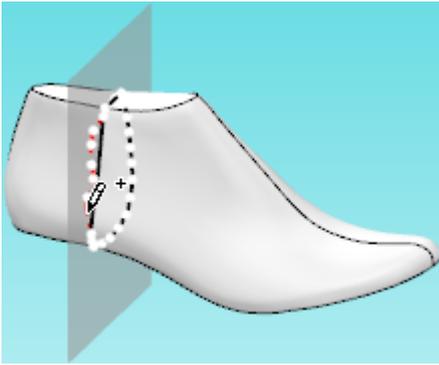


It's possible to add more points, or remove points.

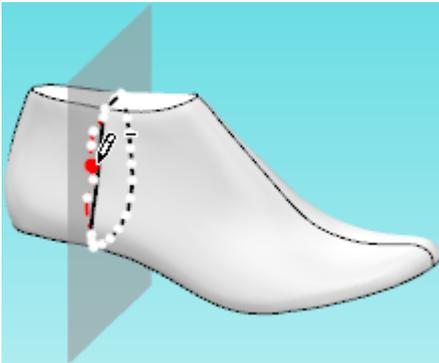
To add new points, hold down the **Shift** button, approach the section line between the original points,

the cursor will change to a pen with a plus sign. 

Press the left mouse button to add a point at this position.



To delete a point, hold down the **Shift** button, approach the point to be deleted, the cursor will change to a pen with a minus sign. 
Press the left mouse button to delete the point.



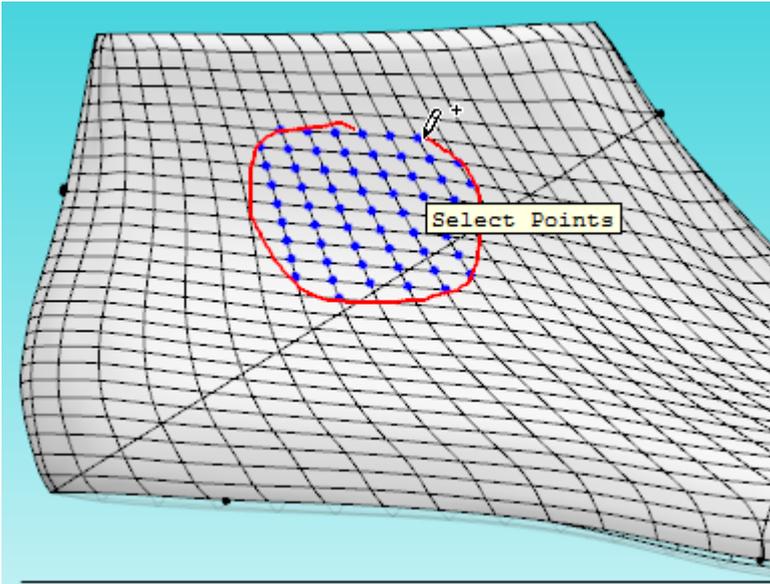
7.2.4 Last - Modify - By Surface

This is the same as clicking the **Adjust Grid**  button in the **Tools** toolbar.



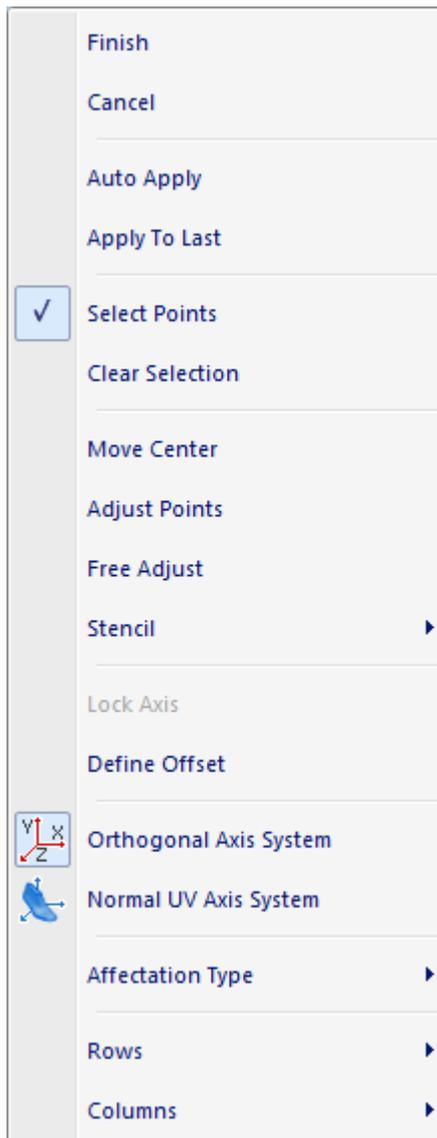
Last section shapes can be edited using the following procedure:

1. **Select points** to edit, press left button down and while pressing, do a circular movement encompassing the handles you want to include/exclude. If you do this movement anti-clockwise, handles will be included, if clockwise handles will be removed.



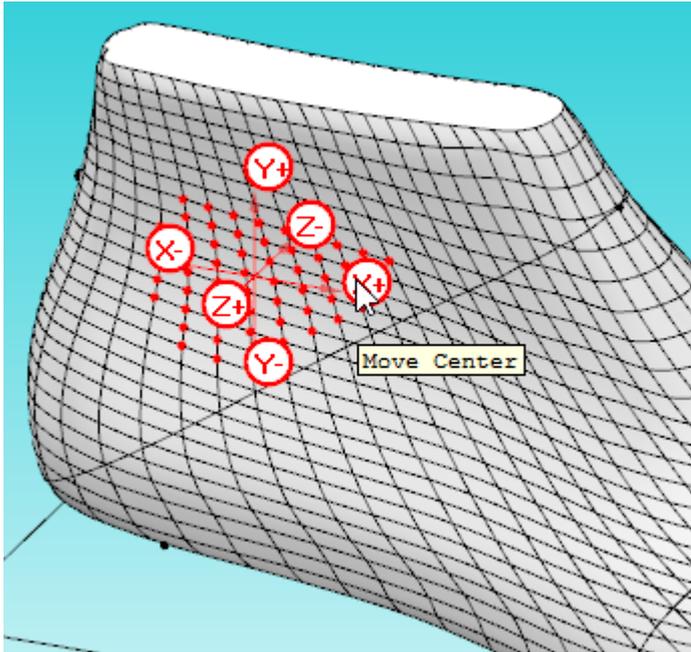
Note: You can remove all the selected handles by doing right click and choosing **Clear Selection**.

2. Do a right click and the contextual menu appears:



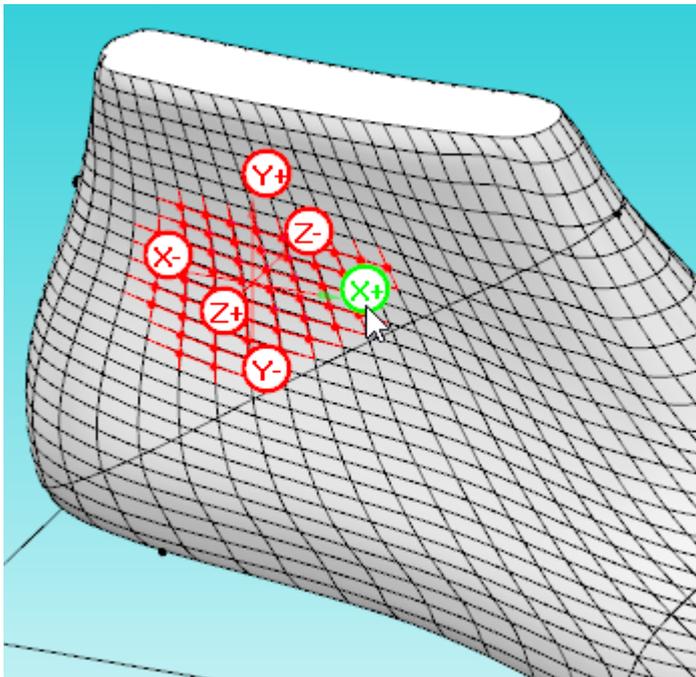
3. Before starting to adjust the handles themselves, there are two axis systems to choose from:
- **Orthogonal Axis System** - all the changes of the handles will be based on axis referenced to the Cartesian space
 - **Normal UV Axis System** - all the changes of the handles will be based on an axis system derived from normal to surface of the selected center and last grid directions.
- Just do a right click and choose accordingly.

4. Moving of the centre from where the affectation will be calculated is also possible by doing a right click and choose **Move Center**.



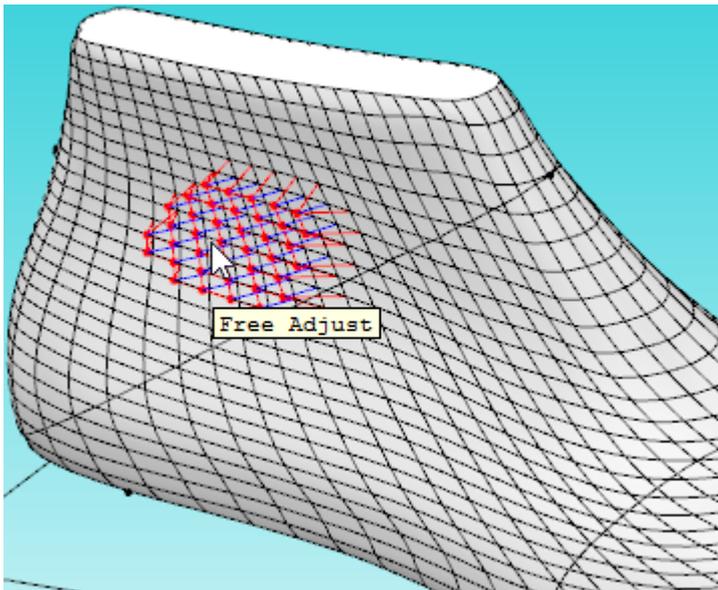
Now drag the coordinate system to the desired location.

5. Do a right click and choose **Adjust points**. When clicking on the axis coordinate, the selected handles will be translated by a certain amount (by default this will be 1 mm). If a different amount is needed, just right click and choose **Define Offset**. If the operator prefers to use the arrows keys on the keyboard, the corresponding axis should be blocked by doing a right click and choosing **Lock Axis**;

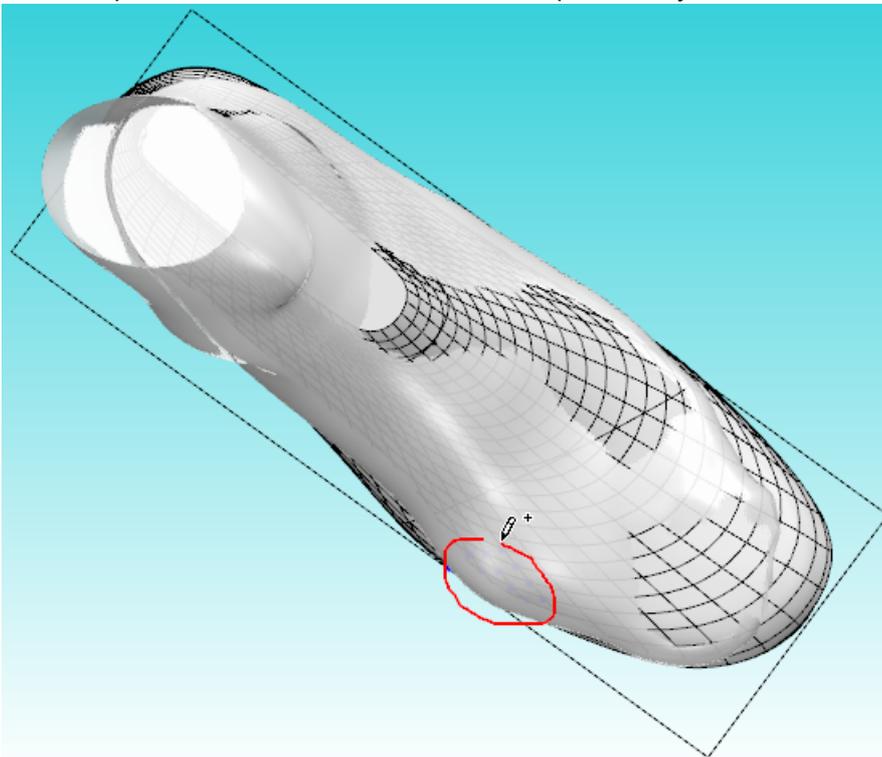


In alternative you can also control the points on the adjust surface toolbar.

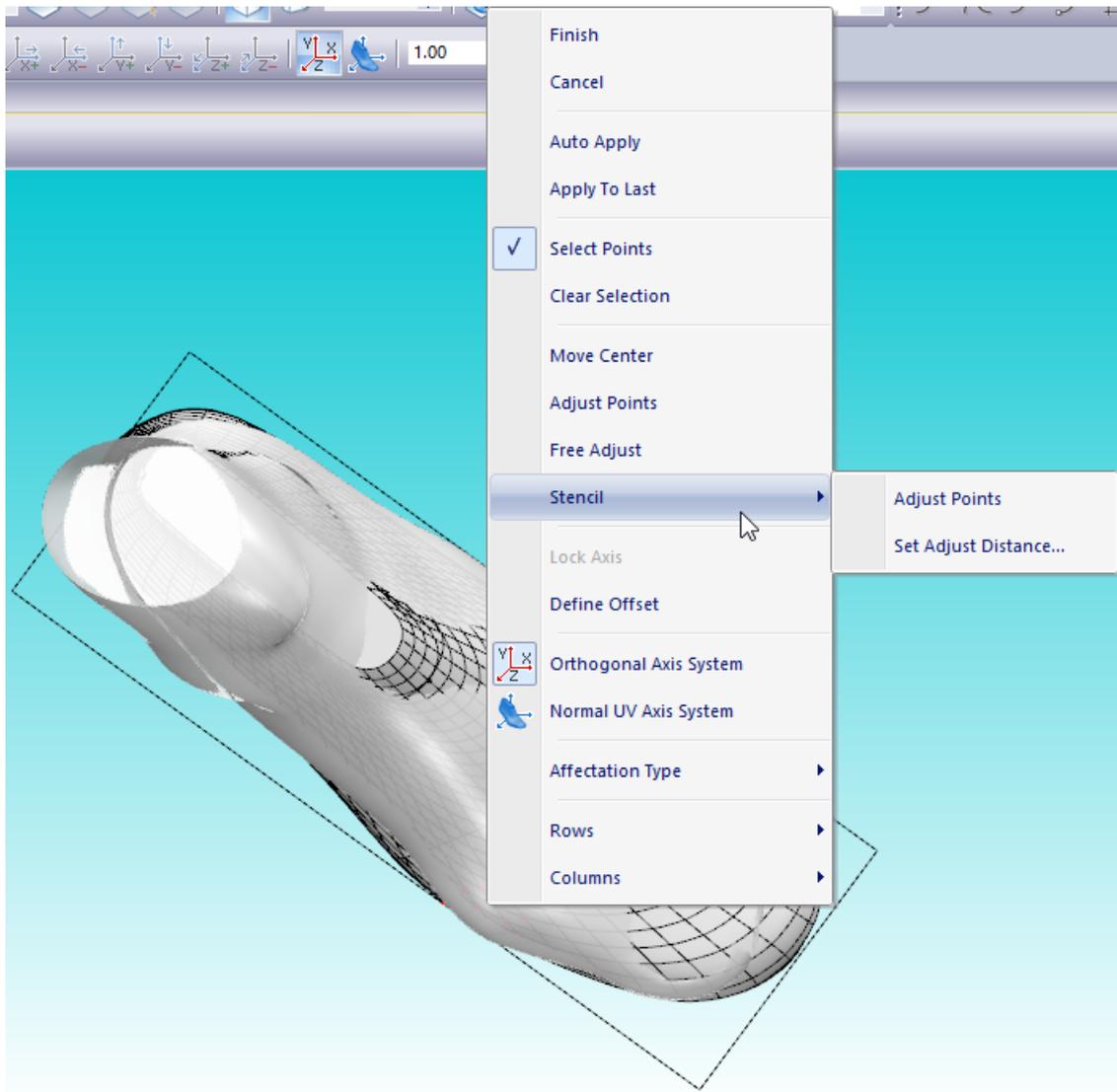
6. Do a right click and choose **Free Adjust**. Now click and drag the point freely to the desired position.



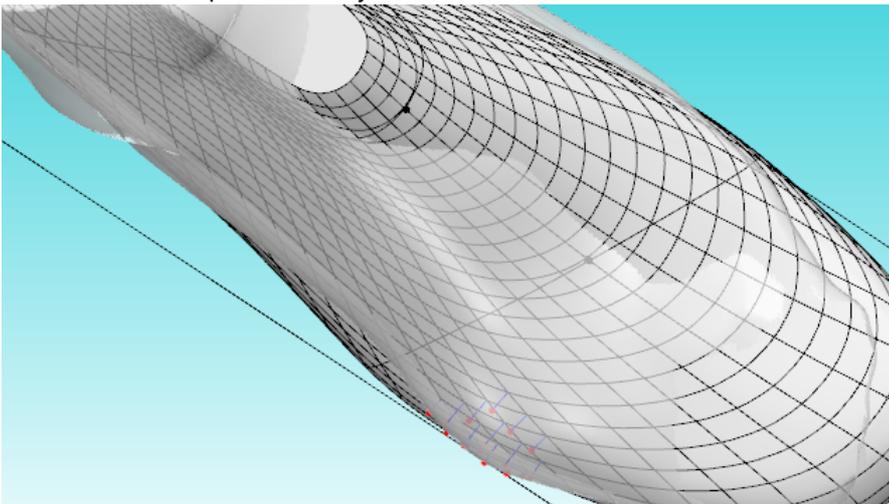
7. With a previous 3D stencil loaded, select the point to adjust.



a. Do a right click and choose **Stencil - Adjust Points** from the contextual menu.

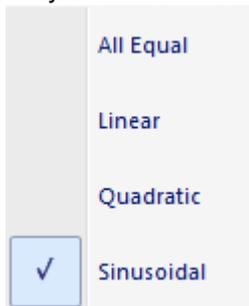


b. The selected points will adjust to the stencil form.



Use **Set Adjust Distance** option to define the adjust margin between the last and the stencil.

8. While moving the handles, the surface will be pulled out or pushed in with blending parametrized by the **Affectation Type**:



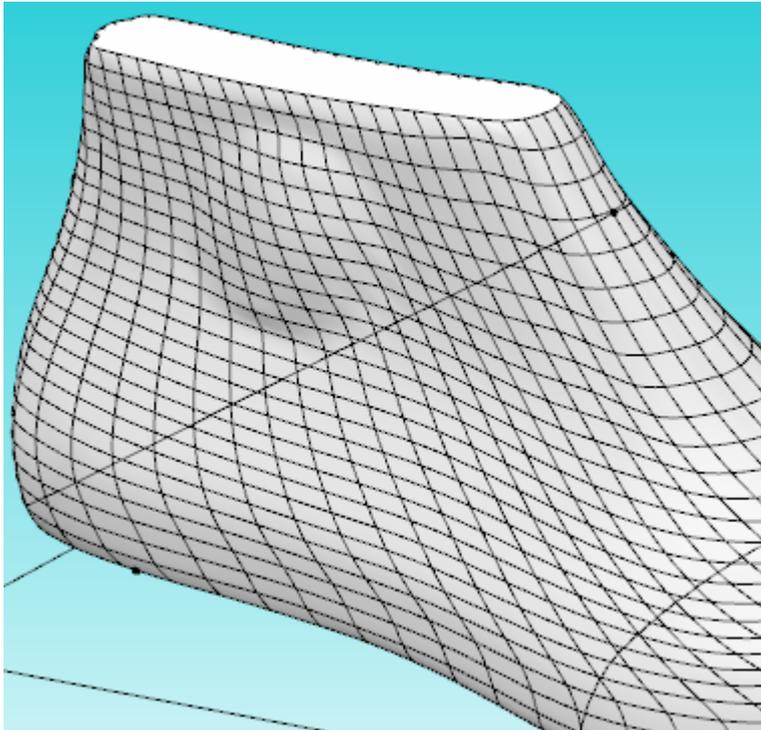
All Equal - all the handles are affected by the same offset value.

Linear - the handles are affected based on a linear distribution where maximum affectation is on the centre and minimum on the boundary of the convex hull of the handles.

Quadratic - as in Linear but with a Quadratic distribution.

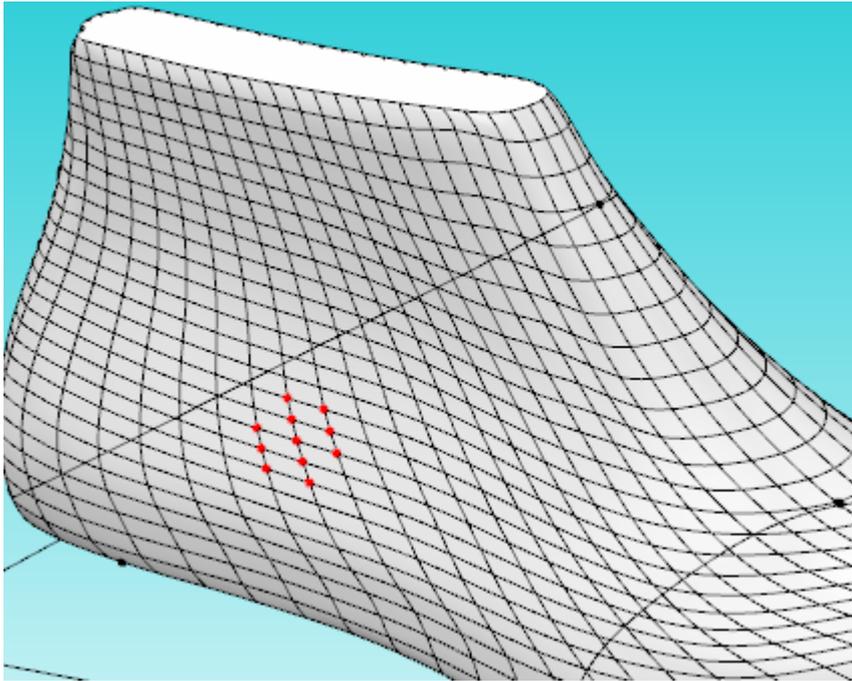
Sinusoidal - as in Linear but with a Sinusoidal distribution.

9. To commit changes to the last surface, do right click and choose **Apply To Last** and **Clear Selection** for better evaluation of the result.

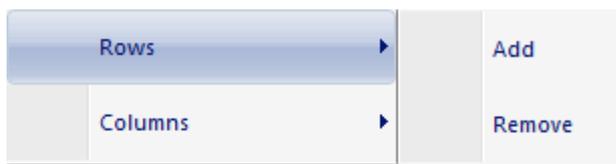


You will have to re-flatten your last for use in **MindCAD 3D Design & Engineering**.

