

# **NCG CAM**

**NCG CAM Solutions Ltd.**

## **NCG CAM - V15.0**

**UV Passes &  
Passes  
Linking**

**5-Axis  
Roughing**

**T-Slot  
Cutters in  
5-Axis**

**Tool Sheets  
Now Include  
Additional  
Images**

**Many New  
User Interface  
Features and  
Enhancements**

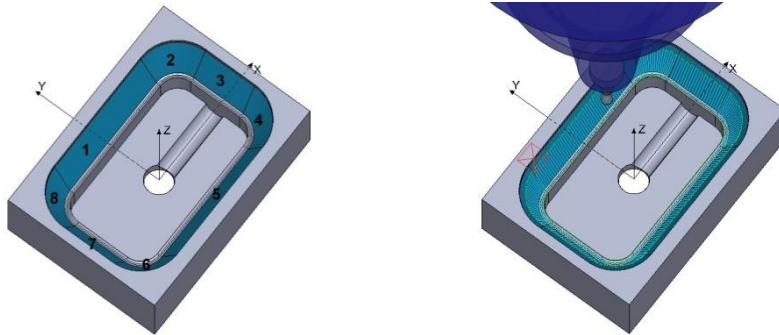
*Image courtesy of : Telkom - OT d.o.o.,  
Slovenia*

**New Features for NCG CAM  
V15.0**

## NCG CAM New Features V15.0– Base Module

### UV Surface Machining – Part 2 - UV Passes

NCG CAM v15.0 now tries to preserve the original order of surface selection when creating UV machining passes. Selecting the surfaces sequentially to create a chain will minimise any retracts and rapid moves.



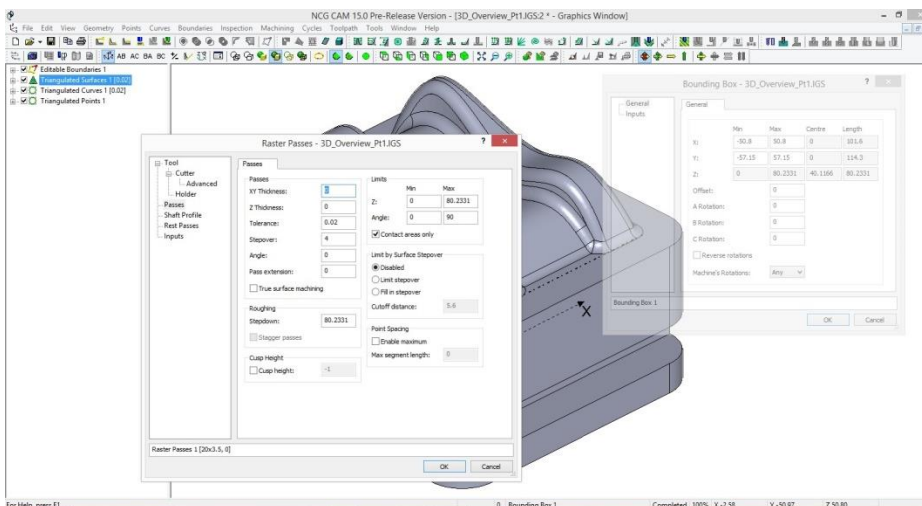
### UV Surface Machining – Part 2 - UV Passes Linking

An Intelligent Bidirectional option for UV Passes has been added to facilitate the best linking order for passes that run perpendicular to adjacent selected surfaces.

