ArtCAM 2015

What's New

Copyright © 1996-2015 Delcam Ltd. All rights reserved.

Delcam Ltd has no control over the use made of the software described in this manual and cannot accept responsibility for any loss or damage howsoever caused as a result of using the software. Users are advised that all the results from the software should be checked by a competent person, in accordance with good quality control procedures.

The functionality and user interface in this manual is subject to change without notice in future revisions of the software.

The software described in this manual is furnished under licence agreement and may be used or copied solely in accordance with the terms of such licence.

Delcam Ltd grants permission for licensed users to print copies of this manual or portions of this manual for personal use only. Schools, colleges and universities that are licensed to use the software may make copies of this manual or portions of this manual for students currently registered for classes where the software is used.

Acknowledgements

This documentation references a number of registered trademarks and these are the property of their respective owners. For example, Microsoft and Windows are either registered trademarks or trademarks of Microsoft Corporation in the United States.

Patents

The technique of using a wall-mounted scanner to capture a photographic side profile of a human face, which is then used to create a 3D relief in ArtCAM, is subject to a patent.

Patent No: GB 2 387 731 "Deriving a model from a scan of an object"

The functionality of preparing a 3D relief of the side profile of a human face direct from a photograph in ArtCAM is subject to a patent.

Patent No: GB 2 403 883 "Photo to 3D"

The functionality of the 3D layers used to design and machine an article in ArtCAM is subject to a patent application.

Patent No: GB 2 434 287 "3D Layers"

The functionality of creating a low relief from an imported 3D object in ArtCAM without losing low-level detail is subject to a patent.

Patent No: GB 2 455 966 "Method and System for Generating Low Reliefs – a.k.a. Scan to Low Relief"

The functionality of filling an area with geometric or natural textures using pattern elements and a controlling direction line in ArtCAM is subject to a patent application.

Patent Application: GB 2492225 "Texture Flow"

The Support structure functionality is subject to patent applications.

Patent application: US 14325878 Method for calculating support structures and support elements for attaching a support strut of same

Patent application: GER 10 2013 011 630.9 Method for calculating support structures and support elements for attaching a support strut of same

Contents

What's New in ArtCAM 2015 1

Summary of new features 2
Designing 5
- Sculpting with the Putty tool 7
- Live modelling tools 13
- Creating vector text 22
- Selecting vectors with the Vector Doctor 27
- Editing nodes 29
- Pasting vectors 30
- Exporting vectors 31
- Filleting vectors in the 3D View window 32
- Combining reliefs 33
- Sending relief clipart to the Relief Clipart Library 35
- Creating rotary models 36
- Slicing reliefs 37
- Nudging objects 40
- Box-selecting objects 41
- Selecting multiple items in the Project Tree 42

Machining 43
- Creating form tools 44
- Updating bridges 48
- Importing .dxf files with the 2D Machining Wizard 49
- 2D toolpath shading added to Advanced 2D Machining module 50
- Defining material dimensions in Express and Insignia 52

User interface changes 53
- Transform panel 54
- Set Model Size dialog 54
- Resetting reliefs 55
- Miscellaneous interface changes 56

General enhancements 59
- Importing STL files 60
- New Express modules 61
- New Insignia tools 62
- Licencing information 63

Index 65

What's New in ArtCAM 2015

ArtCAM 2015 offers all the original features of ArtCAM 2013, but with numerous improvements. This document describes the most significant improvements.

Visit the website at http://www.artcam.com/ for the latest news and videos.

Summary of new features

ArtCAM 2015 contains the following new features and enhancements:

Designing

- **Sculpting with the Putty tool** (see page 6) — There is a new Putty tool available from the sculpting tools section of the **Design Tools** toolbar. This tool enables you to displace, whirl, pinch, and pucker selected relief clipart or vectors.
- **Live modelling tools (see page 12)** — Several tools now provide you with instant results when you use them.
- **Creating vector text** (see page 22) — The Text tool is updated and can be fully used in the **3D View** window. It also now includes the **Text on a Curve** tool.
- **Selecting vectors with the Vector Doctor** (see page 27) — The **Vector Doctor** panel includes two new buttons for selecting vectors.
- **Editing nodes** (see page 28) — The node editor is improved so you can select nodes from multiple vectors.
- **Pasting vectors** (see page 29) — When pasting vectors, you can now choose to preserve the vector layers.
- **Exporting vectors** (see page 31) — You can now export vectors as .svg (scalable vector graphic) files.
- **Filleting Vectors** (see page 31) — The **Fillet Vectors** tool now works in the 3D View window.
- **Combining reliefs** (see page 32) — There is now a **Replace** option on **Relief Layer** panels, the **Clipart** panel, and some **Tool Settings** panels, which provides you with a new way to combine reliefs and relief layers.
- **Sending relief clipart to the Relief Clipart Library** (see page 34) — There is a new **Send to Relief Clipart Library** button on the **Clipart** panel, which provides you with a faster way to send relief clipart to the Relief Clipart Library.
- **Creating rotary models** (see page 35) — There is a new option on the **File > New** menu, which enables you to create a new rotary model.
- **Slicing reliefs** (see page 36) — The **Slice Relief** panel is updated, and you can now select how you want to output the slices.
- **Nudging objects** (see page 39) — There is now a **Nudge Distance** dialog which enables you to specify a fixed distance by which objects move when you press the arrow keys.

- **Box-selecting objects** (see page 40) — The direction from which you box-select objects controls how the objects are selected.
- **Selecting multiple items in the Project Tree** (see page 41) — You can now select multiple items in the Project Tree simultaneously.

Machining

- **Updating bridges** (see page 48) — There is a new **Update All** button on the **Create Bridges** panel, and on the toolpath panels which contain bridge sections.
- **Importing .dxf files with the 2D Machining Wizard** (see page 48) — You can select the units used when you import a .dxf file.
- **Creating form tools** (see page 43) — You can create your own custom form tools from vectors and save them in the **Tool Database**.
- **2D toolpath shading (see page 50)** — If you are an ArtCAM Express customer and have the Advanced 2D Machining module, you can now preview toolpaths in the 2D View window.
- **Defining material dimensions in Express and Insignia** (see page 52) — In ArtCAM Express and ArtCAM Insignia, the **Setup New Model** dialog is replaced by the **Size For New Model** dialog to bring them in line with ArtCAM Pro and ArtCAM Jewelsmith.

User interface changes

- **Transform panel** (see page 53) — There is an additional way to switch between the two **Transform** panel pages.
- **Set Model Size dialog (see page 54)** — The **Height In Z** field in the **Set Model Size** dialog now defaults to 0.
- **Defining material dimensions in Express and Insignia** (see page 52) — The **Setup Job Dimensions** dialog is replaced by the **Size For New Model** dialog in Express and Insignia to bring the workflow in line with Pro and Jewelsmith.
- **Resetting reliefs** (see page 54) — The **Zero** and **Zero Rest** options, which were previously located on the **Shape Editor** panel, are now called **Zero Inside Vector** and **Zero Outside Vector**, and are found on the **Relief Editing** toolbar.
- The following panels have a new layout:
  - **Tool Settings: Text Tool** panel (see page 22).
  - **Tool Settings: Two Rail Sweep** panel (see page 15).
  - **2D Machining Wizard** (see page 48).
- **Miscellaneous interface changes** (see page 55) — These options have the same behaviour, but a new name or location.

General enhancements

- **Importing STL files** (see page 59) — By default, ArtCAM now identifies and removes duplicate faces when you import STL files.
- **New Express modules** (see page 60) — There are four new modules available for ArtCAM Express customers: Bevel Carving, Fluting, Multi-plate engraving, and Panelling.
- **New Insignia tools** (see page 61) — Several tools that were previously available only for Pro and Jewelsmith users are now available for Insignia users.
- **Licencing information** (see page 62) — The type of licence you hold is now displayed in the product banner.

Designing

This section describes enhancements made to the design and editing process in ArtCAM.