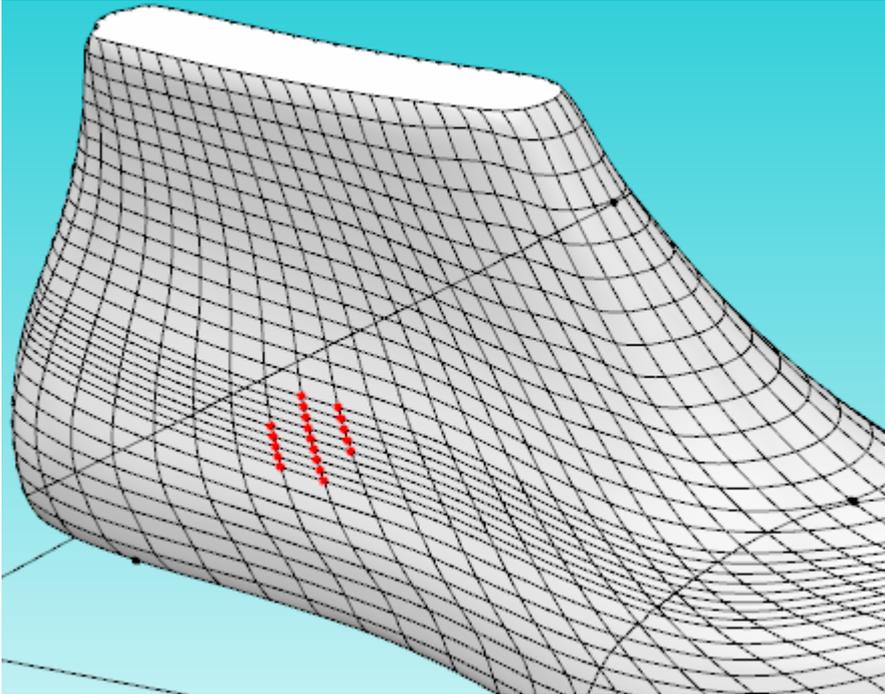
10. Doing a right click and using the options under **Rows** and **Columns** menus, refinement of the grid is possible. Just select the scope of the grid to be refined.



Choosing **Rows - Add**



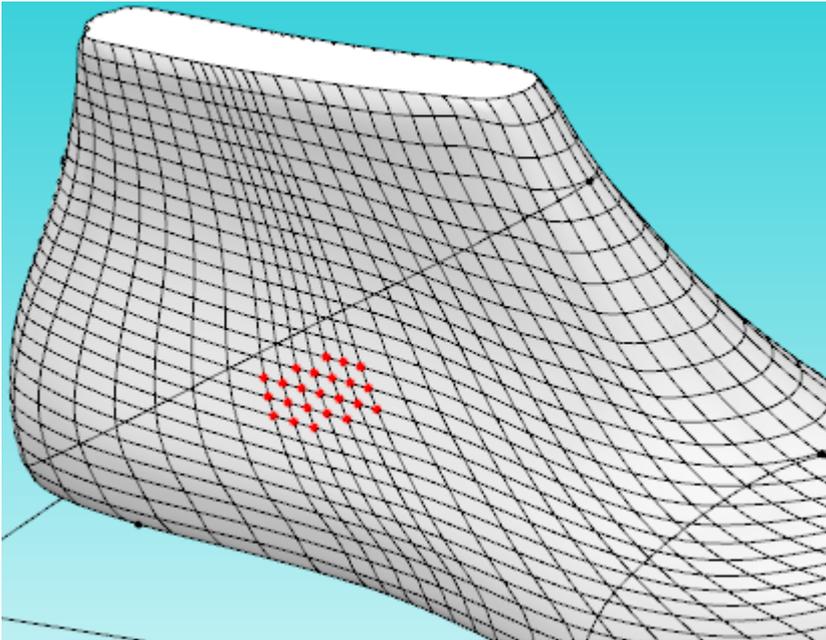
Rows will be inserted between the selected nodes.



Choosing **Columns - Add**



Columns will be inserted between the selected nodes.



7.2.5 Last - Modify - By Resurface

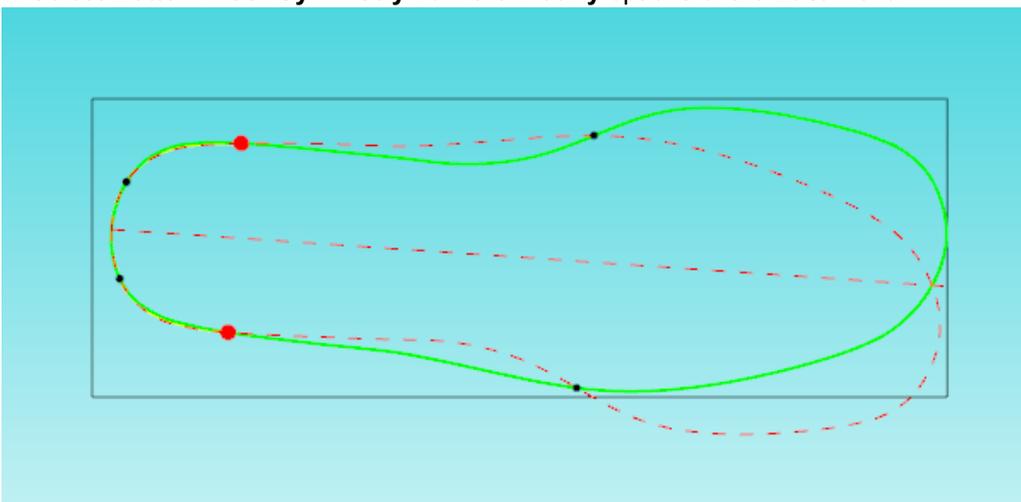
This is the same as clicking the **Resurface**  button in the **Tools** toolbar.



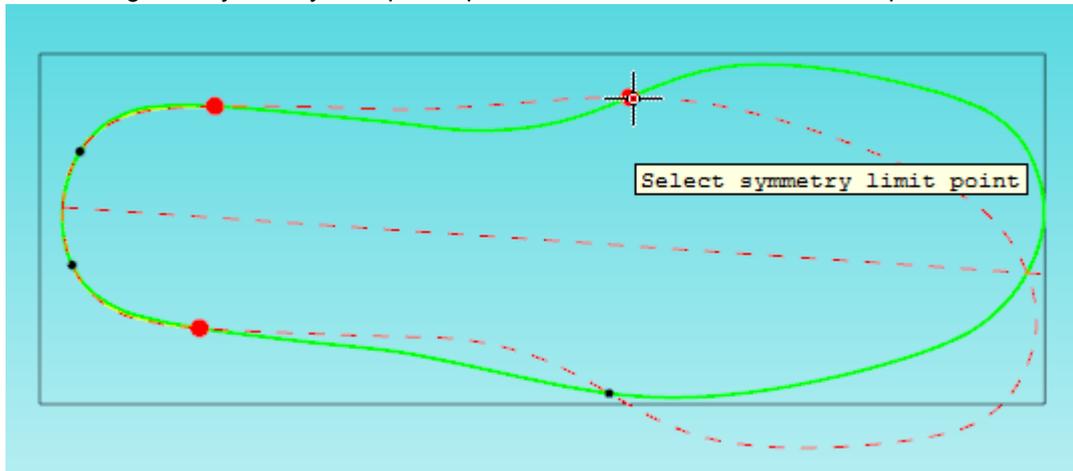
This option should be used when there is the need to repair wrong surfacing or when if last surface editing procedures were extreme to the point where the current patchwork is no longer appropriate for rigorous representation and control.

7.2.6 Last - Modify - Bottom Heel Symmetry

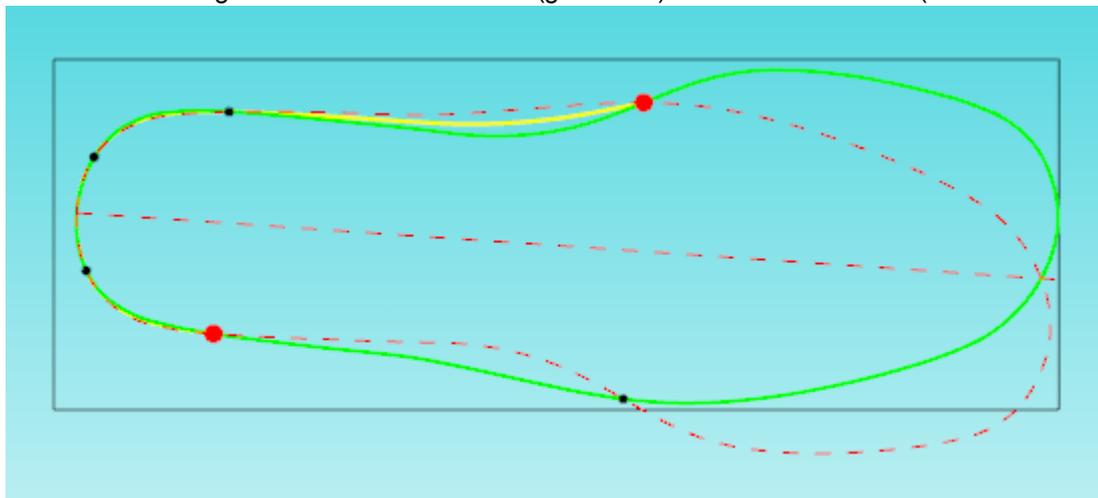
1. Select **Bottom Heel Symmetry** from the **Modify** options of the **Last** menu.



2. Choose the **symmetry limit points** (red point). The symmetry points can only be placed in the intersections between the original line (green line) and the mirrored line (dashed red line). Each intersection is marked with a black dot.
3. To change the symmetry limit points position, do a left click over the new position.



4. The point will be changed, and the new line (yellow line) will be rearranged accordingly. The yellow line is the average between the current line (green line) and the mirrored line (dashed red line).



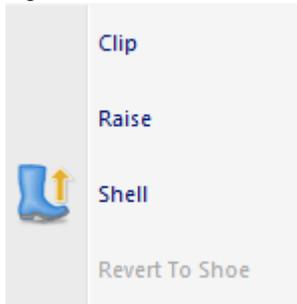
5. Do a right click to access the contextual menu:



Select **finish** to close the tool and apply the changes, or **cancel** to close the tool with no changes.

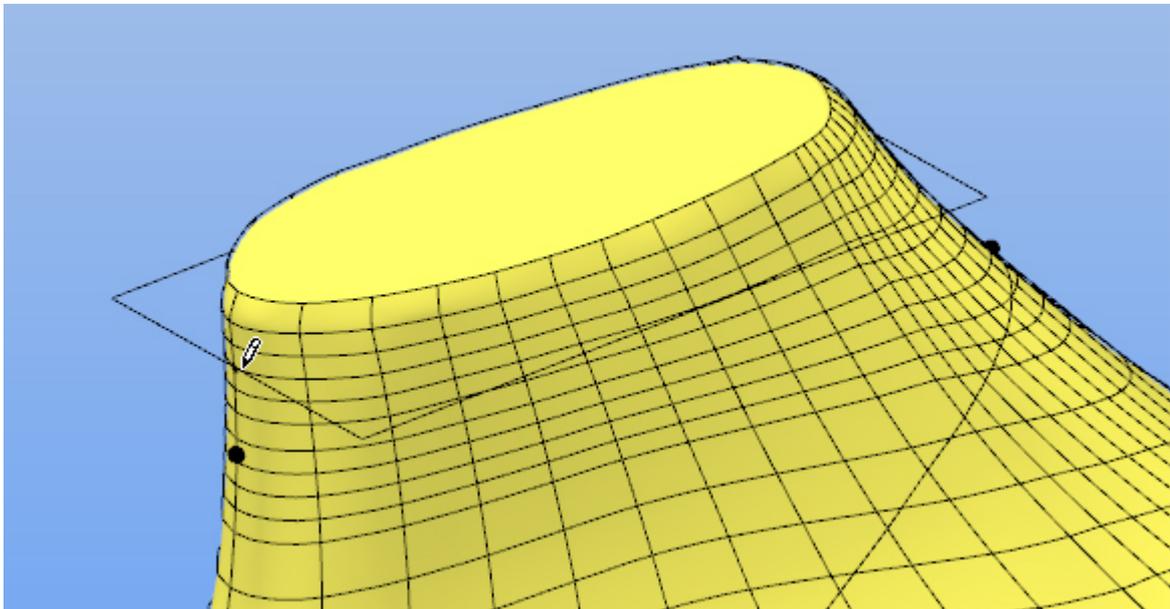
7.3 Last - Boot Leg

This option allow boot leg modifications on the original last from small adjustments to full feature boot leg construction.

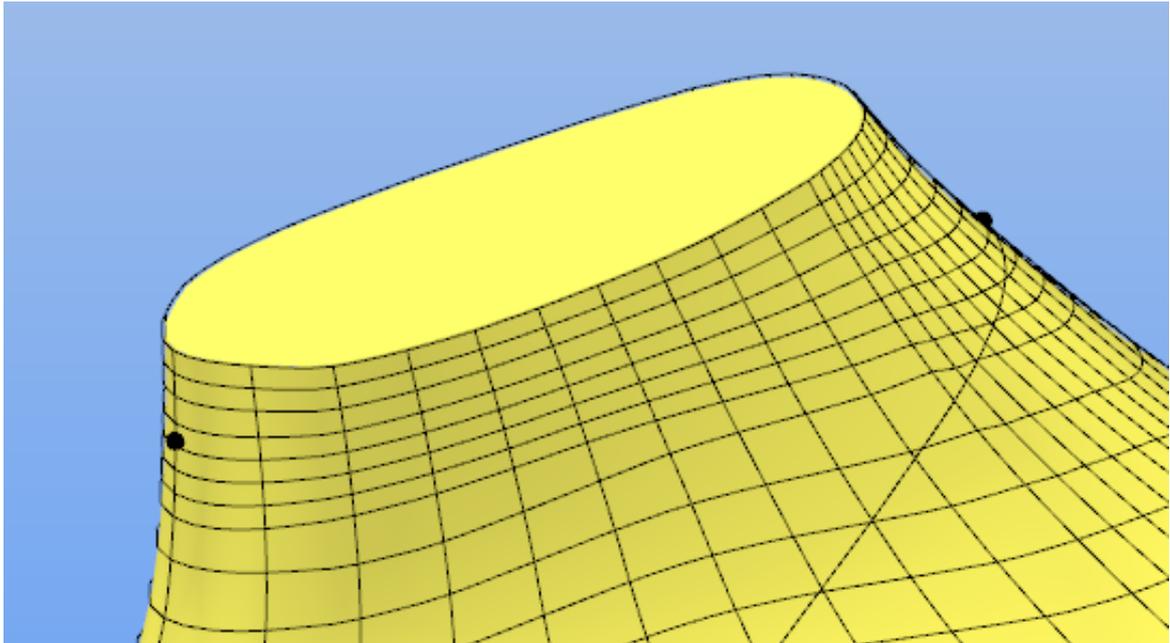


7.3.1 Last - Boot Leg - Clip

Use this option to adjust the top of the last by plane clipping. To achieve this, the user must control this clipping plane by two handle points constrained to the toe line and to the heel line.

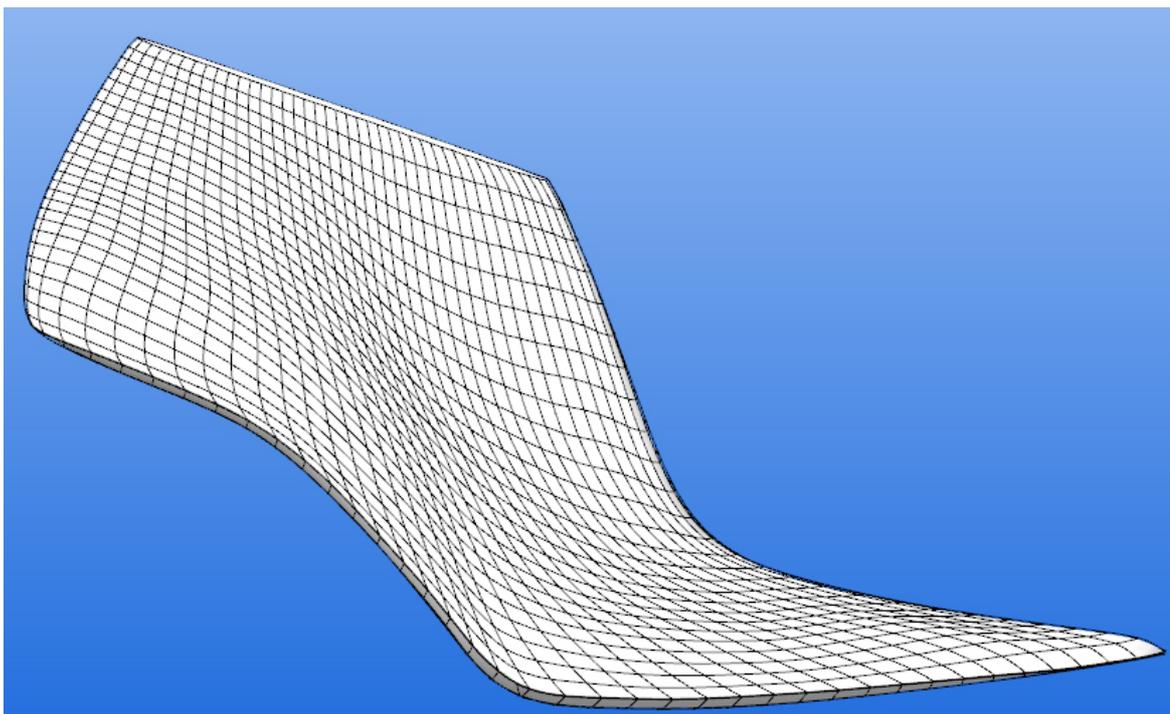


When satisfied with the cutting plane position, right click and choose **Finish**. A new last is generated with the top properly clipped.

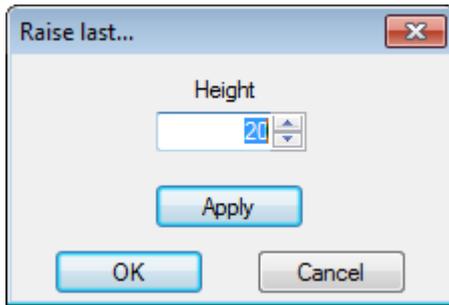


7.3.2 Last - Boot Leg - Raise

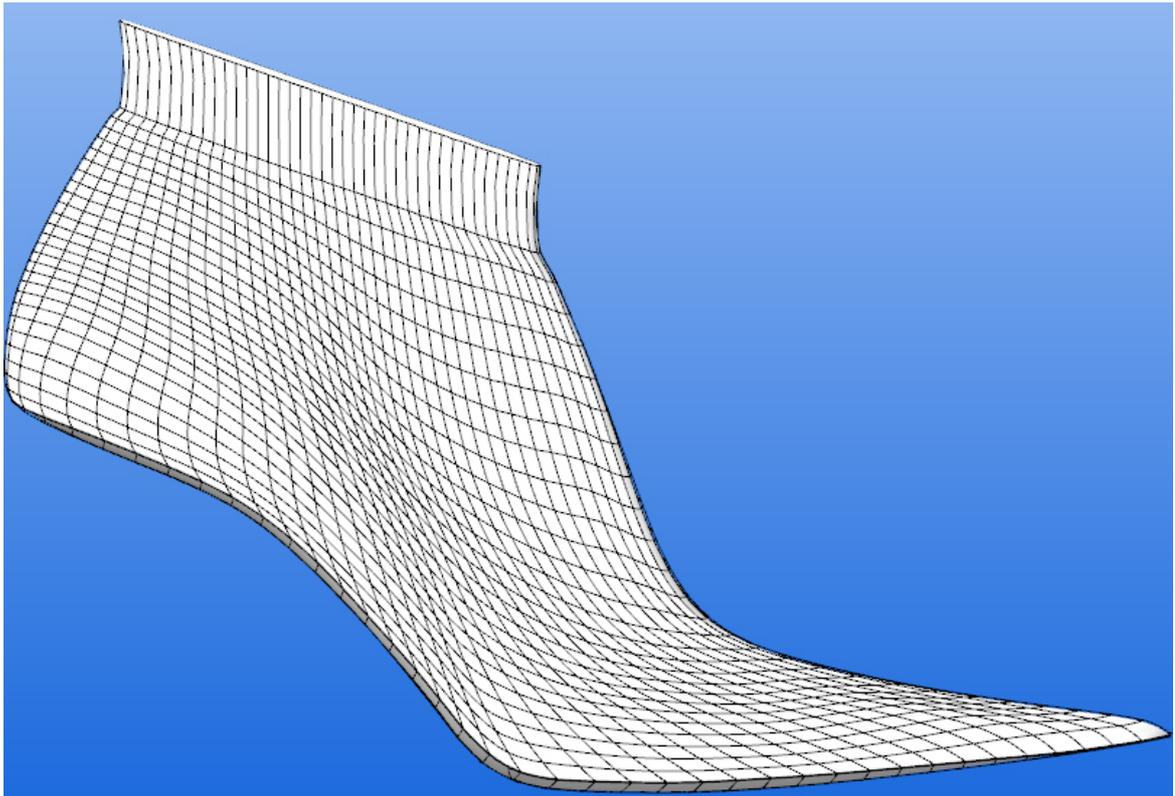
Use this option to vertically raise the top of the last by a specific amount.



After selecting this option a dialog appears



Enter the height of the material to be vertically added and press OK



A new last is generated with the added material. Since the material is added vertically without control of the blend region, it is possible to smooth the transition by using the Adjust Shape tool.

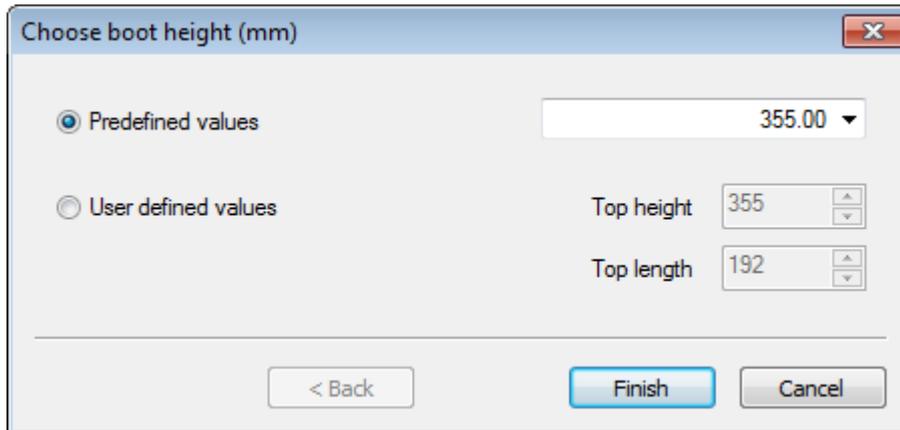
7.3.3 Last - Boot Leg - Shell

This is the same as clicking the **Make Boot Upper**  button in the **Tools** toolbar.