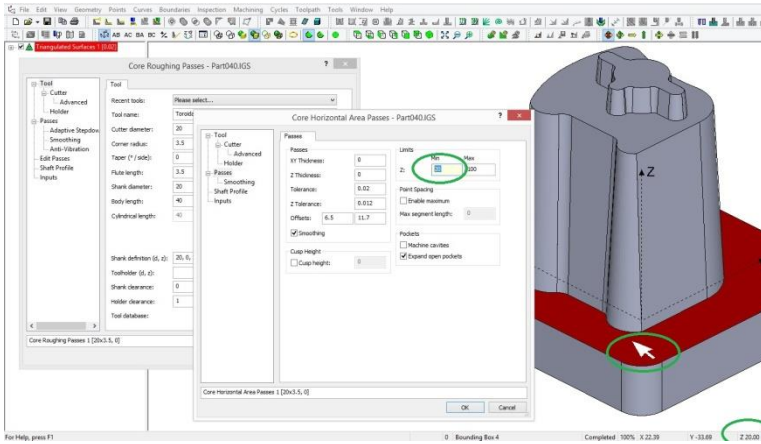
### User Interface

There is a fundamental enhancement to the **User Interface** and the way the dialogues work. Previously if a dialogue was open, then no other dialogues would be available; also no further actions could be executed in the 'Graphics Window'.

The new behaviour allows multiple dialogues to be open, but more importantly, the User will be able to interact with the Graphics Window to recover coordinates.



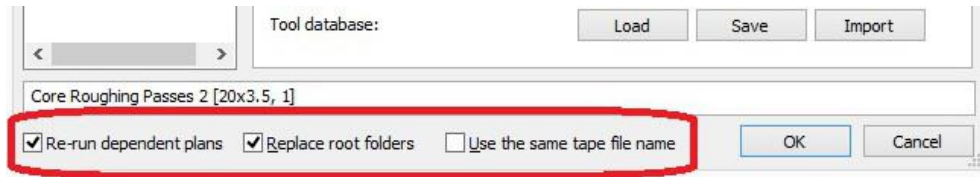
**User Interface**



An example of the User Interface changes, is when hovering over the surface data the Z cursor value will be able to be recovered and used to populate various parameter fields.

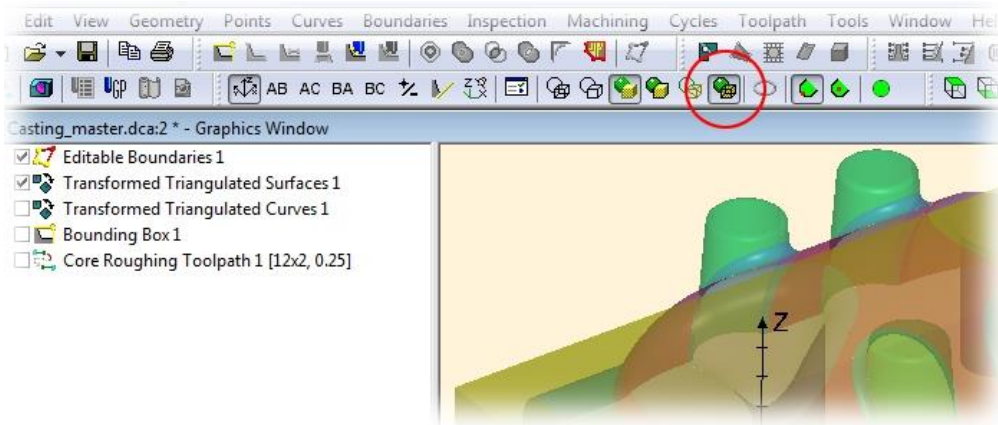
Also, the current cursor positions can be snapped to the wire frame model geometry; two positions could be used to define the machining direction vector in the Raster pass strategies.

When reviewing a plan, for example using the 'Properties', you no longer need to use the Ctrl / Shift keys to get extra options, as they are now on the dialogue itself. However, the Ctrl / Shift keys can still be used to set the default options on the dialogue.