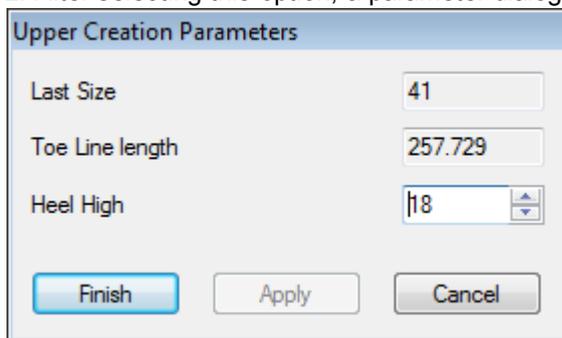


After activation of this button, a wizard is launched, guiding the creation of the bootleg

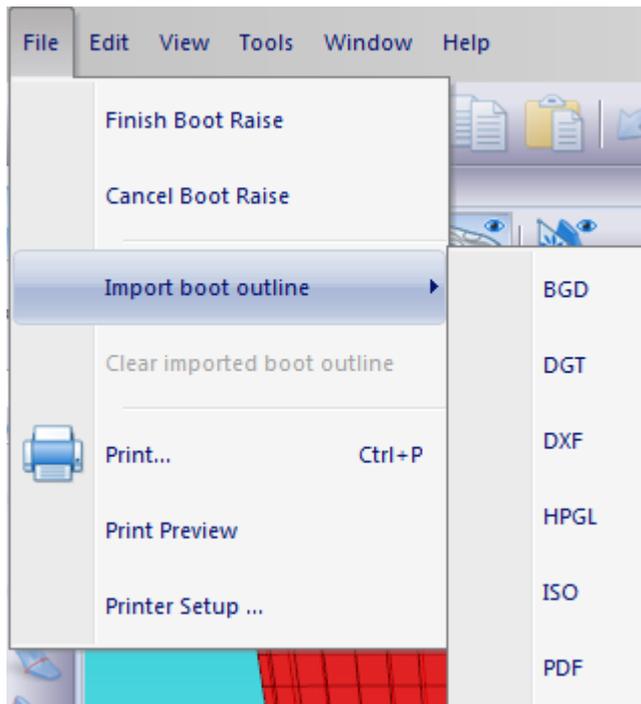
1. Select the values and click finish.



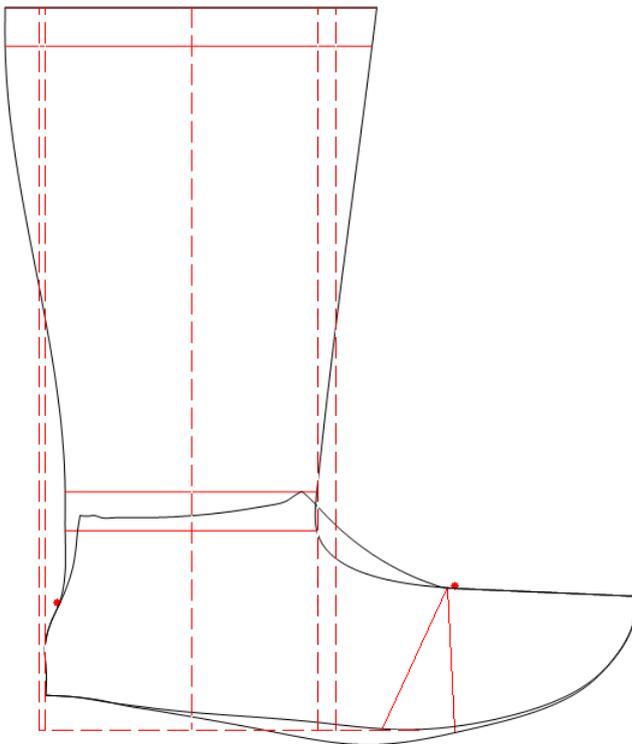
2. After selecting this option, a parameter dialog and a 2D schematic boot leg diagram is displayed.

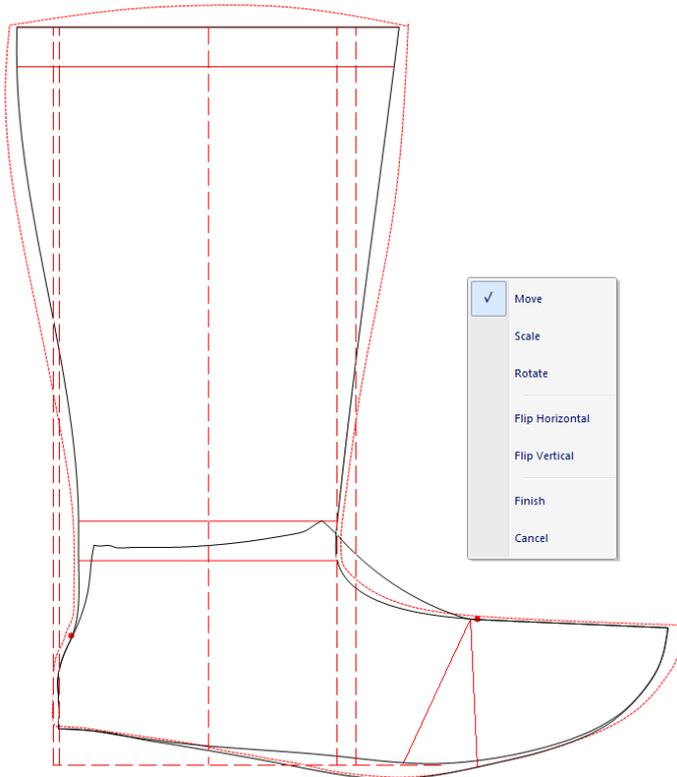


3. This dialog displays information of **Last Size**, **Width Key** and **Toe Line Length** (Girth Length). Only when all the construction process for the entire boot is done, should the finish button be pressed.
4. The user could set new values for **Heel Height**. Press **Apply** to propagate this change to the 3D model.
5. The user can import lines (eg. DXF format) as reference lines and use them to draw the shape of the boot leg.

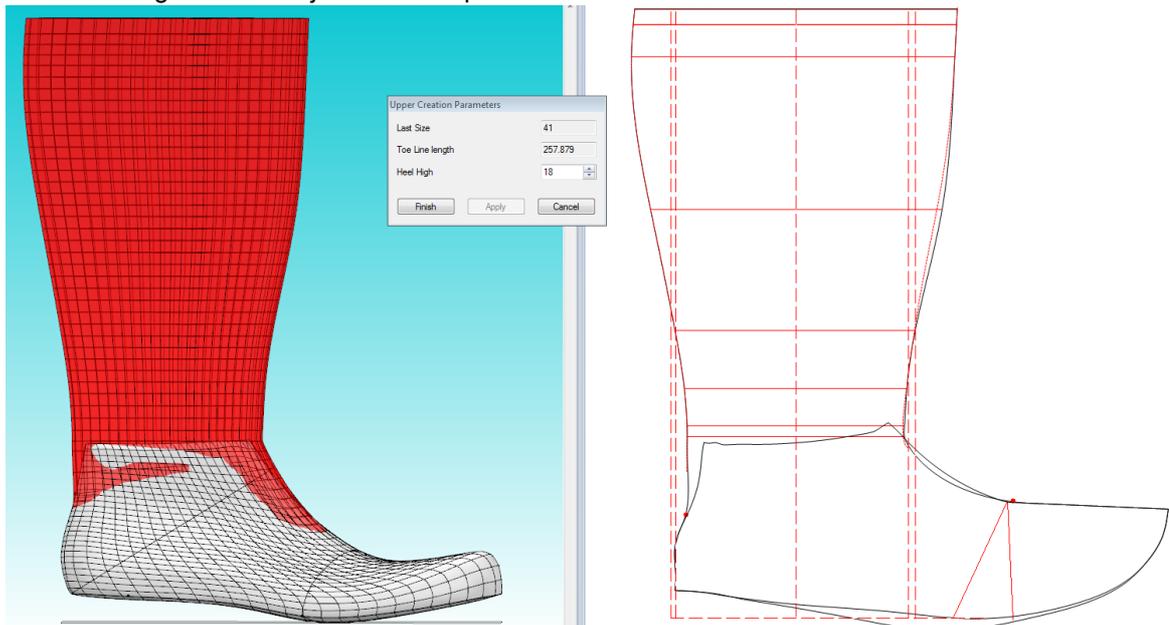


6. While importing, the user can use the edit adjustment tools (rotate, scale, flip horizontal and vertical). When finishing adjustment procedures, the user should press **Finish** button to confirm import operation.
7. Centre the imported bootleg interactively. Press **SHIFT** for automatic snapping. Choose **Finish** when properly positioned.





8. The bootleg lines will adjust to the imported reference lines.



9. For specialized modelling, several functionalities are available through the **Boot Construction** toolbar.



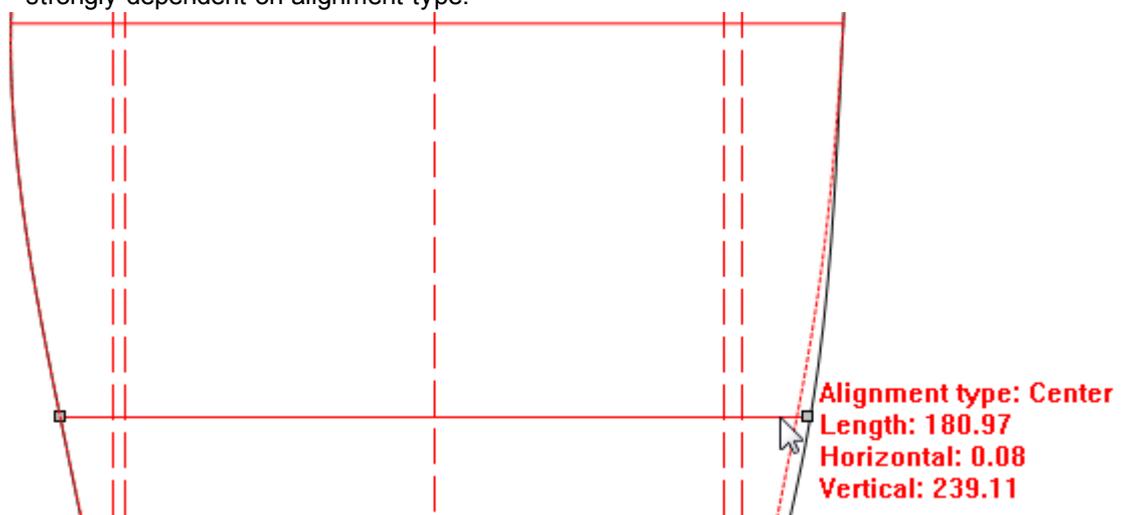
10. Select **Draw boot control line** button . Besides the default construction lines, the user could create as many others horizontal control lines as needed, by simply using the cursor to specify their initial height position.

11. Select **Delete boot control line** button  for deleting horizontal construction lines.

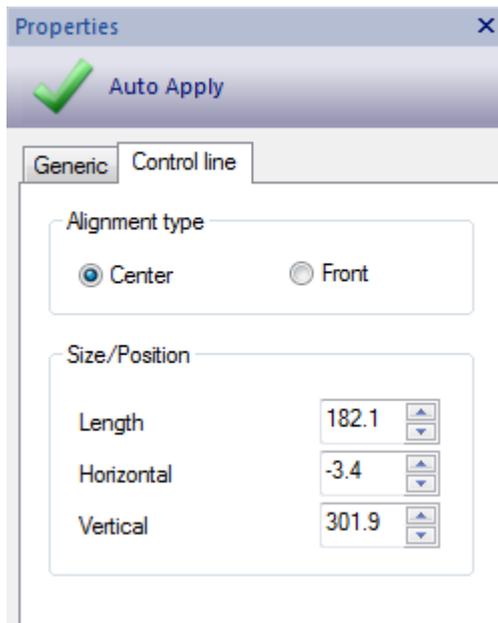
12. Select **Show/Hide base last lines** button  to toggle visibility of base last lines.

13. Select **Show/Hide auxiliary lines** button  to toggle visibility of auxiliary lines.

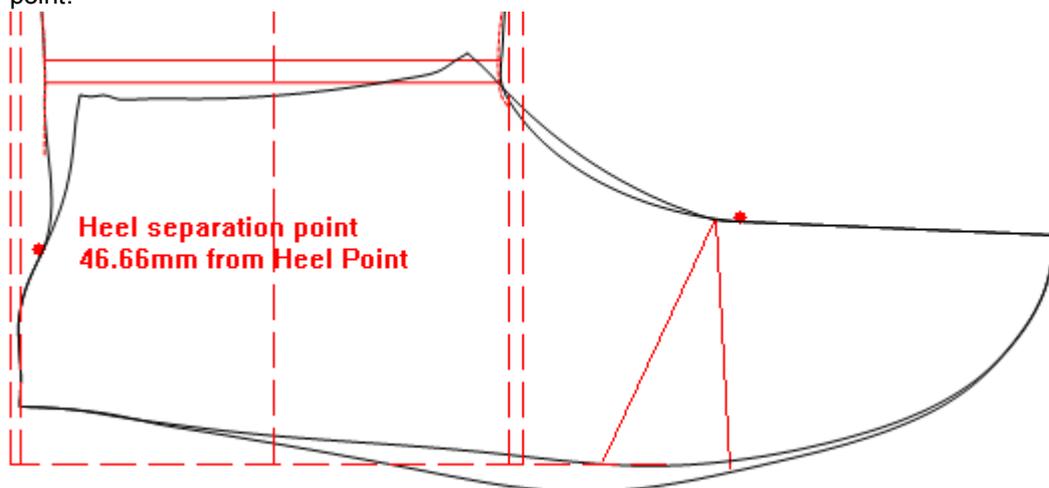
14. While hovering the cursor on control lines, information about its alignment, width, height and distance to auxiliary lines will be displayed. Please note, these distances to auxiliary lines are strongly dependent on alignment type.



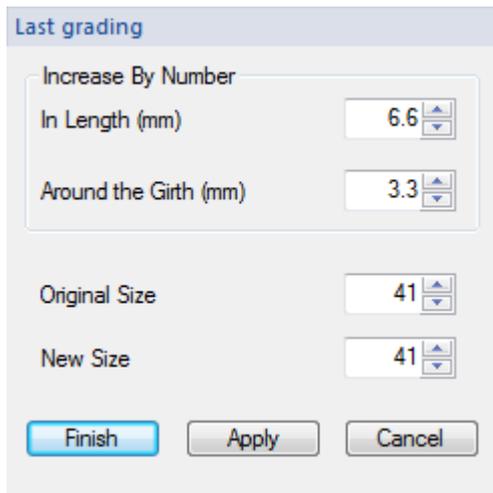
15. The user can parametrically change these values invoking the property dialog. Select the line, press the right mouse button and choose Object Properties.



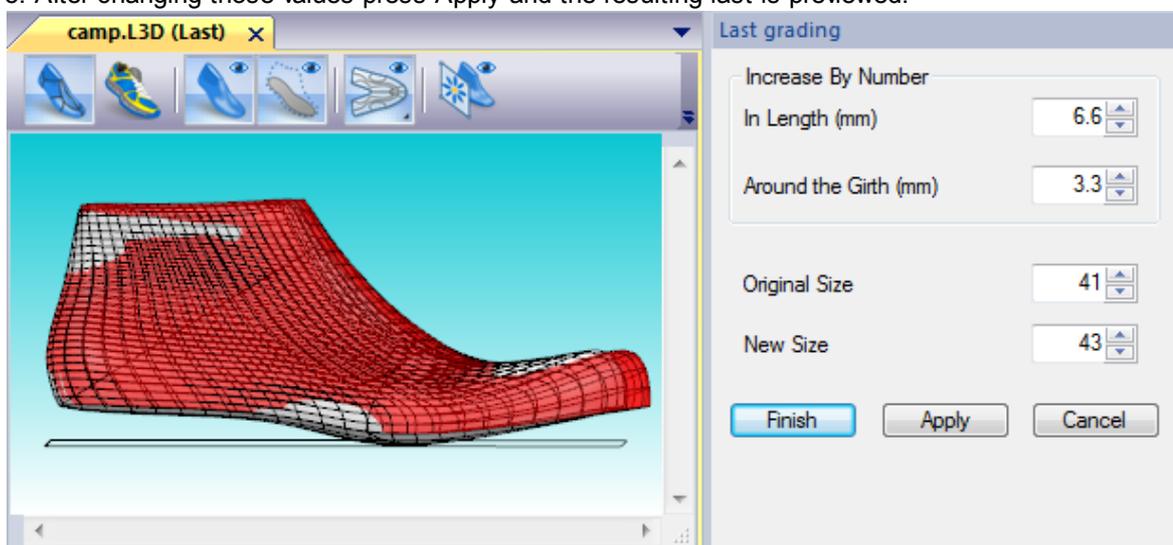
16. The user can adjust the both blending points, namely Front separation point and Heel separation point.



17. Finally, press the **Finish** button, the user allows the creation of the equivalent 3D boot model. This boot could be edited at any stage by selecting pressing **Make boot upper** button on the **Tools** toolbar.



2. The user can grade the last by specifying table values increments (Stick length, Girth length) and number of sizes.
3. After changing those values press Apply and the resulting last is previewed.

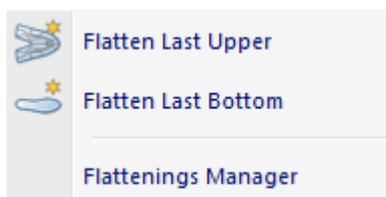


4. Choosing **Finish** to generate a graded last replacing the original working last.

You will have to re-flatten your last for use in **3D Design & Engineering**

7.5 Last - Flattenings

This menu allows to create and manage the last flattenings.



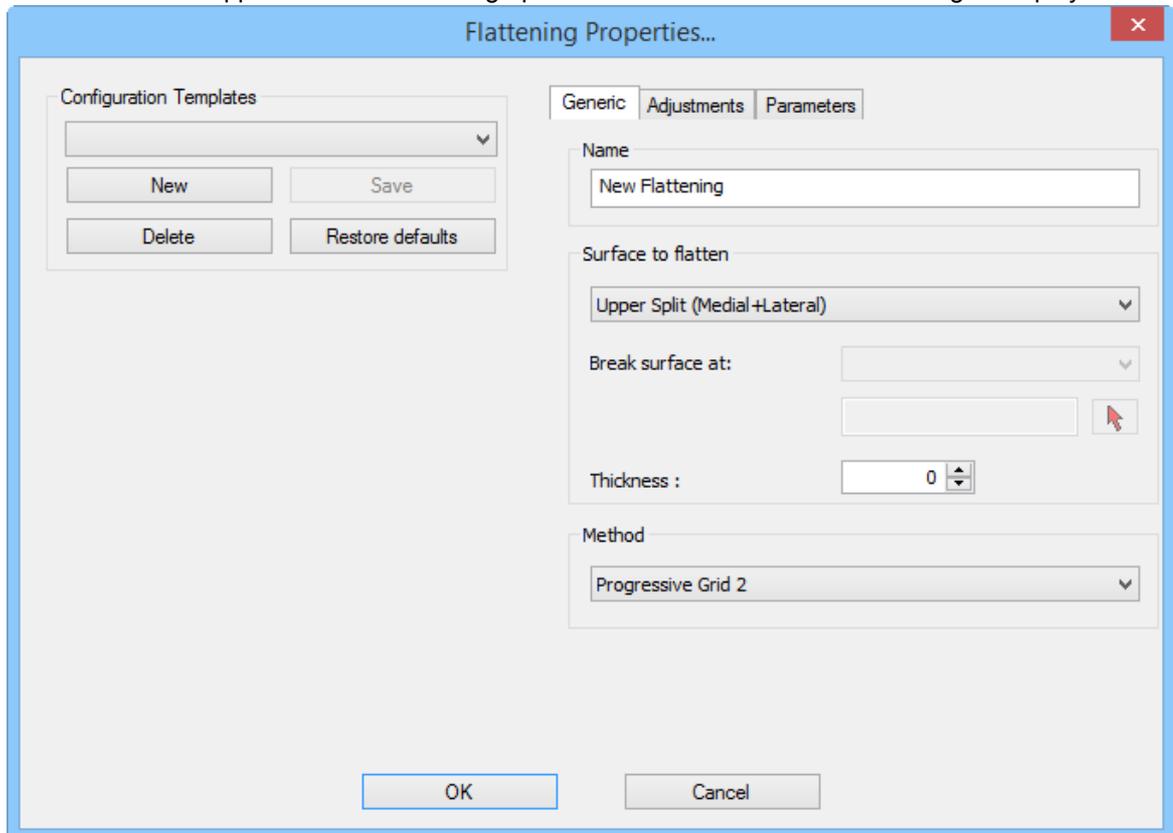
7.5.1 Last - Flattening - Flatten Uper

This is the same as clicking the Flatten Uper  button in the Tools toolbar.



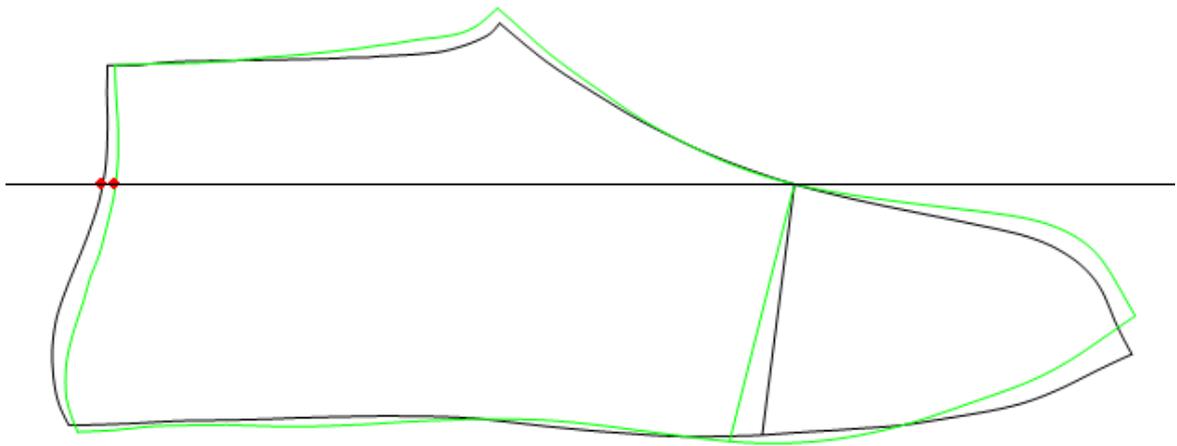
This option lets flatten the upper surface of the last.

1. Select Flatten Uper from the Flattening options on the Tools menu and a dialog is displayed.



For further information, please refer to Last - Flattening - Flattenings Manager.

2. Select OK and the flattened halves will be displayed.



3. By default the halves will be displayed with the digitised vamp point as the vamp depth. If this is the correct position move to step 7.

The vamp depth can be changed by selecting the Change Vamp Depth  button in the Merging toolbar.



If selected a cross is displayed



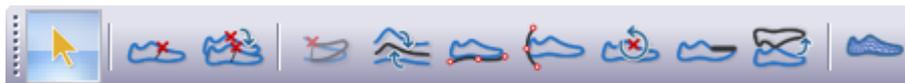
which slides up and down the centre line, move to the required position and click the left mouse button.

4. Now select the Align Vamp Depth  button in the Merging toolbar.

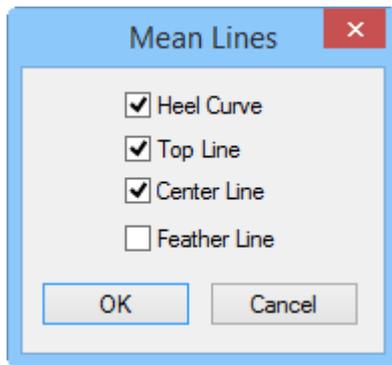


This will align the two halves at the new vamp depth and put them back on the fold line which is displayed.

5. Select the Mean Lines  button in the Merging toolbar.

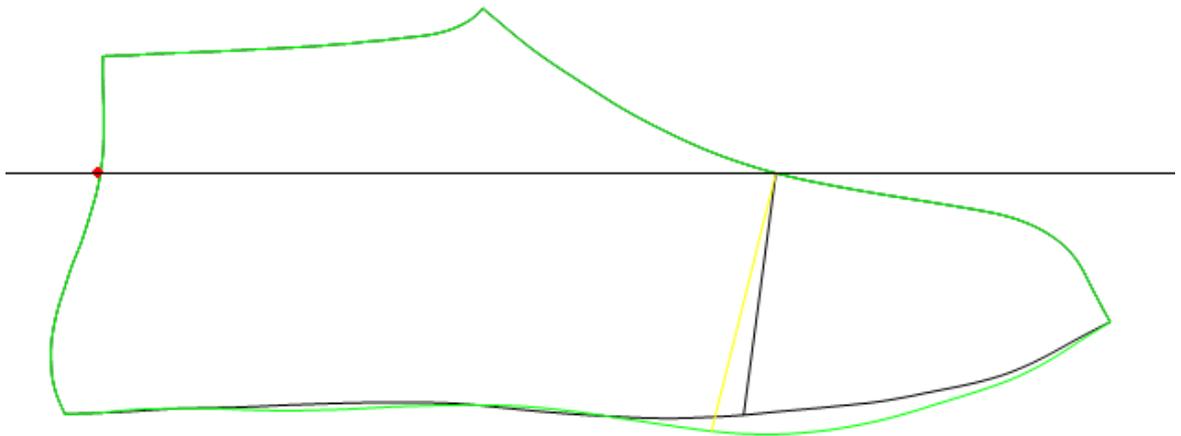


A menu is displayed

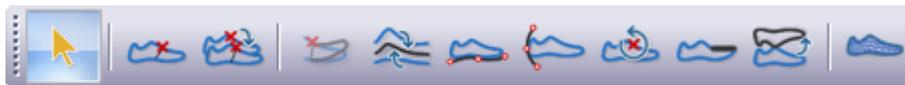


Select the lines to be meaned and select OK

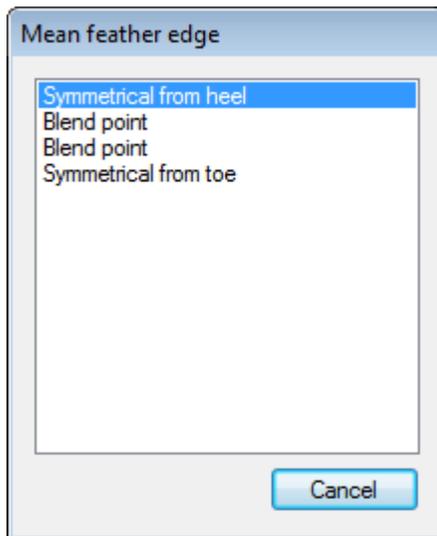
The halves will be displayed with the lines 'meaned'



6. Select the Mean feather  button in the Merging toolbar.

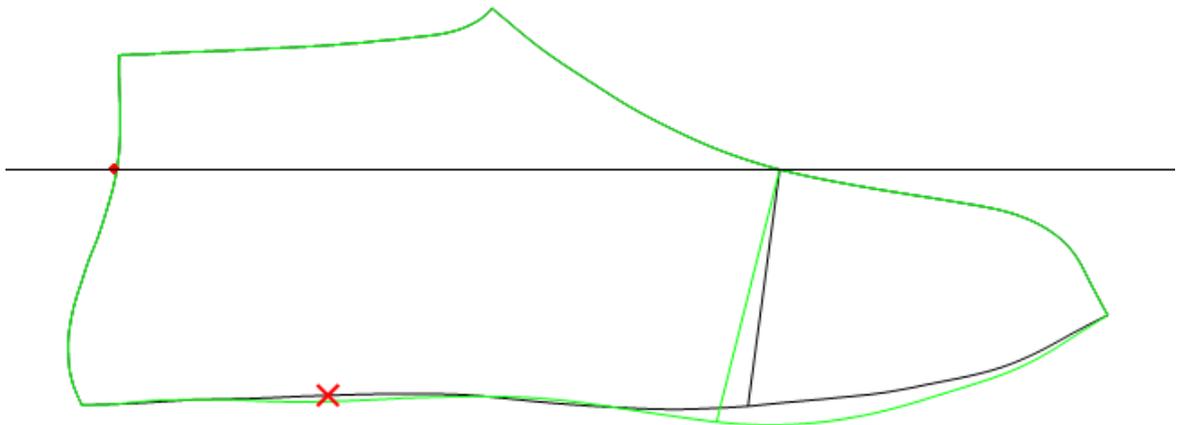


A menu is displayed

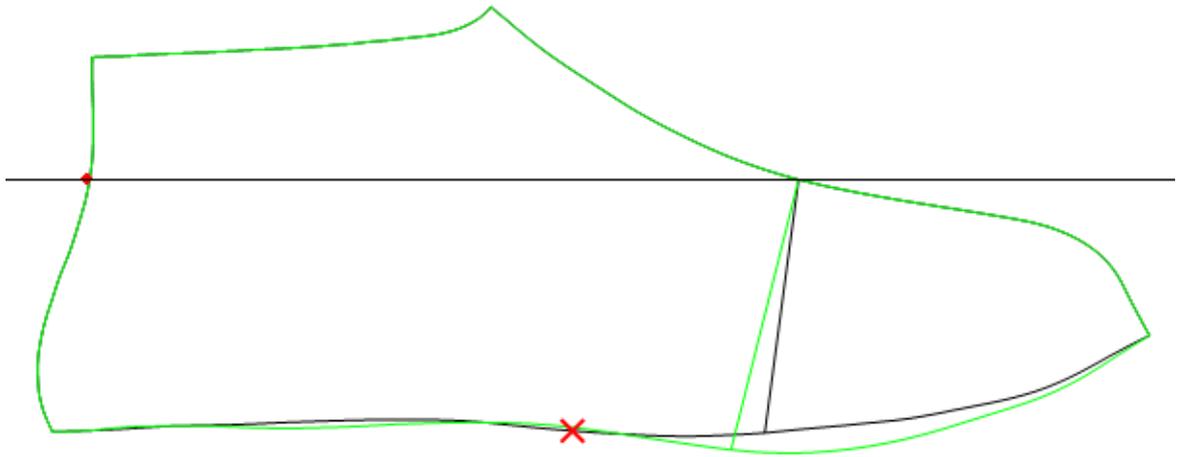


Enter four points to define the parts of the feather edge which are to be meaned. Always work from the heel to the toe along the feather edge.

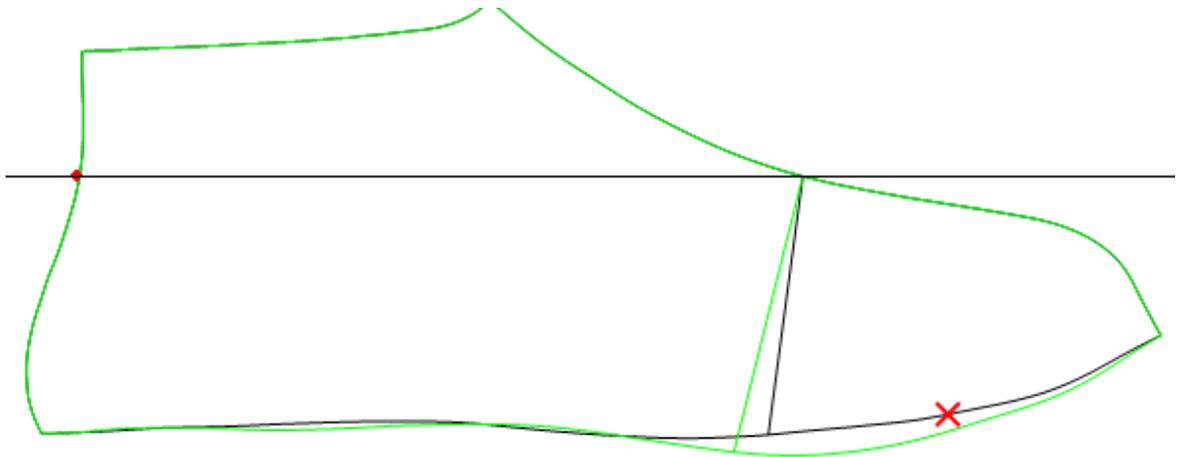
Point 1 (symmetrical from heel) will define how far forward from the heel curve the two feather edge lines will be the same.



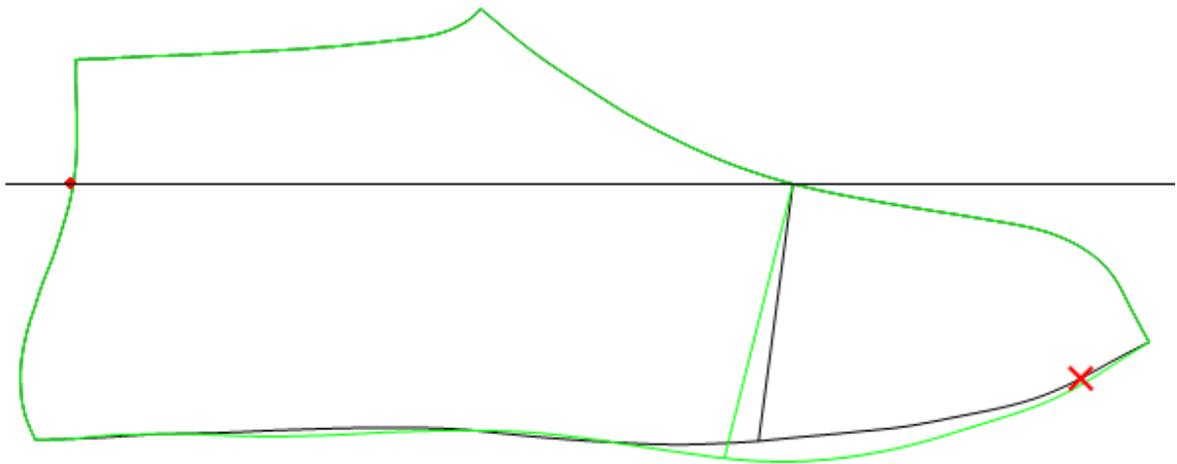
Point 2 (Blend point) will define where the two feather edge lines are in their natural position on the inner and outer halves, blended from point one.



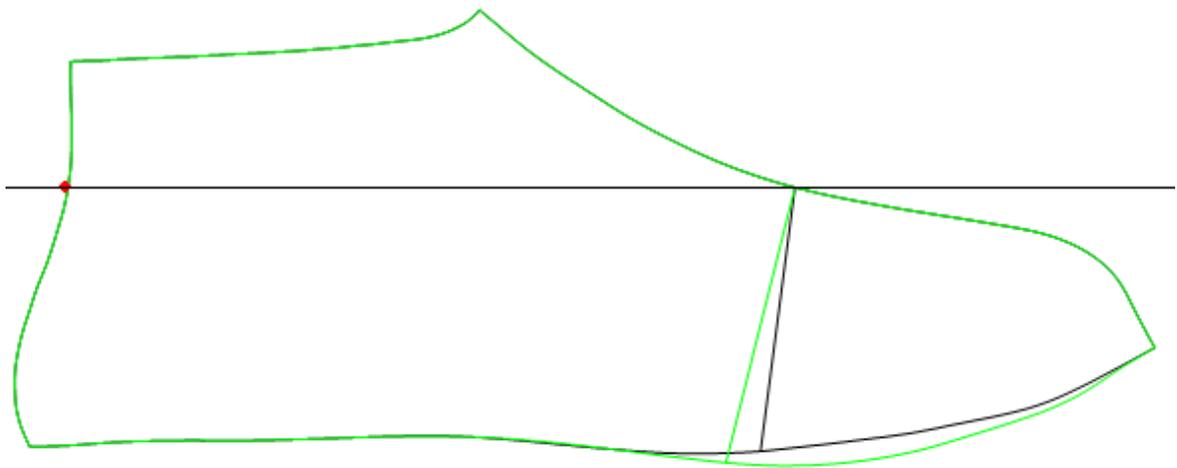
Point 3 (Blend point) will define where the two feather edge lines are in their natural position on the inner and outer halves, blended from point four.



Point 4 (symmetrical from toe) will define how far back from the toe the two feather edge lines will be the same.



After the four points have been entered the halves will be modified and displayed



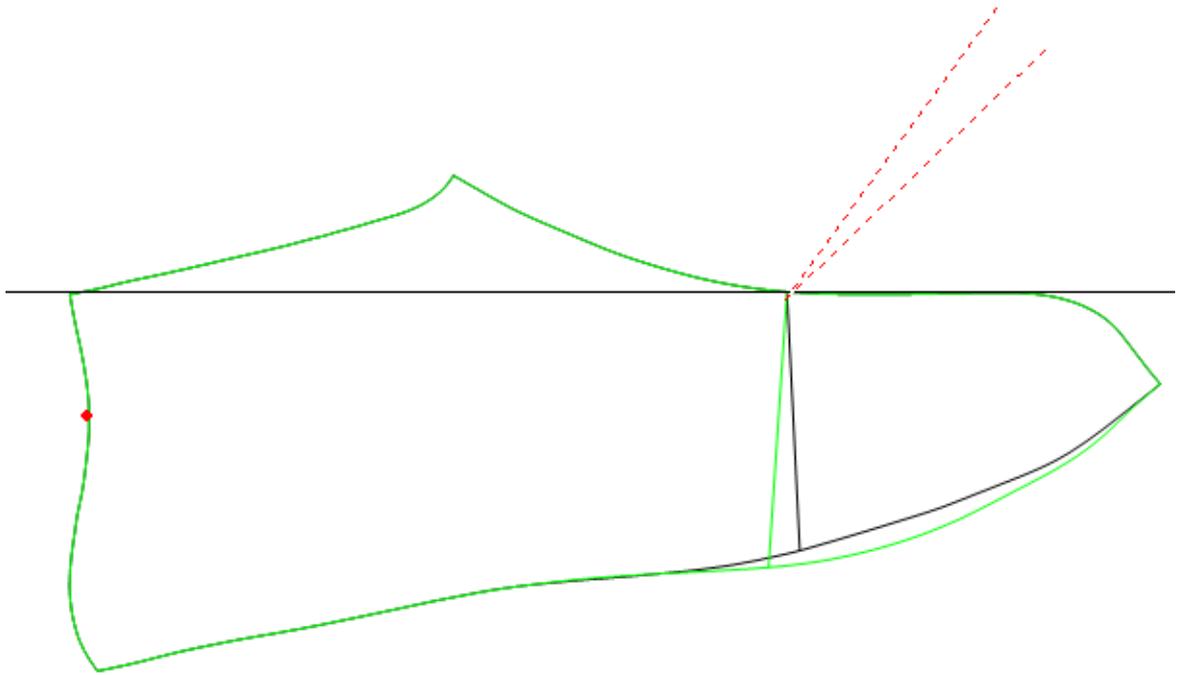
7. Select the Rotate  button in the Merging toolbar.



Click the left mouse button on the background

Move away from the first mouse click and click the left mouse button again, now when you move the mouse the halves will rotate about the vamp point.

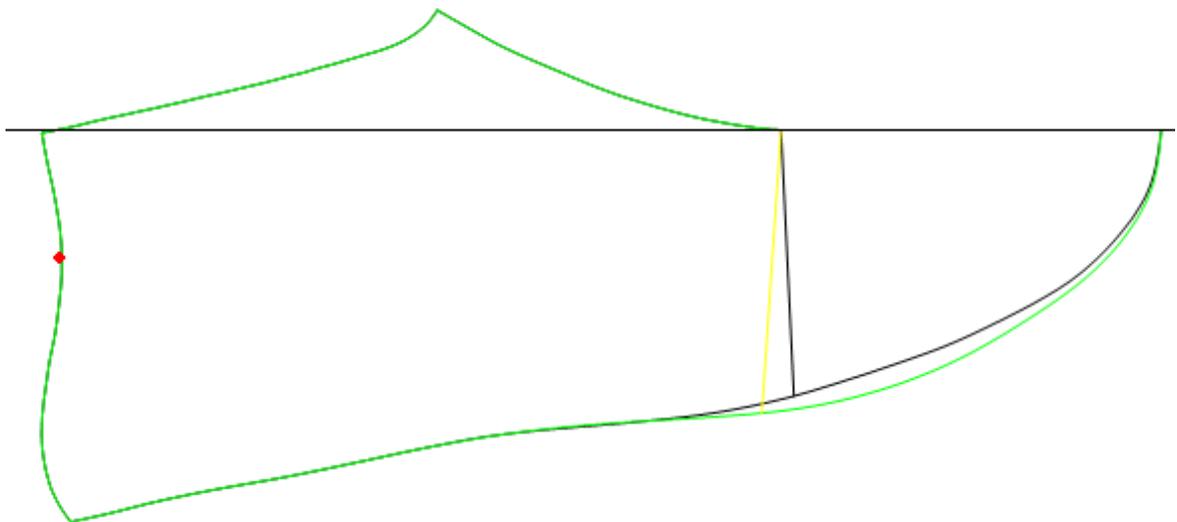
Rotate to the desired 'spring' and press the left mouse button again to stop the rotation process.



8. Select the Straighten Centre Line  button in the Merging toolbar.



The centre line from the vamp point to the toe will be straightened.

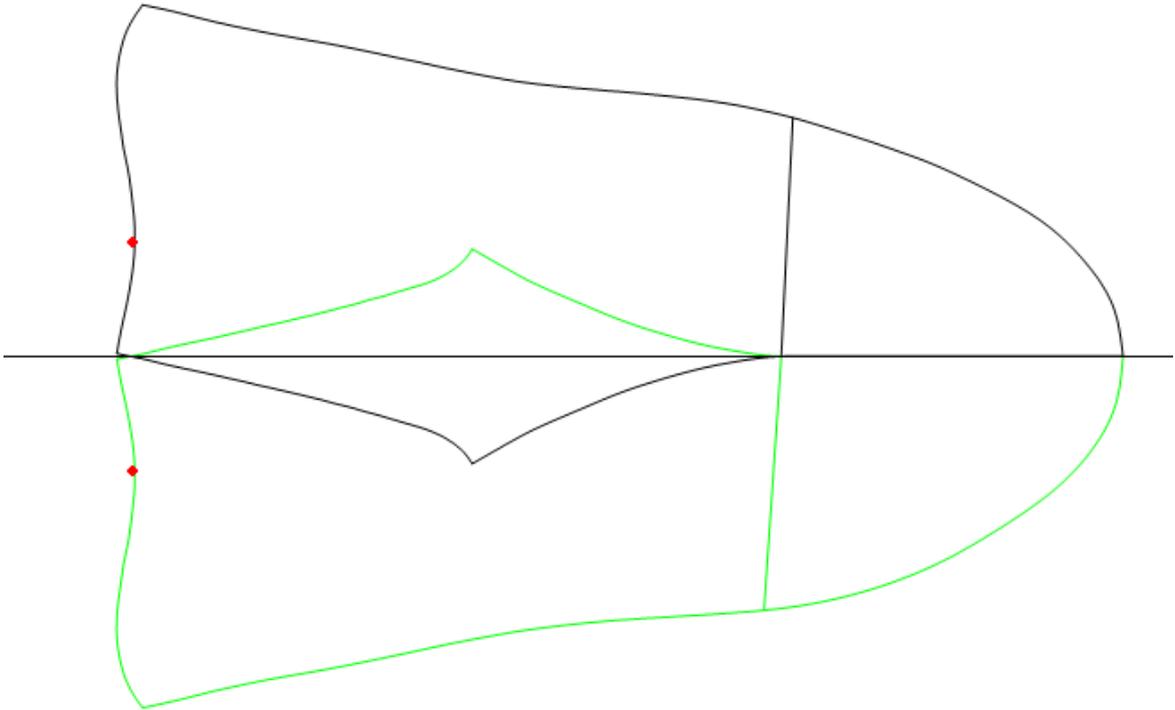


If you do not use this option the flattening will be left with an open toe (sometimes this is required).

9. Select the Flip  button in the Merging toolbar.



The flattening will be unfolded.

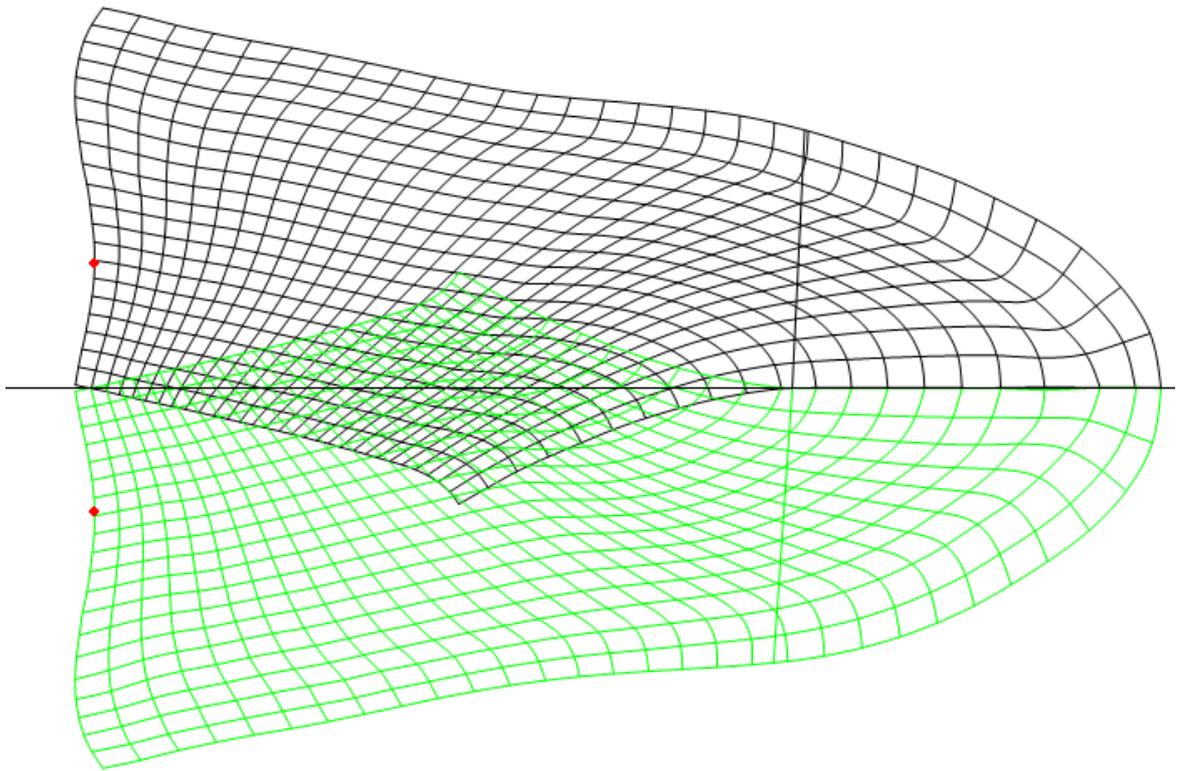


Flattening can be left in the folded state by not using this option.