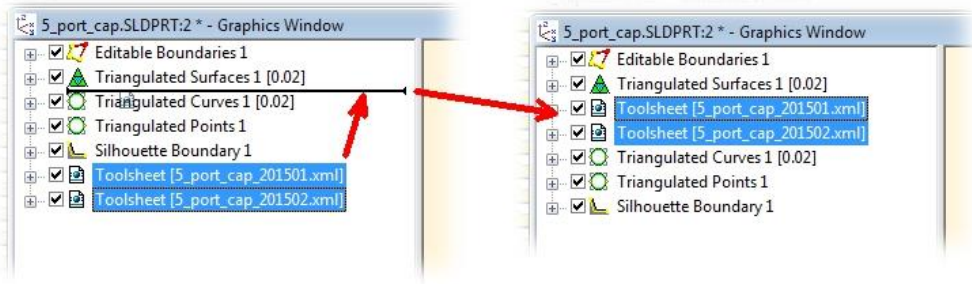
A ruler has been added to the machining passes Tool page to help visualise the length of the cutter and holder.

A new option has been added to the graphics toolbar to allow rendering with translucency.



## User Interface

Multiple selected plans can now be moved by drag and drop within the tree view.



## Improved the Dynamic Rotation

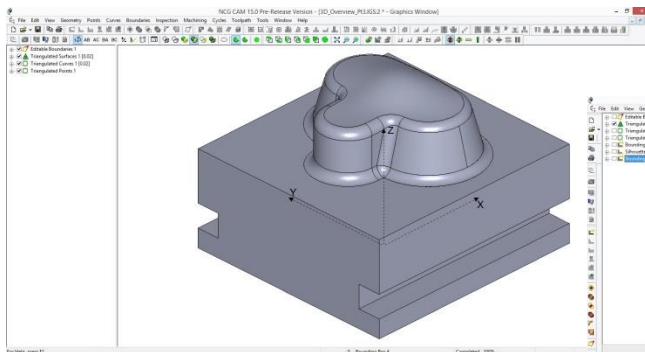
NCG CAM v15.0 will now allow rotation about a given point or view. When zoomed in, this enhancement will allow rotation of the part around the centre of the screen, keeping the part in view.

## Auto-save Option

An option has been added to enable 'Auto-saving' of an NCG CAM database (dca) at a pre-set elapsed time. The backup macro function remains in place.

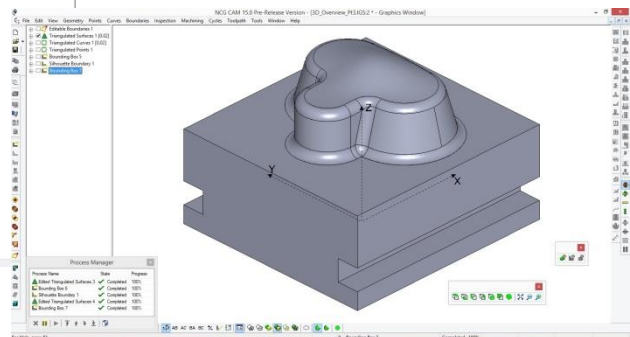
## Align Toolbars Down the Side of the Screen

It is now possible to align the toolbars, either along the top, as before, or down the left or right side. This allows the user to make better use of the screen space for wide format screens on Laptops, etc.

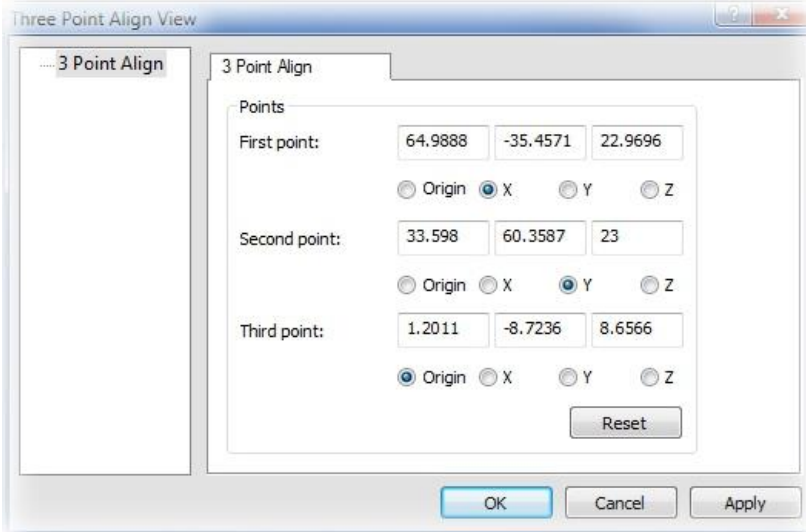


*Above – Previous Screen Layout*

*Below – New Screen Layout*



**Three Point Align**



In the View menu, users can now utilise 'Three Point Align'. This will allow the view to be aligned using three points contained in a points folder.