10. The flattened patchwork can be displayed for checking and editing. Editing is not recommended,

to do this select the Display Patchwork  button in the Merging toolbar.

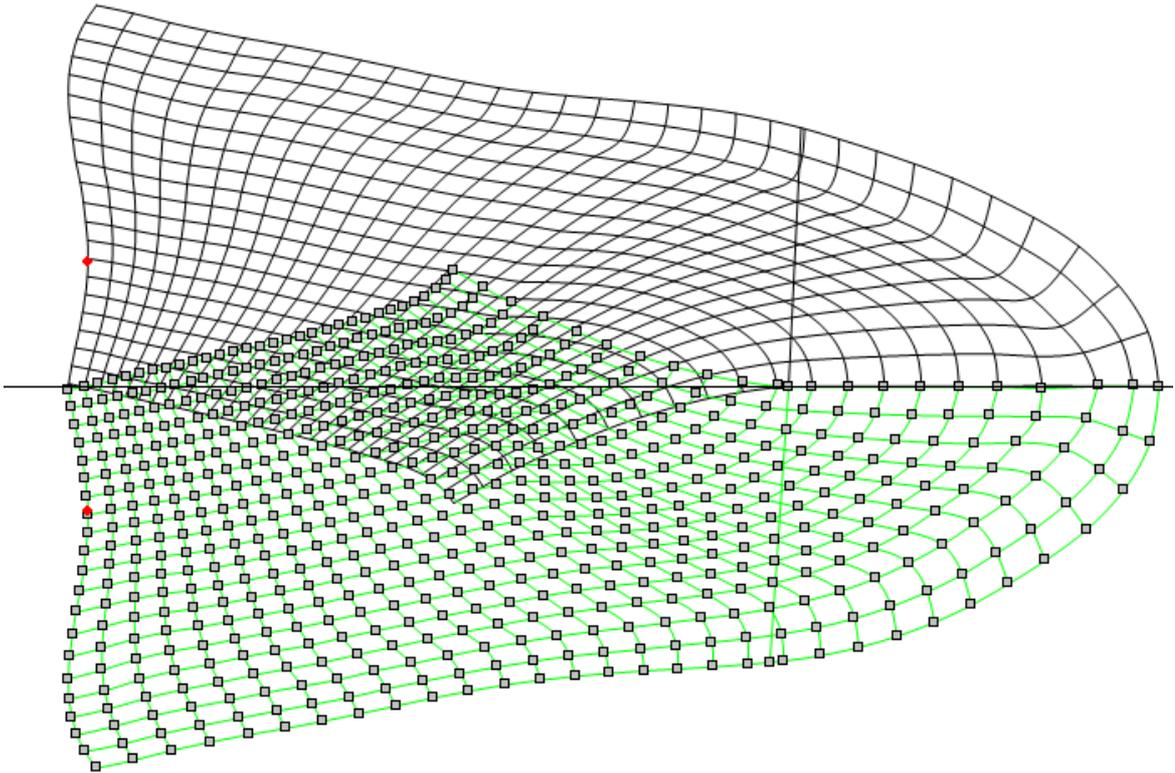




To edit points, select the Select  button in the Merging toolbar.

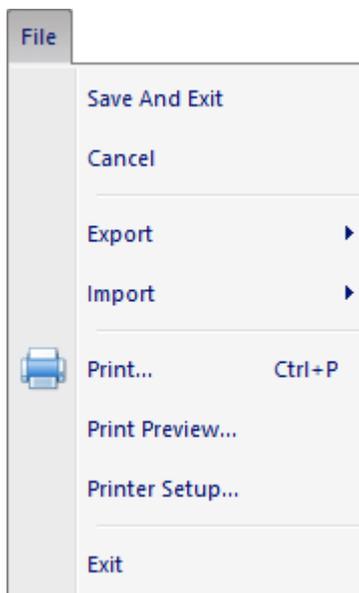


Using the left mouse button click on the half you wish to edit. All points on that half will be displayed as small squares.



As you approach the point(s) to be edited the cursor will change into a pencil. Click the left mouse button and hold it down, move to the new position for the point and release the left mouse button.

11. Select Save And Exit from the File menu to save your flattening.



Other options in this menu are:

- **Cancel** - Cancel and close the flattening process.

- **Export** - Export to several 2D formats:

BGD
DGT
DXF
HPGL
IGES
PDF
Printer

- **Import** - Import from several 2D formats:

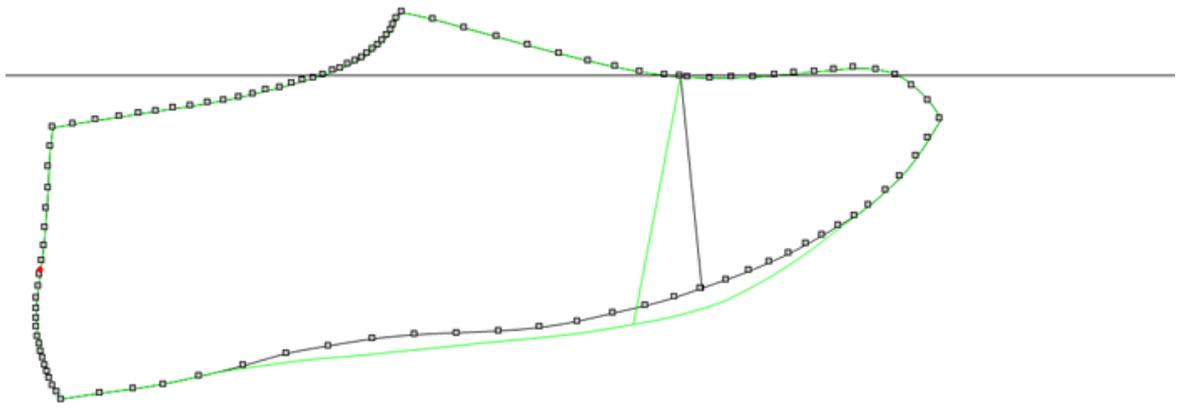
BGD
DGT
DXF
HPGL
ISO
PDF

- **Print...** – Print the shell.
- **Print Preview...** – Print Preview of the shell.
- **Printer Setup...**– Print setup for the printing.

7.5.1.1 Last - Flattening - Adjust spring

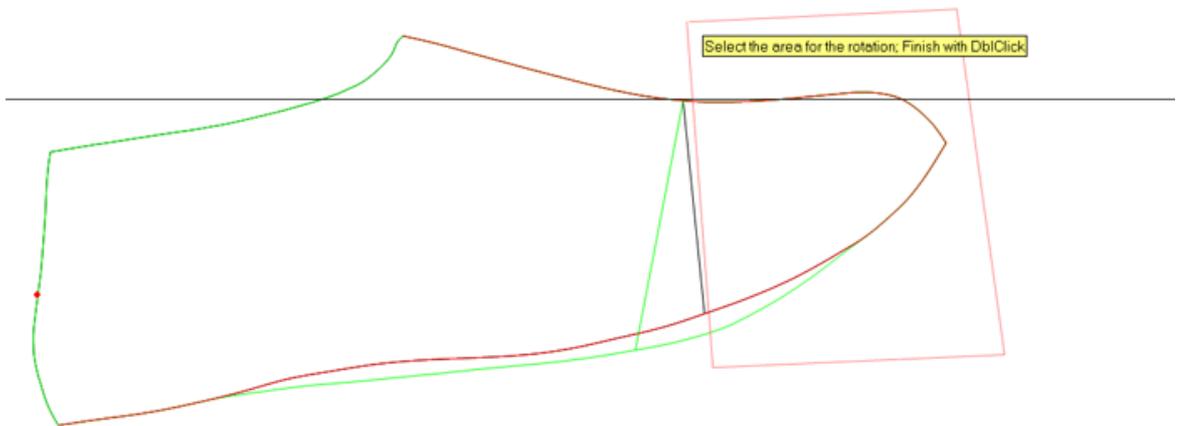
1. Select outside or inside lines and select the **Adjust Spring**  button in the **Merging** toolbar.





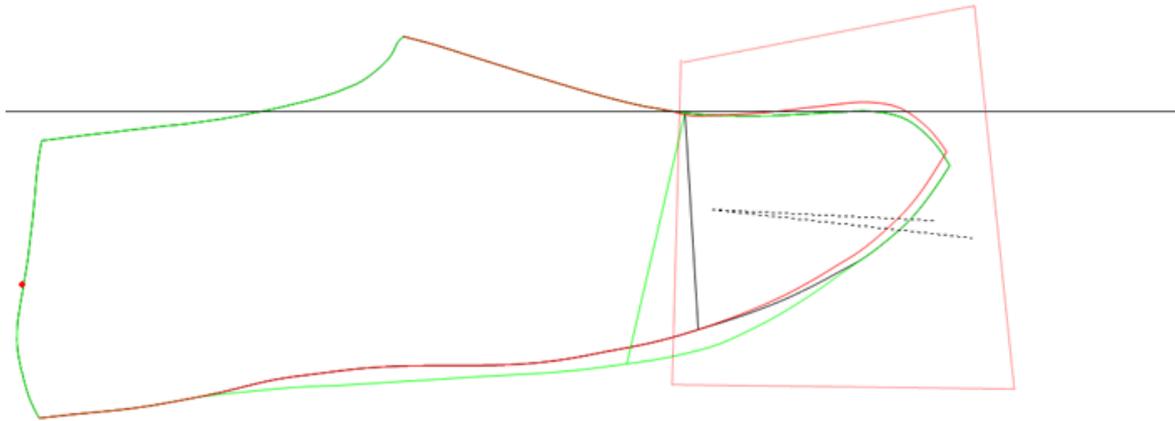
Inside
Outside

2. Select the area to rotate. Finish with Double Click.



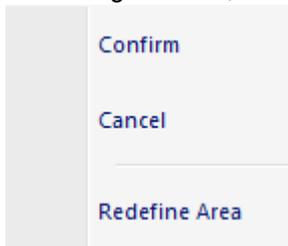
Inside
Outside

3. Select the center of rotation and rotation.



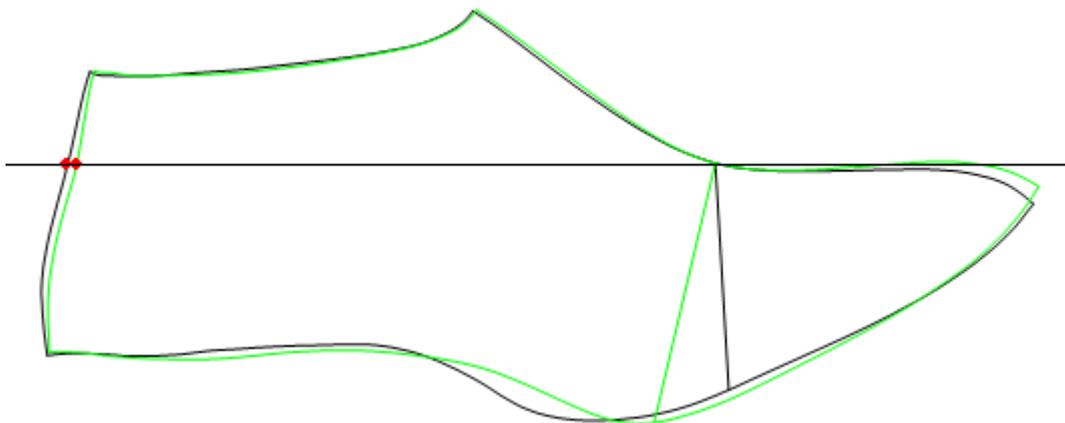
Inside
Outside

3. With right button, select **Confirm**, **Redefine Area** or **Cancel**.



7.5.1.2 Last - Flattening - Mean Heel Line

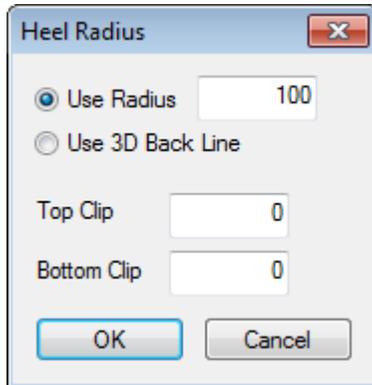
1. The image below shows the original flattening of the last.



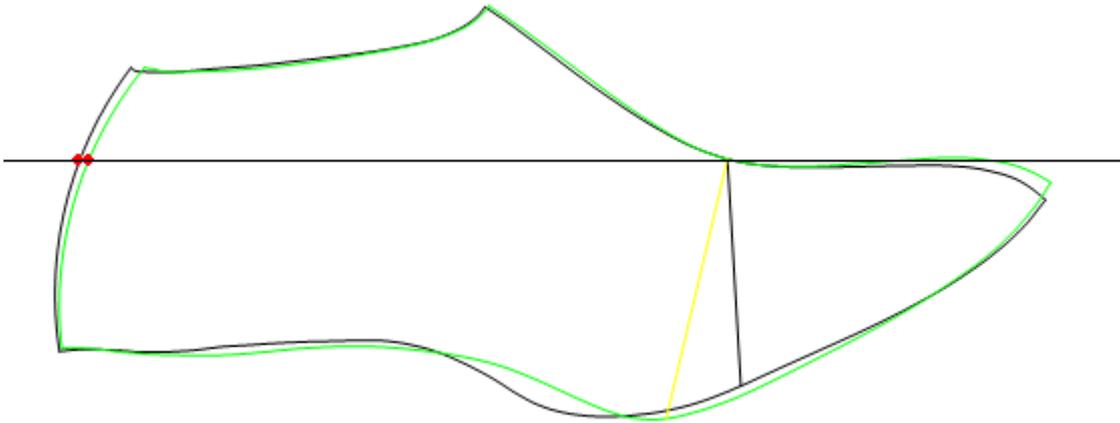
2. Select the **Mean Heel Curve**  button in the **Merging** toolbar.



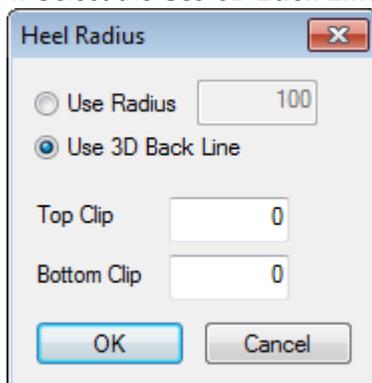
A menu is displayed



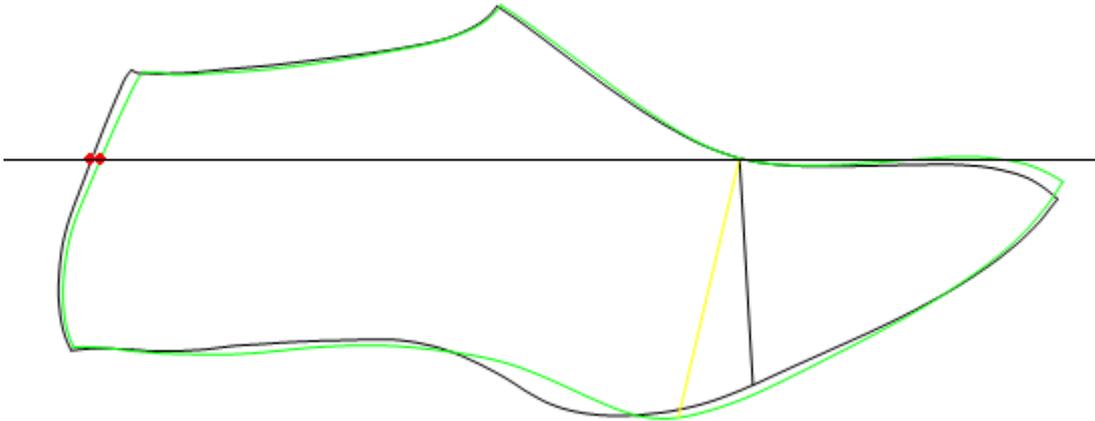
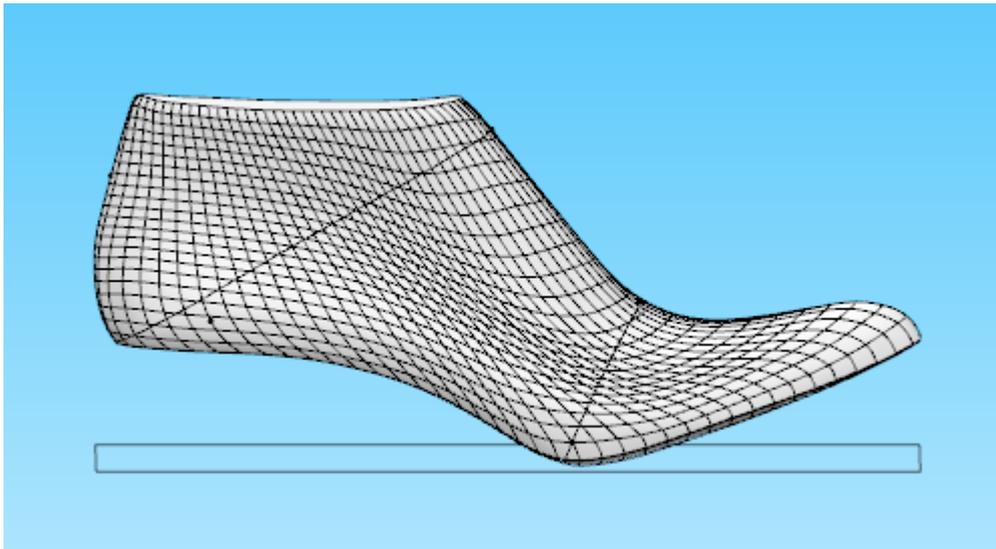
3. Select the **Use Radius** option to enter a radius for the heel curve, the curve; the curve will be fitted between the bottom of the heel curve and the digitised back height.



4. Select the **Use 3D Back Line** option and press **OK**.



5. The flattened back line will be replaced by the 3D back line.



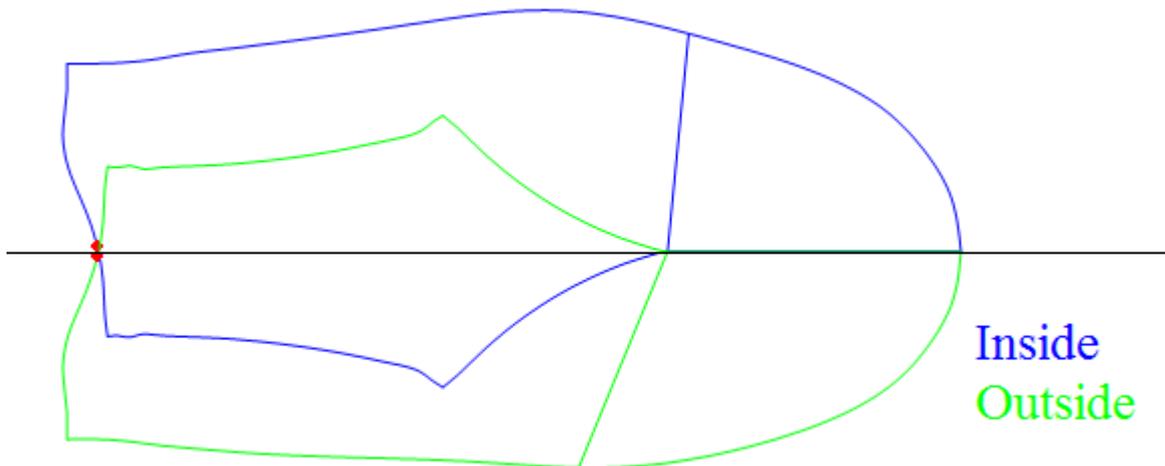
Top Clip and Bottom Clip:

Values for **Top Clip** and **Bottom Clip** can also be added to tip the heel curve in or out, at either the back height (top clip) or where the heel curve meets the feather edge (bottom clip).

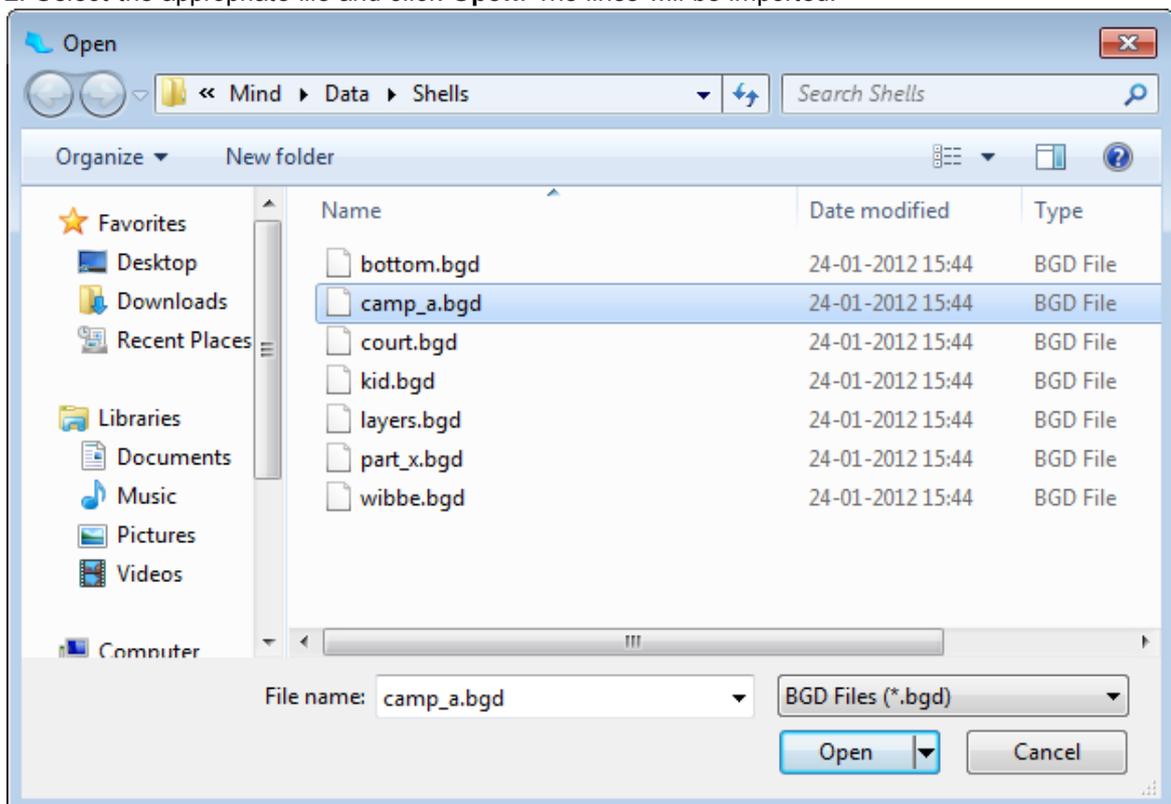
Negative values will shorten the flattening, and positive values will make the flattening longer (you can use a combination of positive and negative values on the two options).