This can be useful for 3+2 work, where it is not possible view normal to a surface and where dynamically rotating the view would not be accurate enough.

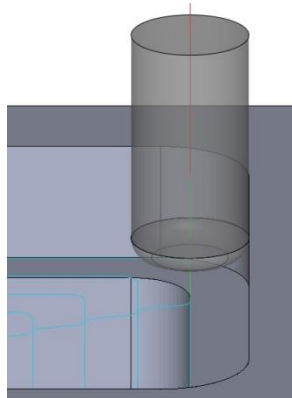
**Toolsheets Now Include a Cutter & Set-Up Page**

A new section has been added to the toolsheet giving an image and details of each tool used.

<b>Tool number</b>	<b>1</b>		
Tool type	Toroidal		
Cutter name	Toroidal[16x2 32, 0.5]		
Cutter diameter	16		
Corner radius	2		
Taper angle	0		
Number of teeth	2		
Flute length	2		
Body length	32		
Cylindrical length	32		
Tool cutting time	00:18:37		
Tool name	Toroidal[16x2 32, 0.5] + BT30 Multi Lock - C16 55 long		
Tool holder	BT30 Multi Lock - C16 55 long		
Holder details	0 0 40 0 44 5 44 34 46 35 51 35 53 36 53 55		
<a href="#">Back to summary</a>			
<b>Tool number</b>	<b>5</b>		
Tool type	Toroidal		
Cutter name	Toroidal[4x1 40, 0.5]		
Cutter diameter	4		
Corner radius	1		
Taper angle	0		
Number of teeth	2		
Flute length	1		
Body length	40		
Cylindrical length	18		
Tool cutting time	00:06:13		
Tool name	Toroidal[4x1 40, 0.5] + BT30 Multi Lock - C12 55 long		
Tool holder	BT30 Multi Lock - C12 55 long		
Holder details	0 0 26 0 30 5 30 28 31 28 35 30 35 37 37 38 51 38 53 39 53 58		

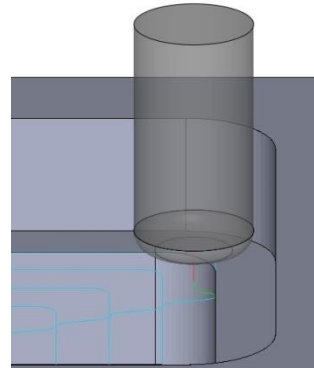
**Area Clearance Linking - Horizontal Leads**

NCG CAM v15.0 will now allow a horizontal arc to lead off, in order to get the cutter away from where it retracts against vertical walls, which could damage the cutter tip because of the rapid retract feedrate and leave an unwanted mark on the part.



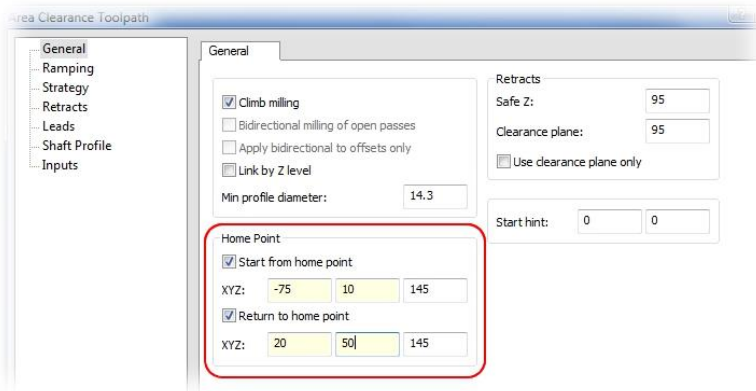
Above – Previously in NCG CAM

Below – Now in NCG CAM v15.0



**Linking**

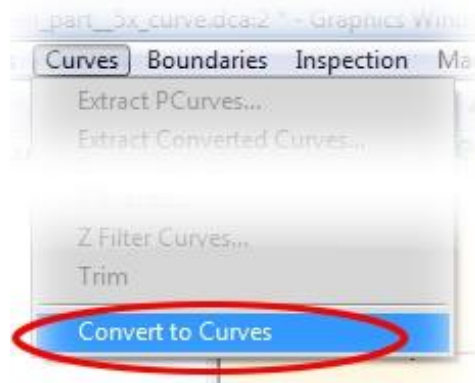
It is now possible to set different start and end 'Home Point' locations.



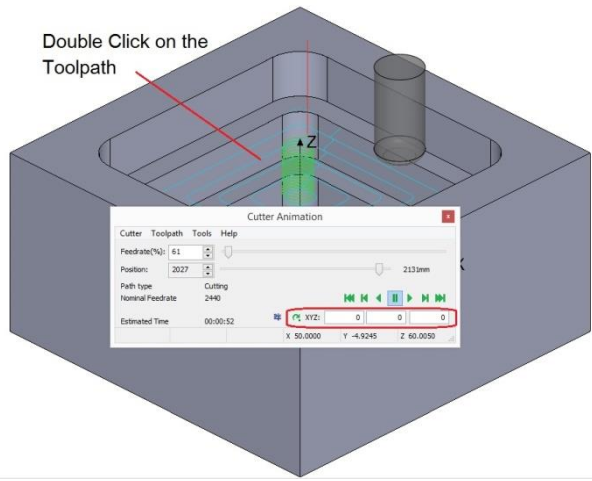
**Convert Points to Curves**

NCG CAM can now Convert Points to Curves. With a points folder selected, the Curves dropdown menu will offer 'Convert to Curves' as an option; the points in the folder will be joined in the order they are listed.

This feature can be used to create tilt-through curves when generating a 5-Axis along-curve toolpath or a 5-Axis swarf toolpath.



**Cutter Animation Enhancements**



The Cutter Animation dialogue has been improved to include video style buttons to control the toolpath animation.

In the cutter animation dialogue, a 3+2 axis toolpath now automatically displays the ABC rotations as defined by the toolpath boundary. With 5-Axis toolpaths the user can select the rotations displayed from a toolbar.

New functionality has been added to the cutter animations. When the toolpath animation dialogue is visible, double clicking on toolpath will reposition the cutter. Alternatively use the new jump to XYZ option in the Cutter animation dialogue to position the cutter along the toolpath.

**Curve Modification Enhancements**

New curve modification functions have been added. "Auto fit plane" is an option that flattens a 3D curve onto a calculated plane. The "Offset" curve function performs a 2D offset to closed planar curves.

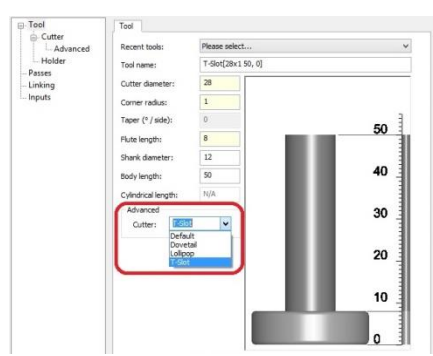
**NCG CAM New Features V15.0 – 5-Axis Add-on Module**

**Select Tilt Curves**

It is now possible to select tilt curves when creating 5-Axis Swarf toolpaths.

This will allow the tool axis to be aligned with the curve to give better control of access to some areas.

**T-Slot Cutters**



It is now possible to use T-Slot cutters in 5-Axis machining plans, as well as Lollipop and Dove-Tail cutters.