7.5.1.3 Last - Flattening - Import Shell Lines

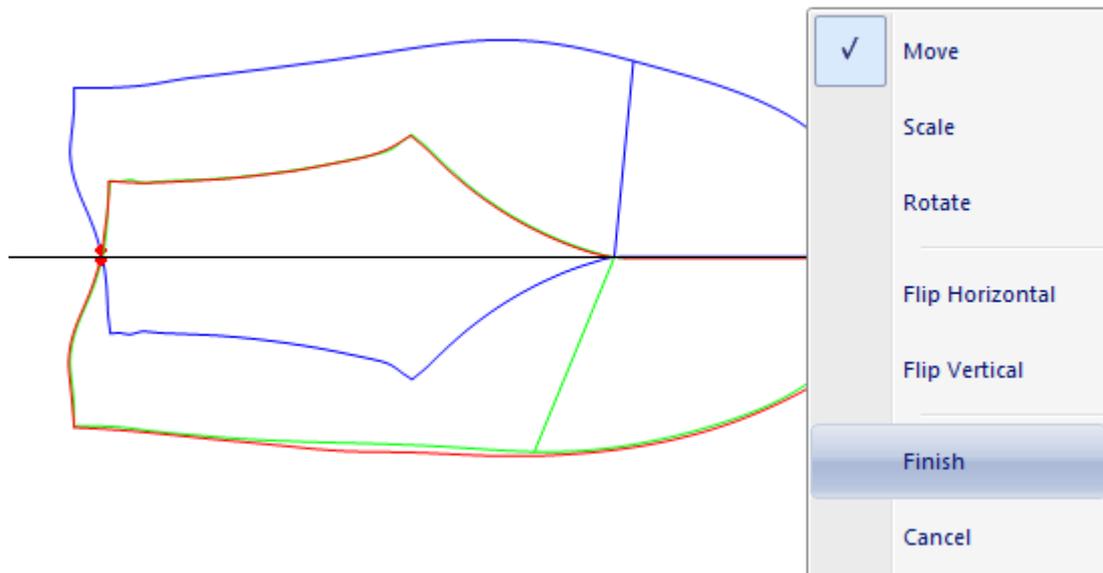
The image below shows the original flattening, before the importation process begins.



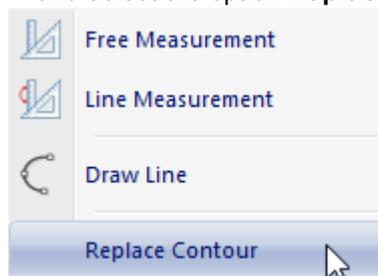
1. Select the file type from the **Import** option on the **File** menu. In this example the file type is **BGD**.
2. Select the appropriate file and click **Open**. The lines will be imported.



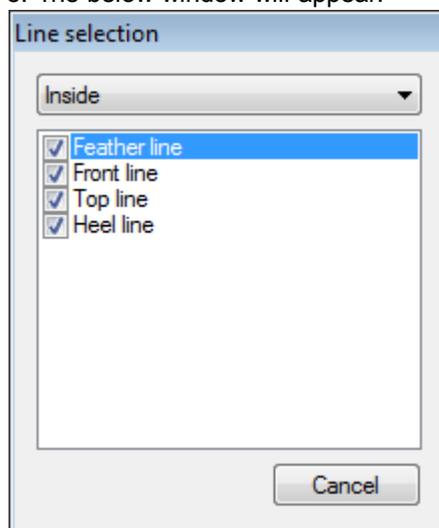
3. Select the imported flattening position, right click and select **Finish**.



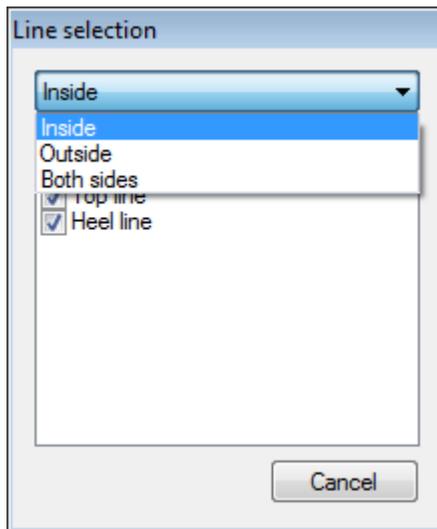
4. To replace the new imported shell for the old one, with the new shell selected, go to **Tools** menu and select the option **Replace Contour**.



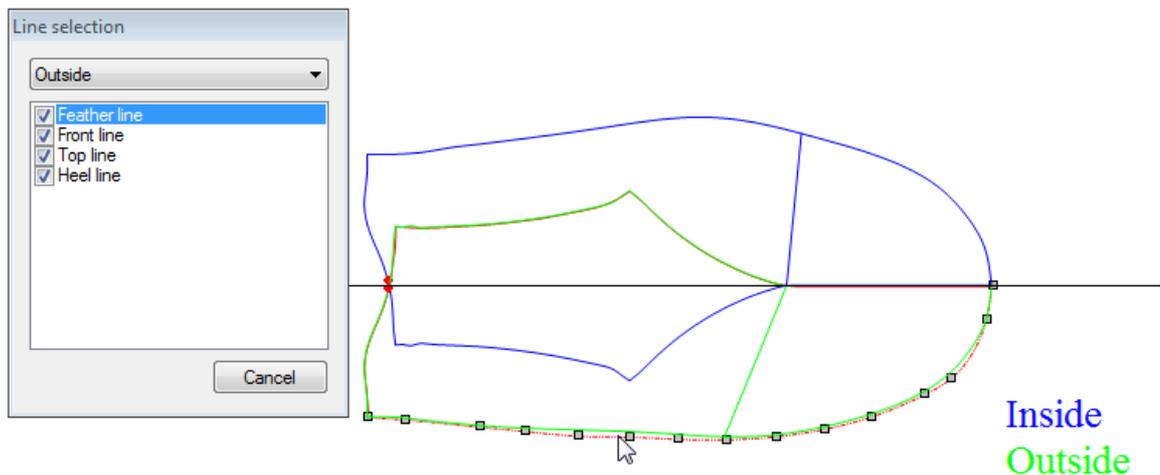
5. The below window will appear.



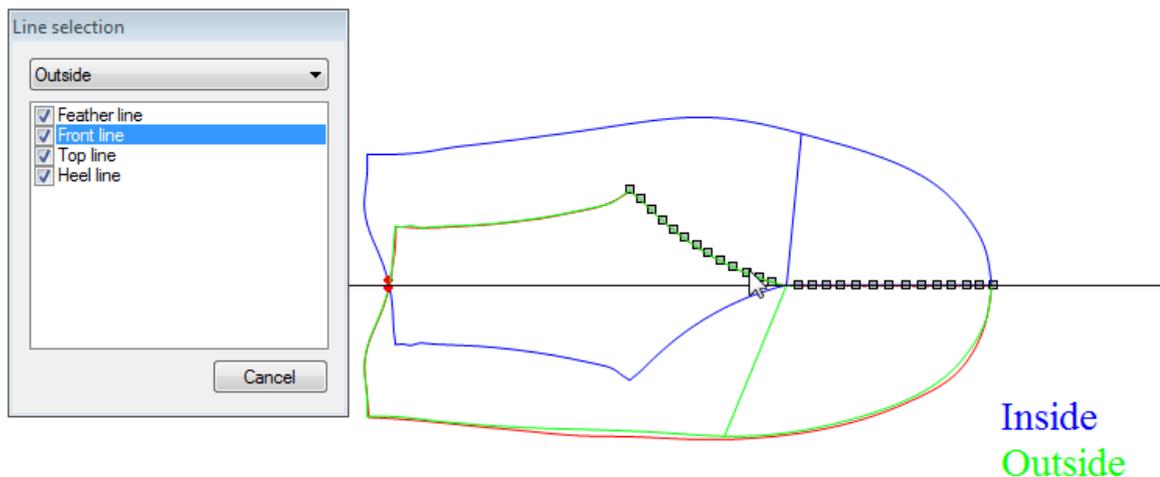
6. Select where you want to replace the contour.



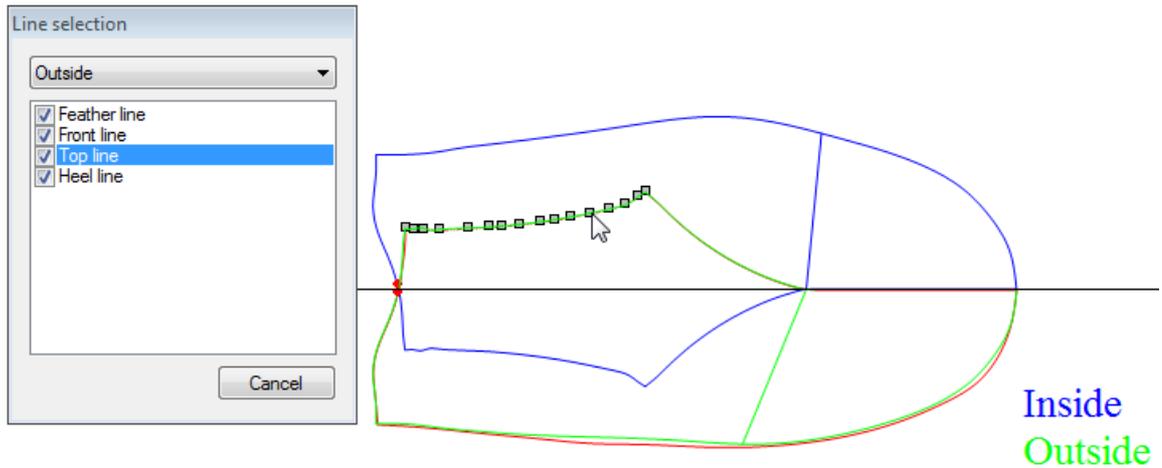
7. Following the lines name that appears in the Line selection window, start selecting the lines. First select the **Feather line** from the imported lines, using the left mouse button .



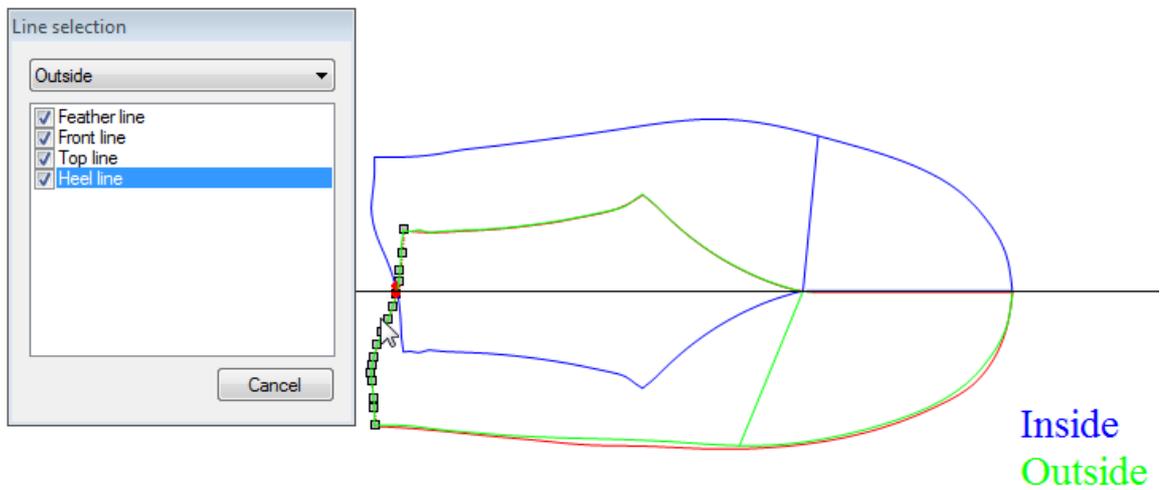
8. Select the **Front Line**.



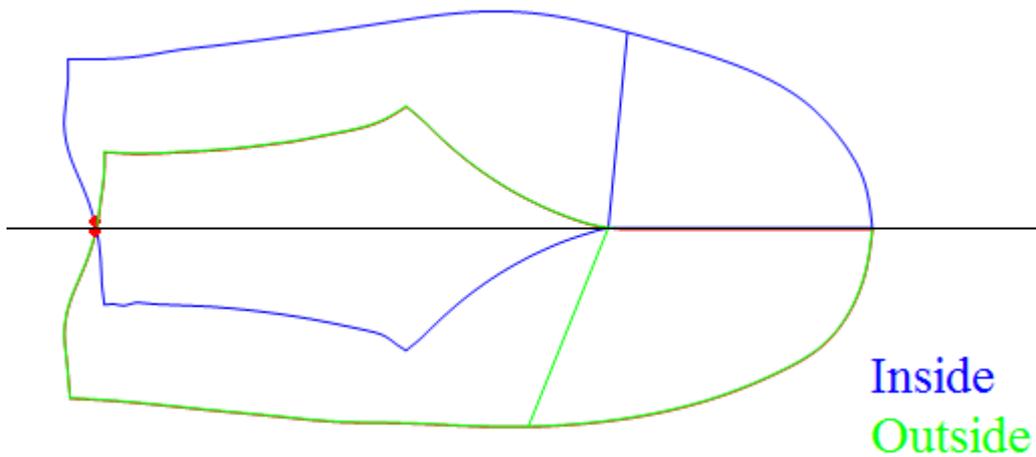
9. Select the **Top Line**.



10. Select the **Heel Line**.



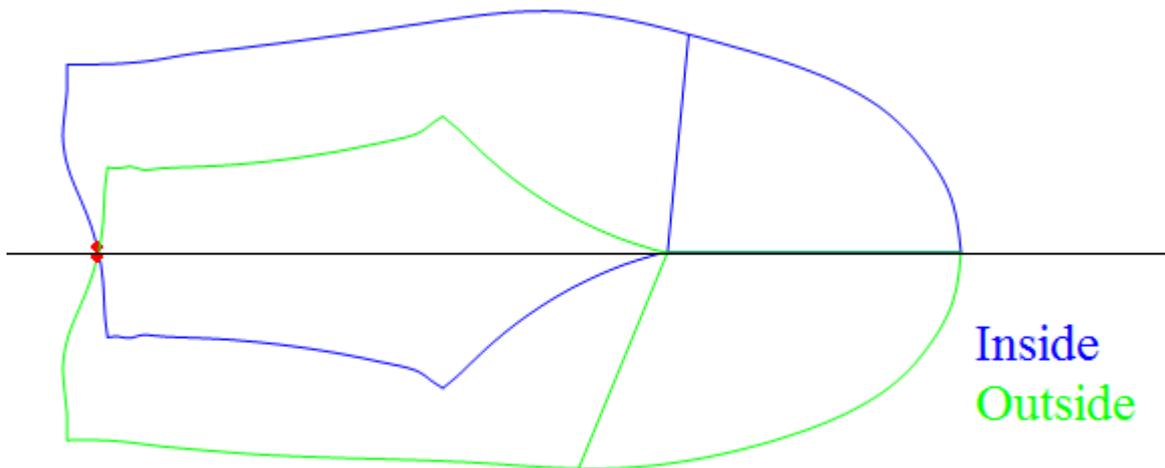
11. After the conclusion of the importation process, the flattening lines are now adjusted to the imported ones.



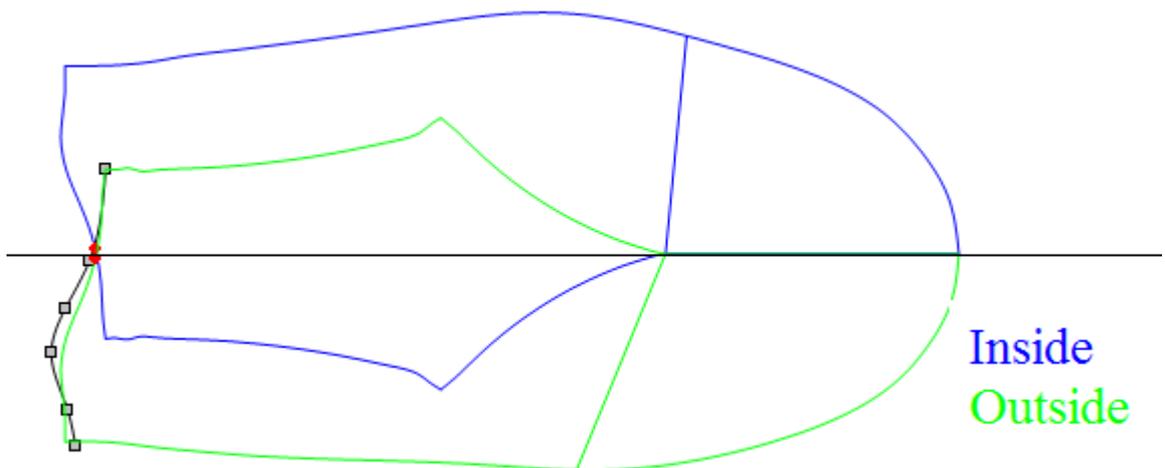
7.5.1.4 Last - Flattening - Free draw

This option allows adjusting a flattening by replacing a line.

1. The original last flattening:



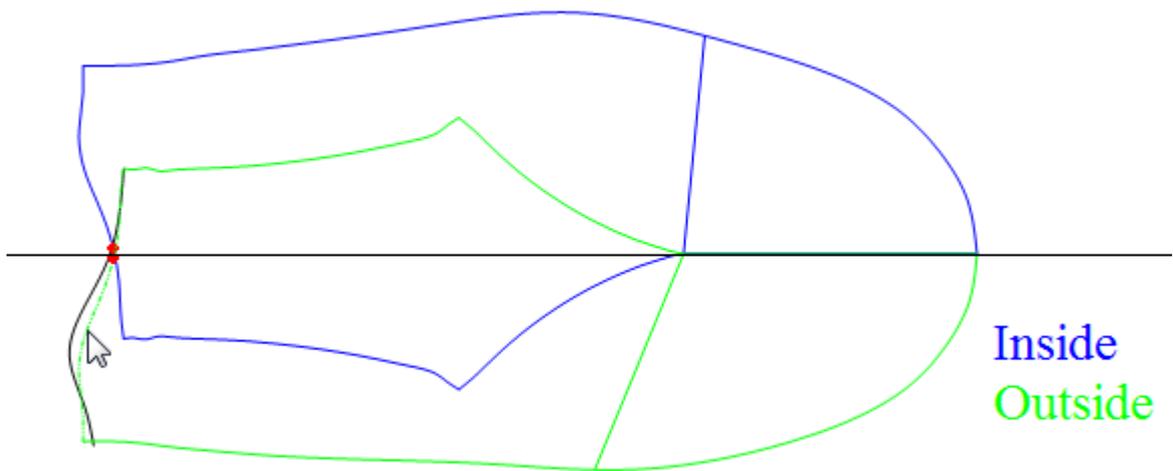
2. Select the Draw Line option, from Tools menu and draw a line.



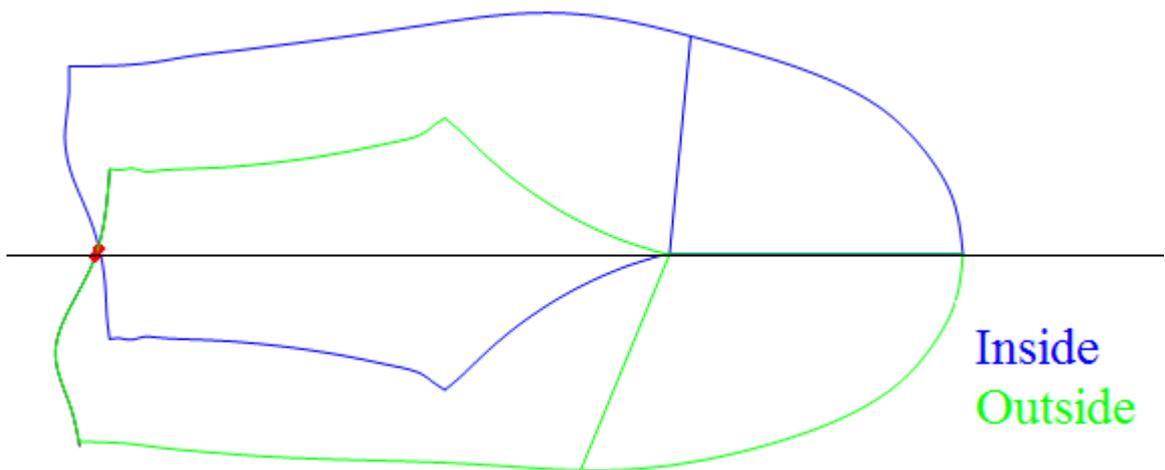
3. In the **Tools** menu, select the option **Replace Contour Line**.



4. Select the line to be replaced.



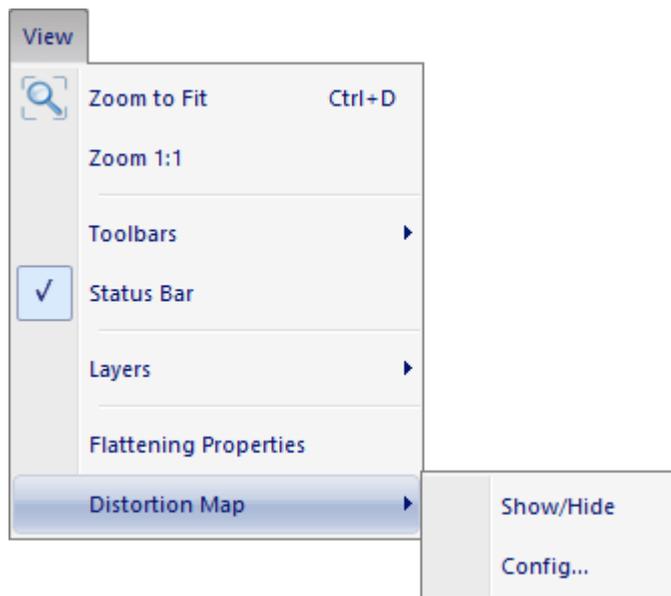
5. The line is now replaced for the new one.