## NCG CAM New Features V15– 5-Axis Add-on Module

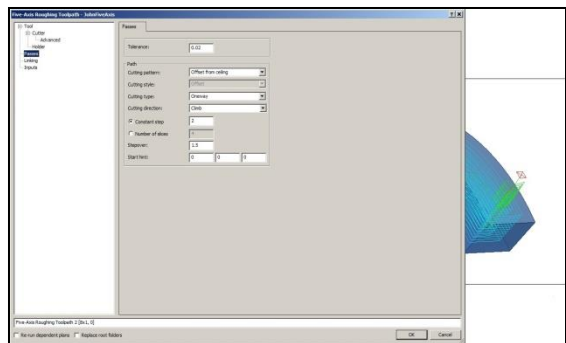
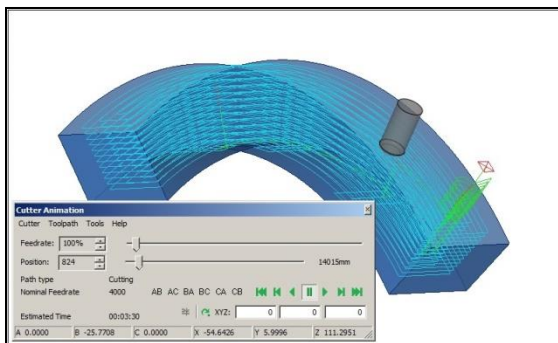
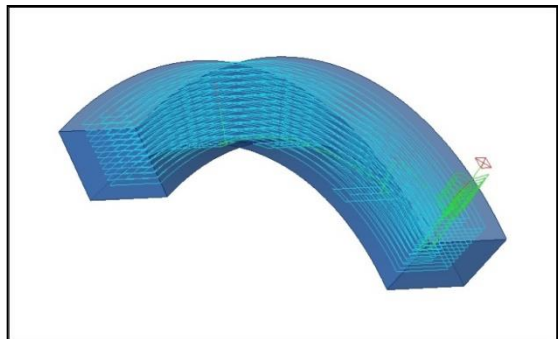
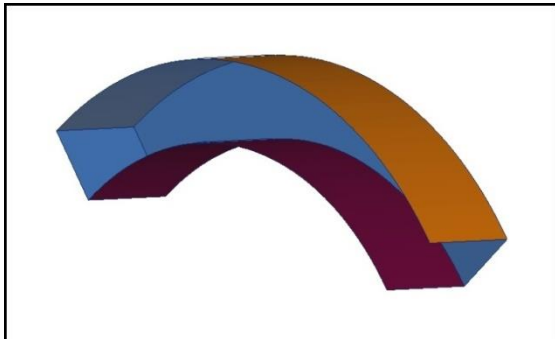
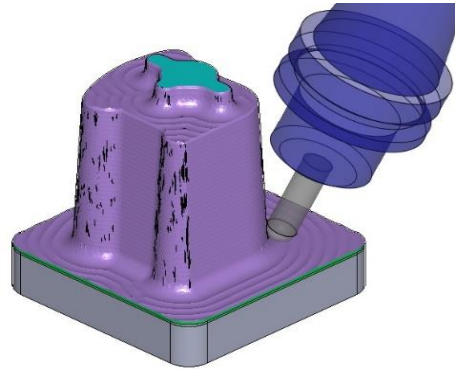
### 5-Axis Roughing

A new **5-Axis Roughing** operation has been added to rough out pockets and multi-surface geometries. The inputs are contained in three folders, one each for the floor, the walls and finally the ceiling surfaces.

Optionally, boundary curves can be used to localise the generation of the roughing toolpath.

The Offset-Based strategy will allow for offsetting from the ceiling, the floor, or to morph from one to the other.

An Adaptive strategy will follow in a later point release.



### 5-Axis Toolpath Editing

A Stock Model can now also be supplied as an input to the 5-axis toolpath. The Surfaces folder must firstly be converted into a Stock Model; the toolpath **will then be edited** back to the stock model to give a 5-axis Rest Roughing toolpath.





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