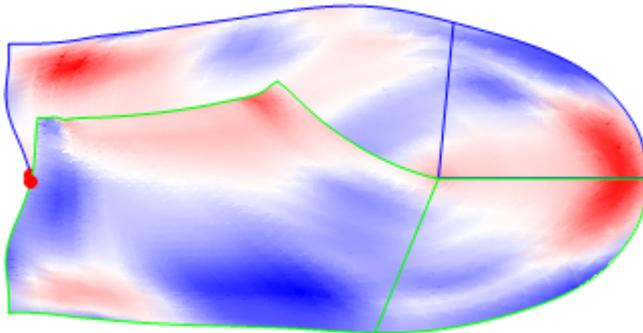
7.5.1.5 Last - Flattening - Distortion Map

Allows to active the layer distortion color map and control the parameters.

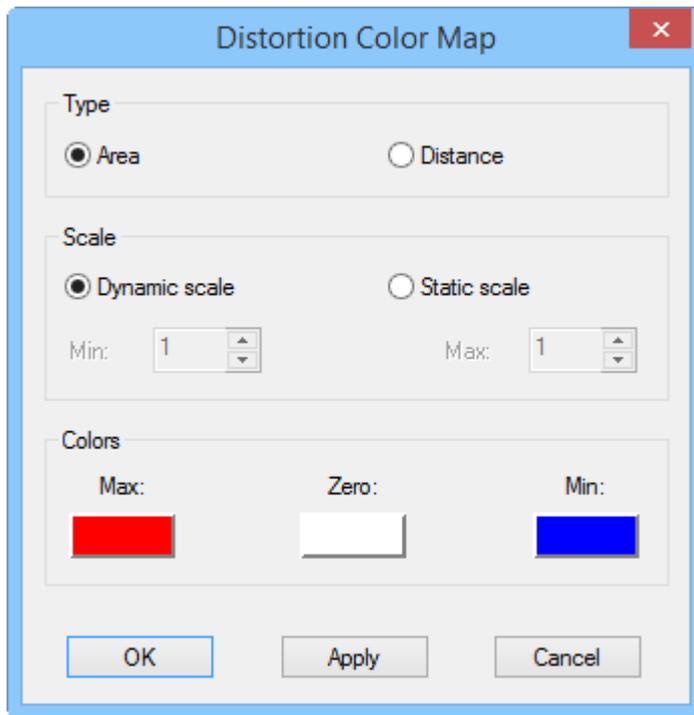
1. To active the distortion map visibility, select **Show/hide** from **Distortion Map** option under the **View** menu.



2. The distortion map is active allowing to check the distortion areas between the 2D and 3D.



3. To configure the distortion color map, select **Config...** from **Distortion Map** option under the **View** menu.



Type - Select the type of distortion between:

Area - The difference between 2D and 3D area.

Distance - The difference between 2D and 3D perimeter (by zones).

Scale - Select the scale between:

Dynamic scale - Scale is based in the real last range values.

Static scale - The scale is defined by the user.

Colors - Select the color for each distortion zone.

Max - If the 3D value is bigger that 2D. (by default Red)

Zero - If the 3D and 2D values are equal. (by default white)

Min - If the 3D value is smaller that 2D. (by default blue)

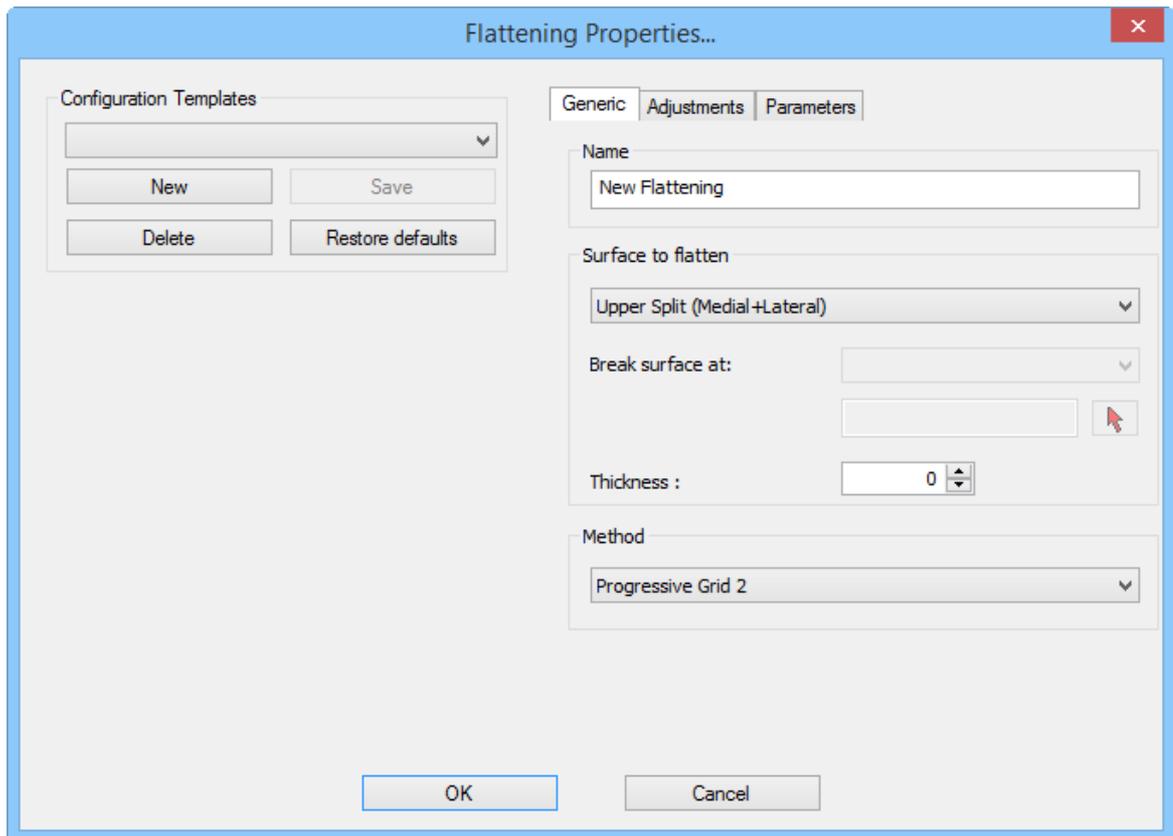
7.5.2 Last - Flattening - Flatten Bottom

This is the same as clicking the **Flatten Bottom**  button in the **Tools** toolbar.

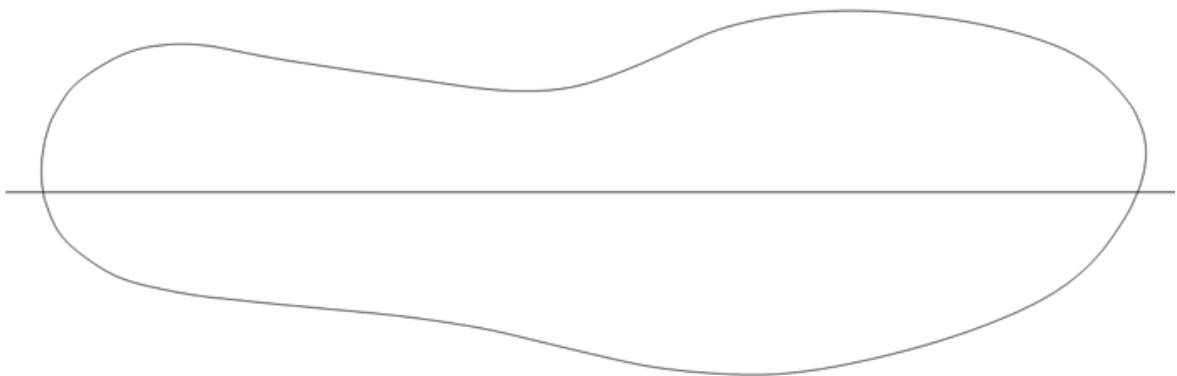


This option flattens the bottom surface of the last.

1. Select **Flatten Bottom** from the **Flattening** options on the **Last** menu, a menu is displayed.



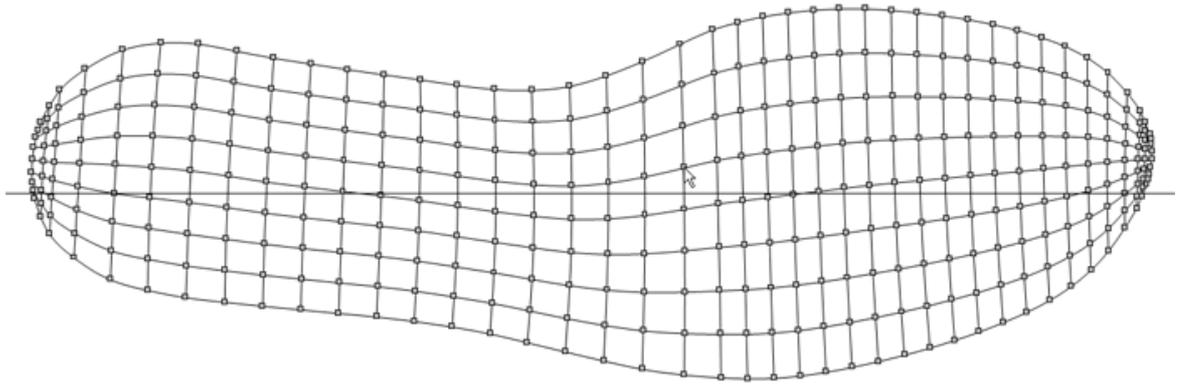
2. Select **Flattening method**; if different from your default method, see **Misc** tab in **Preferences** options in **File** menu.



3. The flattened patchwork can be displayed for checking and editing. Editing is not recommended,

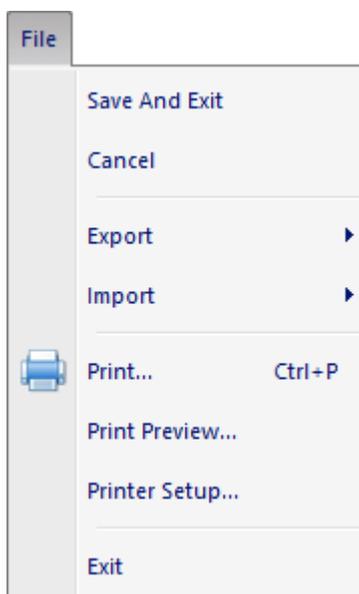
to do this select the **Display Patchwork**  button in the **Merging** toolbar.

Use the left mouse button click to edit. All points on that half will be displayed as small squares.



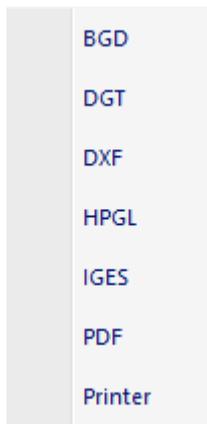
As you approach the point(s) to be edited, the cursor will change into a pencil. Click the left mouse button and hold it down, move to the new position for the point and release the left mouse button.

4. Select **Save And Exit** from the **File** menu to save your flattening.

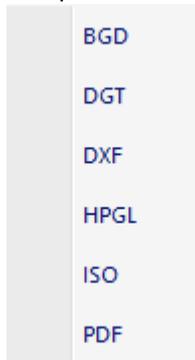


Other options in this menu are

- Cancel - cancels the flattening process
- Export - to several 2D formats



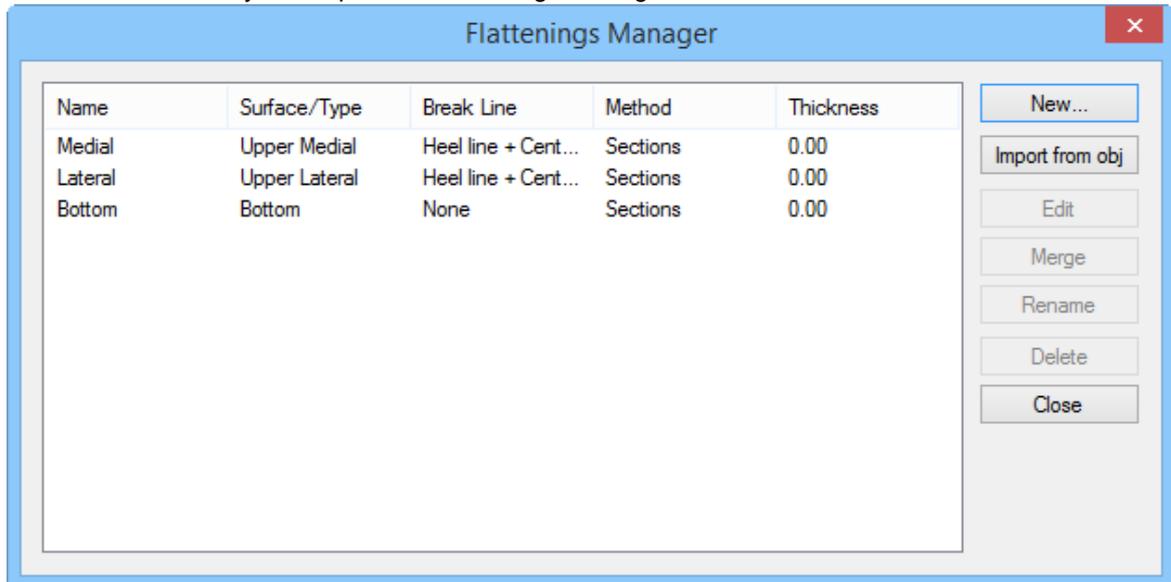
- Import - from several 2D formats



- Print... – Print the shell.
- Print Preview... – Print Preview of the shell.
- Printer Setup... – Print Setup for the printing.

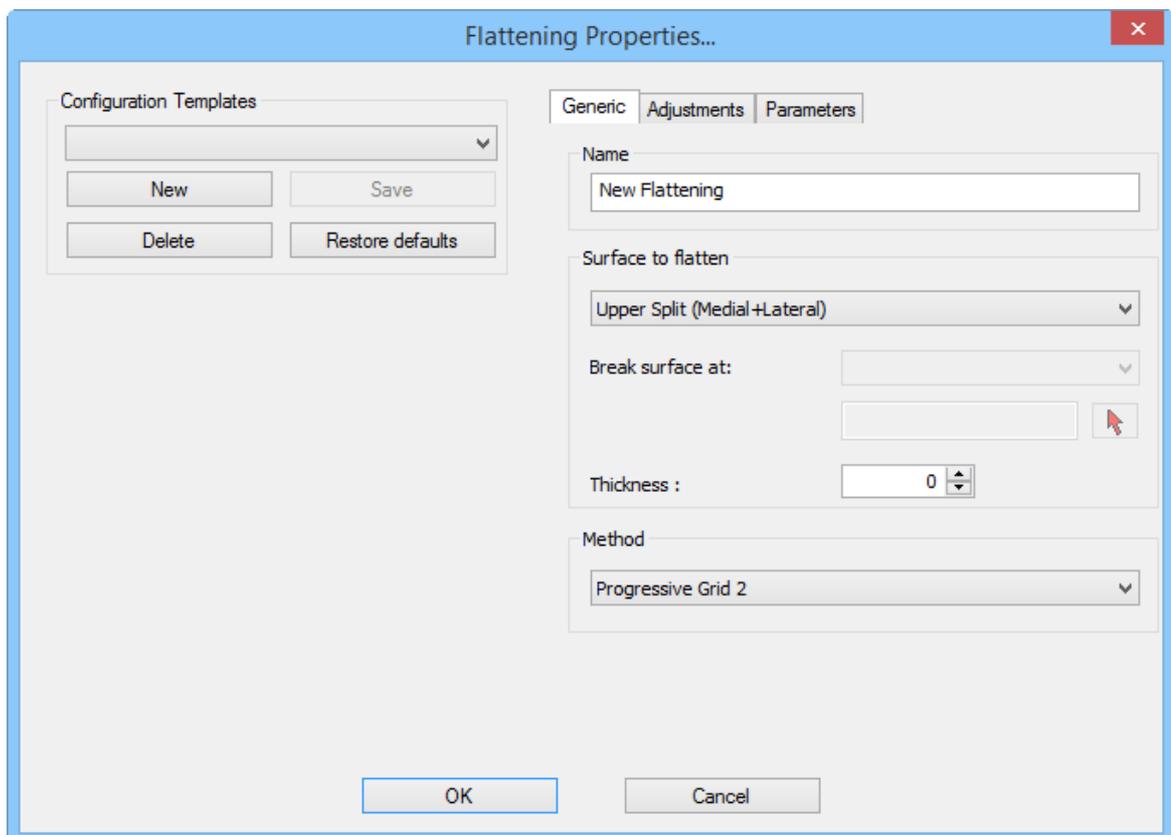
7.5.3 Last - Flattening - Flattenings Manager

This menu will allow you to open the Flattenings Manager:



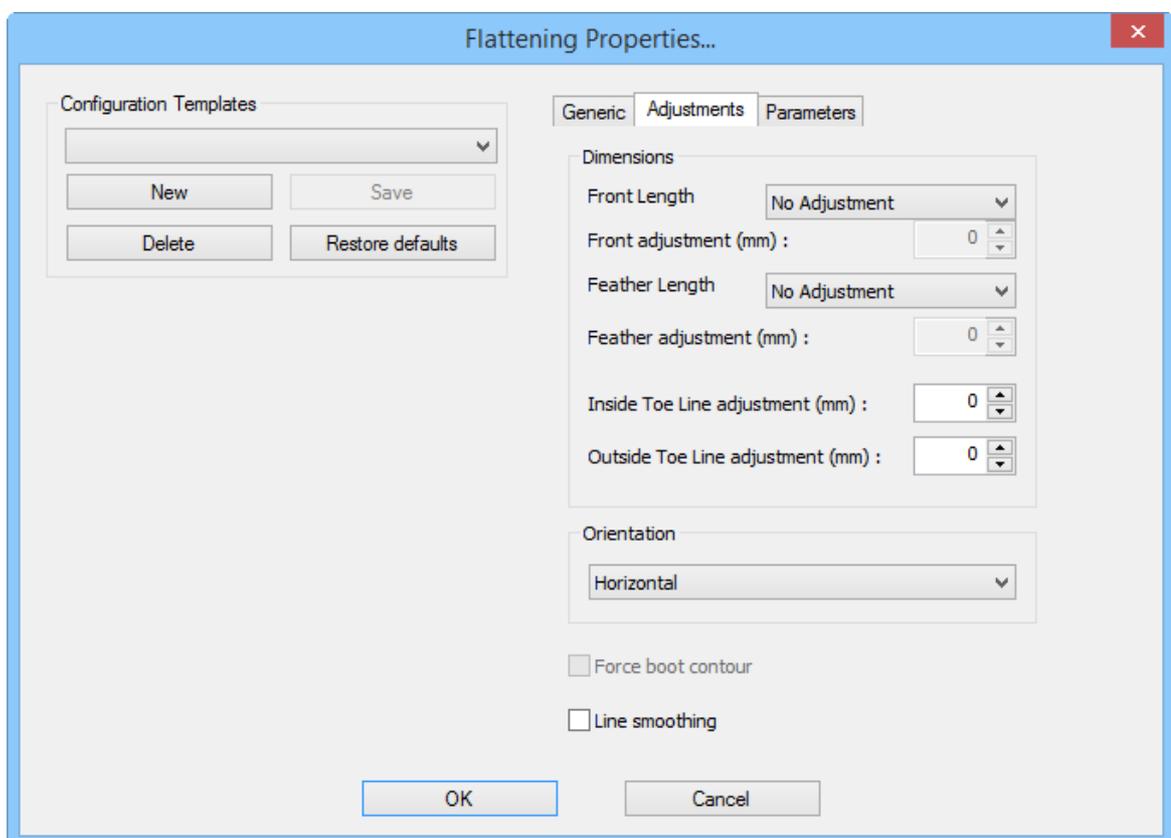
To create a new flattening template:

Go to the **Last - Flattenings - Flattenings Manager** menu and choose **New** on the Flattening Manager (image above). You'll be presented with the dialog box below:



On the **Generic tab**:

- Insert the new flattening **name**.
- Choose the **Surface to Flatten**: Upper Split (medial and lateral flattenings), Full Upper or Bottom.
- If the surface to be flattened is **Full Upper**, you'll need to specify where the surface breaks: heel line or center line or user defined.
- Select the flattening **Method**: The available flattening methods will vary depending on the surface you chose to flatten
- Choose material **Thickness**: the larger the value the bigger the flattened halves will be. The value you use will depend on material to be lasted, personal preference for tightness of upper to last, etc. It is recommended to start by trying a 0 thickness and adjusting the value from this know start point.



On the **Adjustments tab**:

- **Front Length** and **Feather length**: when these options are selected it's possible to adjust the front and bottom lines, for the 2D stick with the same lengths that 3D. If the option is active, it's possible that the lengths stay exactly the same (when the value is 0); the difference can be controlled by the user (nonzero value).
- **Inside toe line adjustment** and **Outside toe line adjustment**: The user can defined the toe line

adjustment, it's possible that the lengths stay exactly the same, in both 2D and 3D (when the value is 0); the difference can be controlled by the user (nonzero value).

- **Force boot contour:** This option is only available in boots flattening. The intent of this option is to adjust the flatten lines to the 2D contour that appears at the time the boot was created. If this option aren't checked the flatten result will be different from what is seen in the 2D window to upper the boot.
- **Line smoothing:** This option allows to smooth the flatted lines result.

***Note:** If the Flattening Method is either Progressive Grid or Progressive Grid 2, you'll be able to set the number of Vertical and Horizontal Patches used in surface subdivision (a new Parameters tab appears when these Flattening Methods are selected).*

Part



8 Window Overview

This menu lets you control the position and way your windows are arranged on the screen.

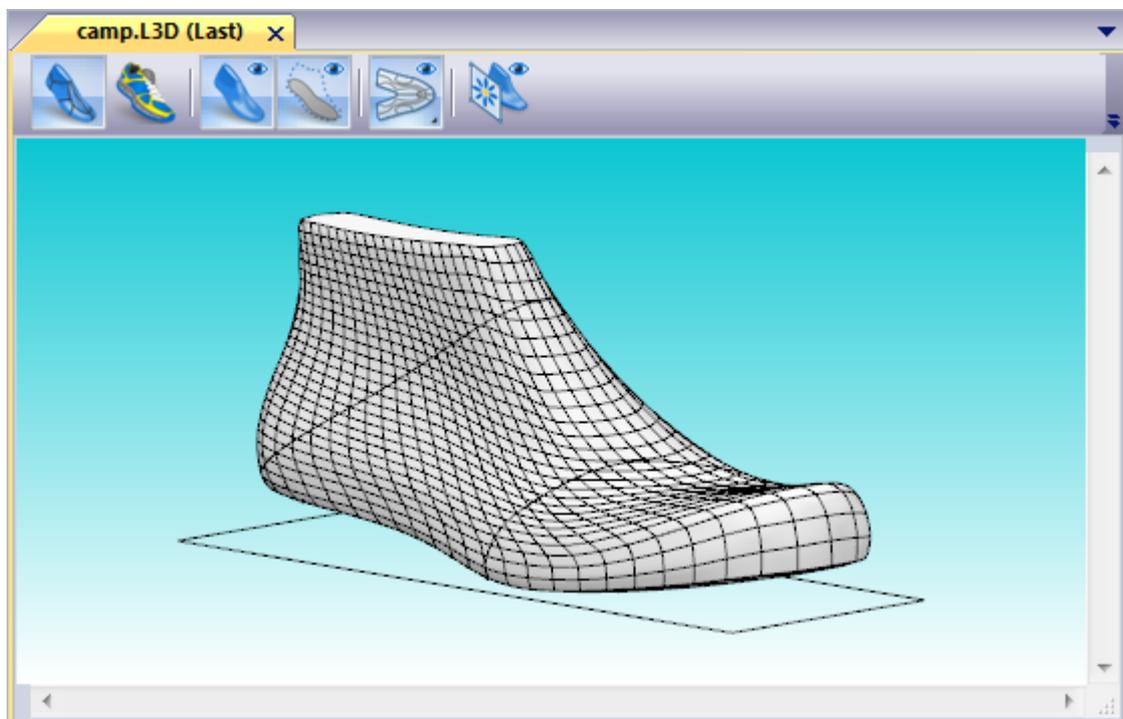


8.1 Window - New Window

This option opens another window.

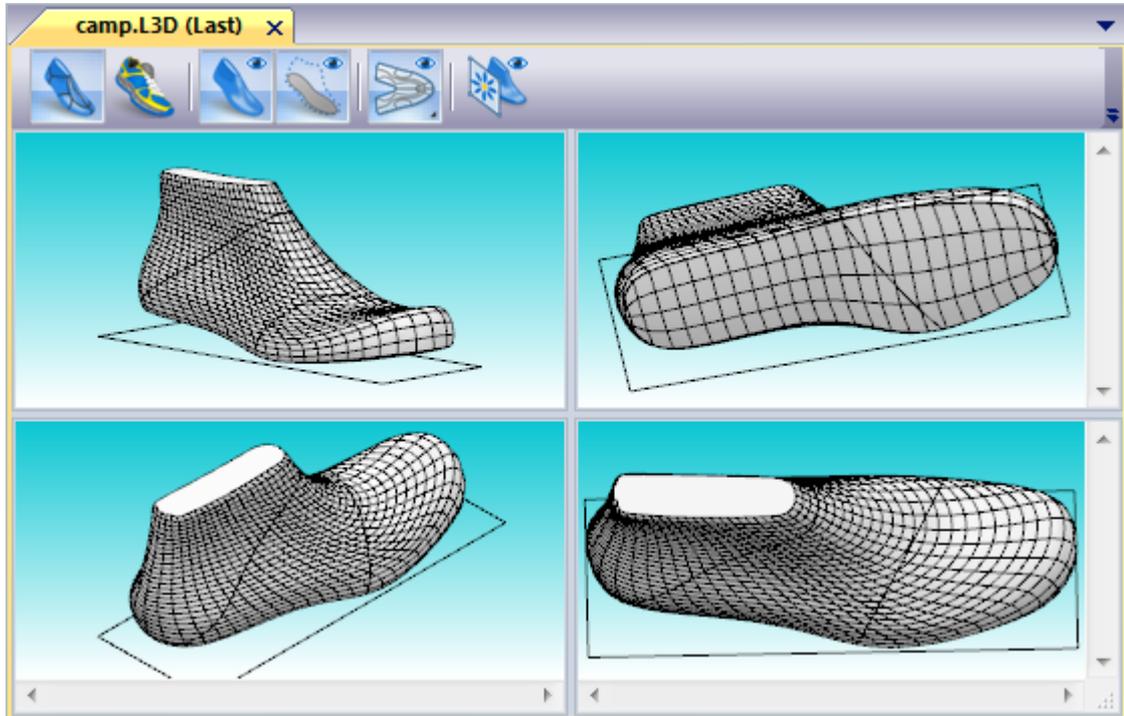
8.2 Window - 1x1

This option closes all the other windows of the selected document, except one, that will be maximized.



8.3 Window - 2x2

This option show four windows of the selected document and organize them 2x2.



8.4 Window - List

Select the name of a current window to make it active.

Part



IX

9 Applications Overview

This menu lets you switch to other MindCAD applications.



9.1 Applications - MindCAD 3D Design & Engineering

This option lets you switch to the **MindCAD 3D Design & Engineering** package.

MindCAD 3D Design & Engineering lets you:

- create your 3D designs
- create 3D parts
- create or import soles
- visualise your finished shoe.

9.2 Applications - MindCAD 2D Design & Engineering

This option lets you switch to the **MindCAD 2D Design & Engineering** package.

MindCAD 2D Design & Engineering lets you create your 2D patterns with allowances, notches, text etc. They can then be graded and output to a cutter for production.

Part



10 Help Overview

This menu lets you launch the help system, open the Mind web site and display the version number of the current software.



10.1 Help - Help Topics

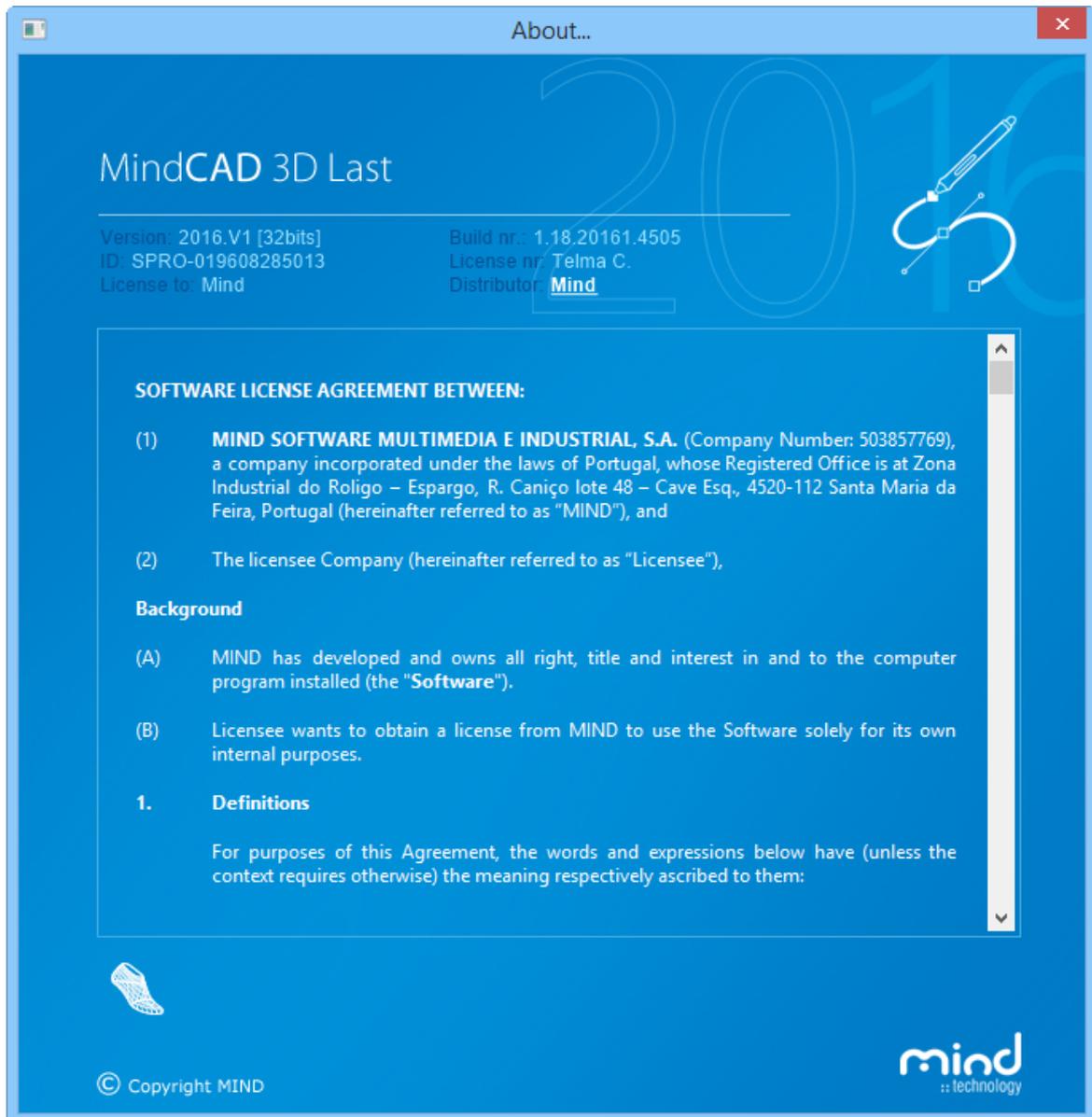
This option lets you launch the help system.

10.2 Help - Mind on the Web

This option lets you open the Mind website (<http://www.mindtech.com.pt/>).

10.3 Help - About MindCAD Last Design & Engineering

This option displays a dialog containing the version number and licensing information.



Part

XI

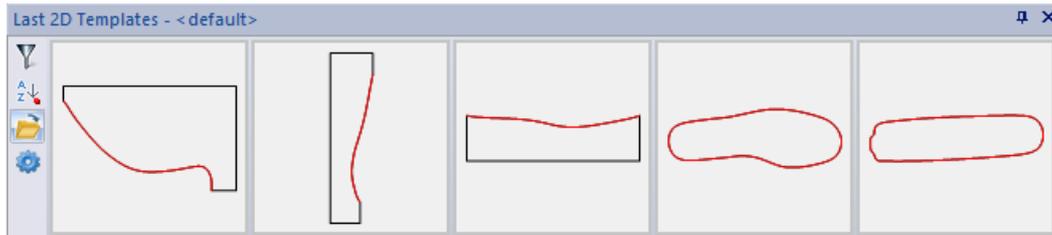
11 Libraries

The library system in **MindCAD LAST Design & Engineering** allows to open, create and delete library folders.

There are one main top level nodes:

- the **<default>** is the folder where built-in elements delivered on installation of the software package resides;

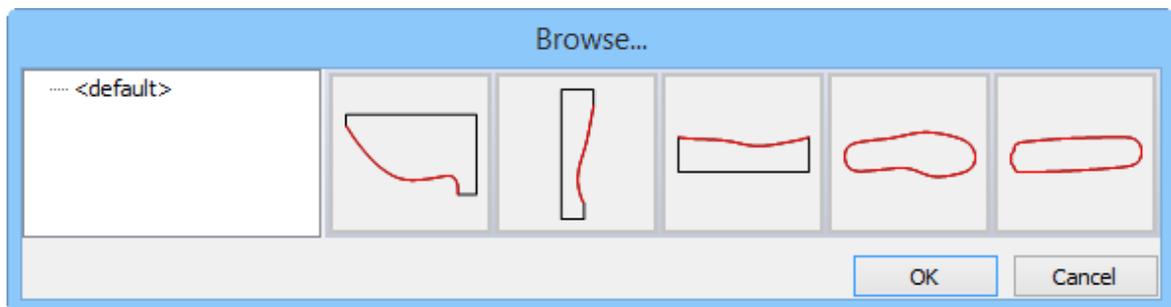
Child of the node **<default>** are the user libraries, customized in an hierarchy controlled by the end user. The operator is then able to organize library folders based on client, season, ... based on personal or enterprise policies.



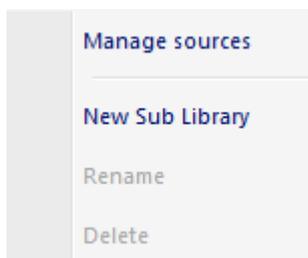
11.1 Library - New

This option allows for the creation of library folders.

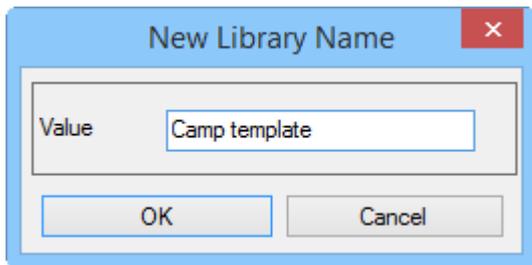
1. Click on the folder icon  in the left side of the libraries and the library manager window will open.



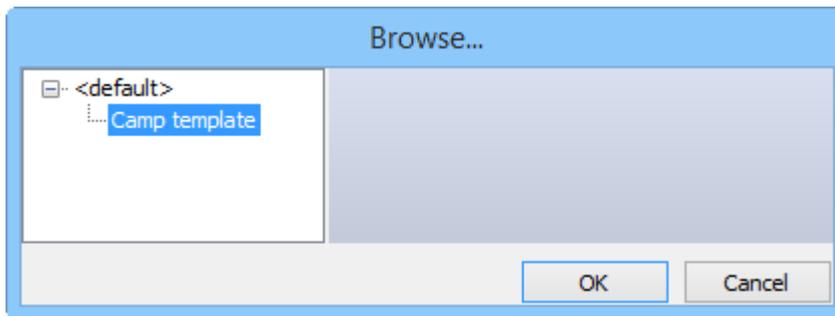
2. Right click on a node, for example the **<default>** node and some options appear. Select the **New Sub Library** option.



3. Write the desired name and press Ok.

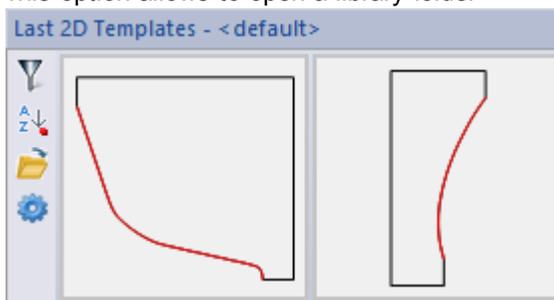


4. The new library folder is created.



11.2 Library - Open

This option allows to open a library folder

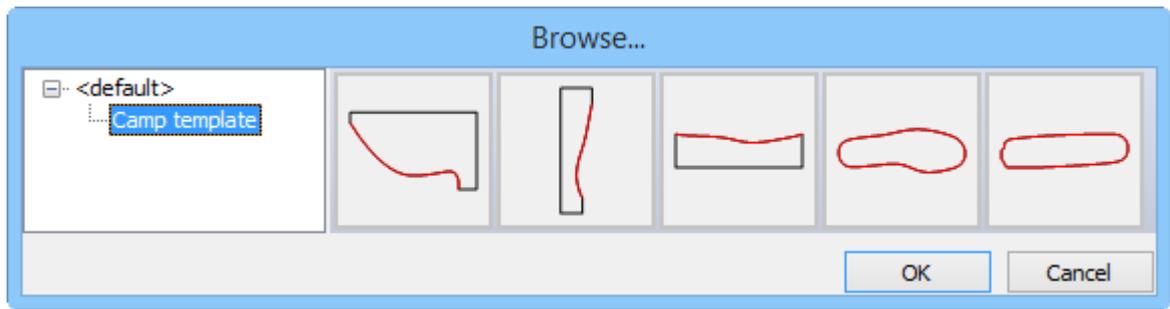


In this example, the **<default>** library folder is displayed by default

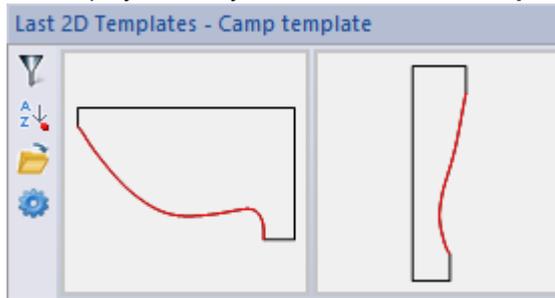
1. To open another folder, simply click on the folder icon  in the left side of the libraries and the library manager window will open.



2. Select the Camp template library. Press **Ok**.



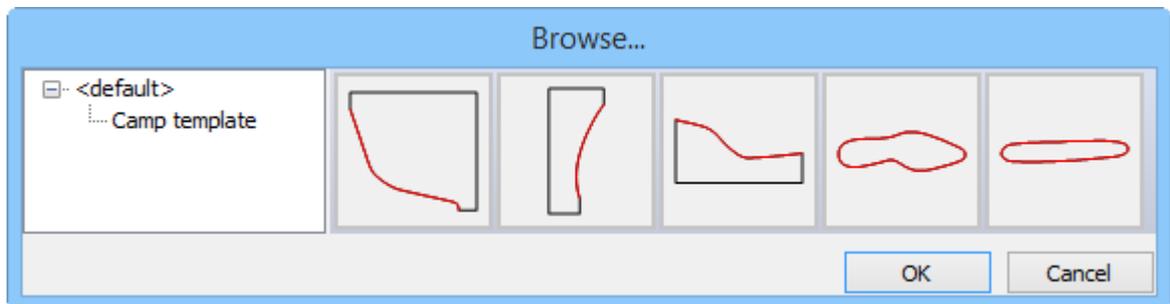
The displayed library folder now is the "camp template".



11.3 Library - Delete

This option allows to delete a library folder.

1. Click on the folder icon  in the left side of the libraries and the library manager window will open.



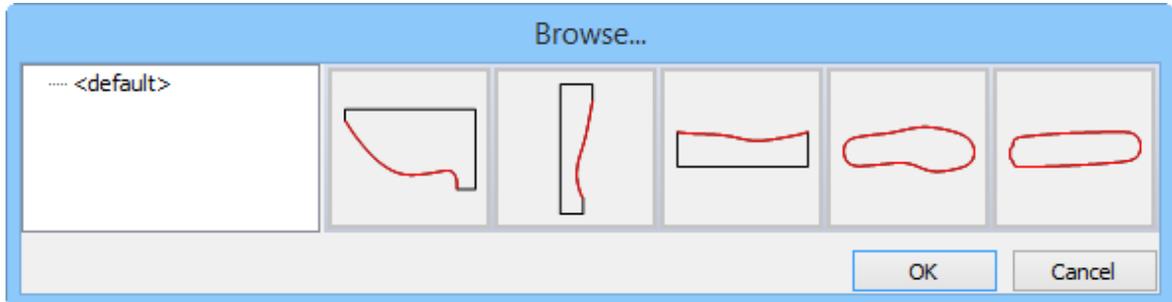
2. Right click over a folder and select **Delete**.



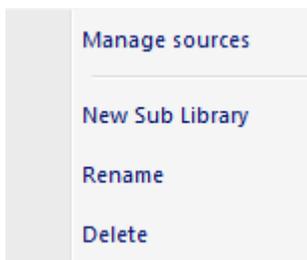
11.4 Library - Rename

This option allows to rename a library folder.

1. Click on the folder icon  in the left side of the libraries and the library manager window will open.



2. Simply right click over a folder and select **Rename**.

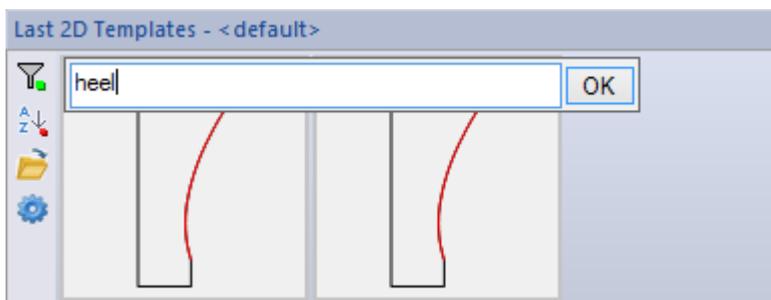


11.5 Library - Filtering and Sorting

To access the filtering and sorting functionality, there are two button on the left.



This option allows to search a library folder. Just activate this button and write the name to search.



The search is always using an implicit wildcard matching algorithm that will be any element with "1" in the name, no matter its position. The update of the underlying thumbnails is immediate.



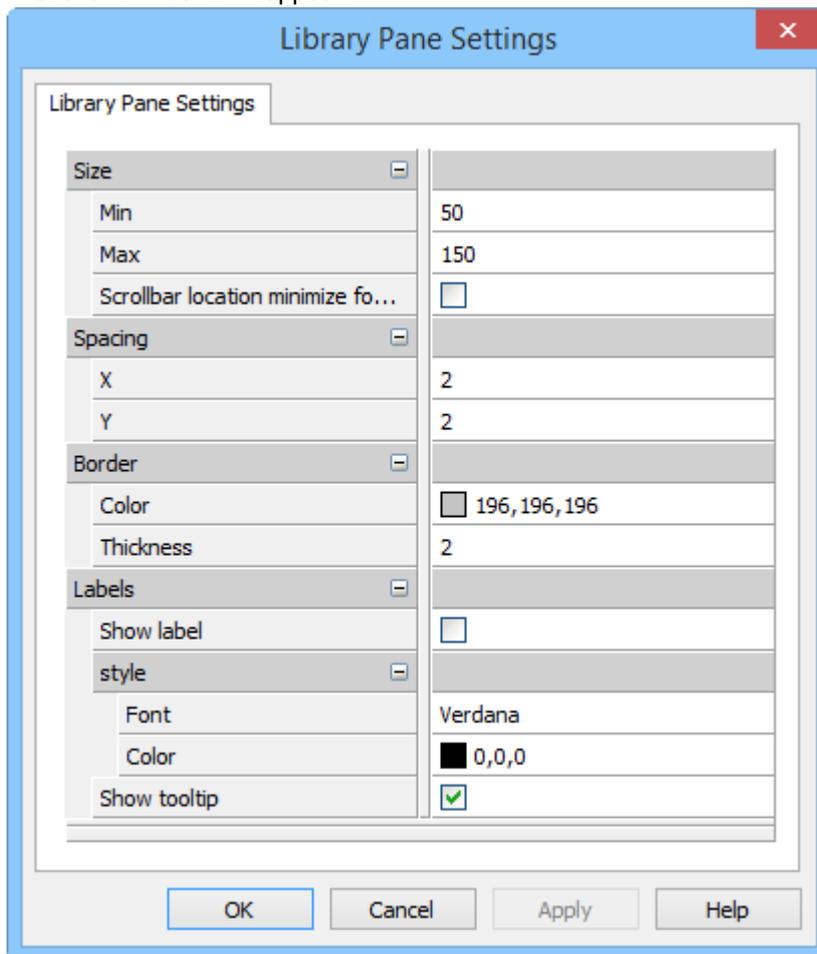
This option allows to sort alphabetically. Press twice to cycle through **ascending**, **descending** and **no sorting** modes.

On these buttons, there is a small square box on the right bottom side that indicates if the functionality is enabled (green) or disabled (red).

11.6 Library - Pane Settings

To access the Pane Settings click on the icon  in the left side of the libraries and the library manager window will open.

The follow window will appear.



Size - To change the size of each item in the libraries

Min - Define the minim size

Max - Define the maxim size

Scrollbar location minimize footprint - Enable/disable this option to change the scrollbar location vertical/horizontal.

Spacing - The space between each item in the libraries

X - To change the space along the X axis

Y - To change the space along the Y axis

Border - To customize the border of each item in the libraries

Color - Allows to change the color of the border of each item in the libraries

Thickness - Allows to change the thickness of the border of each item in the libraries

Labels

Show Label - Enable/disable the label of each item in the libraries

style - To change the labels style

Font - Change the labels font

Color - Change the labels color

Show tooltip - Enable/disable the tooltips of each item in the libraries

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