- **Sculpting with the Putty tool** (see page 6) — There is a new Putty tool available from the sculpting tools section of the **Design Tools** toolbar. This tool enables you to displace, whirl, pinch, and pucker selected relief clipart or vectors.
- **Live modelling tools (see page 12)** — Several tools now provide you with instant results when you use them.
- **Creating vector text** (see page 22) — The Text tool is updated and can be fully used in the **3D View** window. It also now includes the **Text on a Curve** tool.
- **Selecting vectors with the Vector Doctor** (see page 27) — The **Vector Doctor** panel includes two new buttons for selecting vectors.
- **Editing nodes** (see page 28) — The node editor is improved so you can select nodes from multiple vectors.
- **Pasting vectors** (see page 29) — When pasting vectors, you can now choose to preserve the vector layers.
- **Exporting vectors** (see page 31) — You can now export vectors as .svg (scalable vector graphic) files.
- **Filleting Vectors** (see page 31) — The **Fillet Vectors** tool now works in the 3D View window.
- **Combining reliefs** (see page 32) — There is now a **Replace** option on **Relief Layer** panels, the **Clipart** panel, and some **Tool Settings** panels, which provides you with a new way to combine reliefs and relief layers.
- **Sending relief clipart to the Relief Clipart Library** (see page 34) — There is a new **Send to Relief Clipart Library** button on the **Clipart** panel, which provides you with a faster way to send relief clipart to the Relief Clipart Library.
- **Creating rotary models** (see page 35) — There is a new option on the **File > New** menu, which enables you to create a new rotary model.
- **Slicing reliefs** (see page 36) — The **Slice Relief** panel is updated, and you can now select how you want to output the slices.
- **Nudging objects** (see page 39) — There is now a **Nudge Distance** dialog which enables you to specify a fixed distance by which objects move when you press the arrow keys.

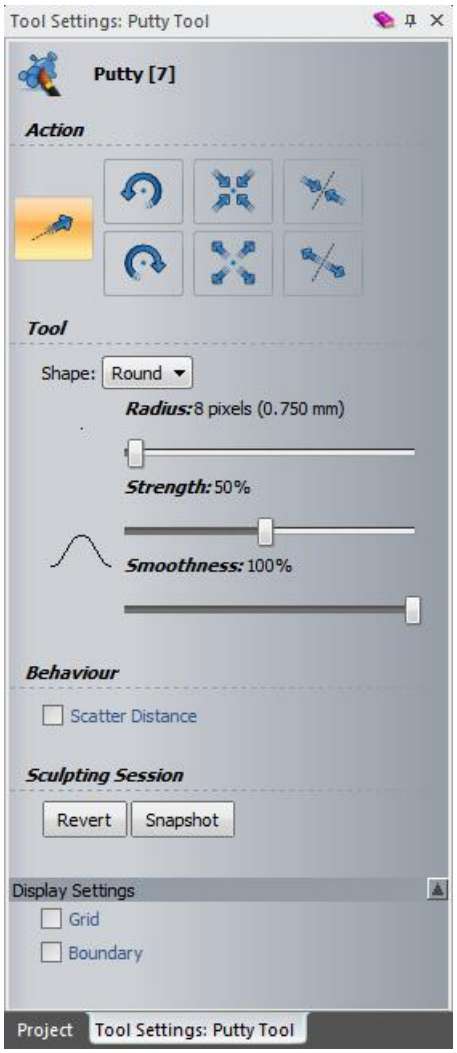
- **Box-selecting objects** (see page 40) — The direction from which you box-select objects controls how the objects are selected.
- **Selecting multiple items in the Project Tree** (see page 41) — You can now select multiple items in the Project Tree simultaneously.

Sculpting with the Putty tool

ArtCAM Pro and ArtCAM Jewelsmith only.

The new **Putty** tool enables you to either subtly alter parts of your model or completely change the entire piece by displacing, whirling, pinching, puckering, ridging, or rucking selected relief clipart or vectors. It can be beneficial for people who make plasters because you can scan in plasters and manipulate them with minimal loss of detail. It can also be useful for people who need to make minor adjustments to reliefs, such as mints and engravers, who might, for example, need to reduce the size of a particular feature without altering the surrounding areas.

The **Putty** button is located with the sculpting tools on the **Design Tools** toolbar. When you click **Putty**, the **Tool Settings: Putty Tool** panel is displayed.



The Putty tool is available only when you have vectors or clipart selected.

The following settings are available:

Action — Select the type of brush you want to use.

Displace — Select this option to move the material around the modelling area.

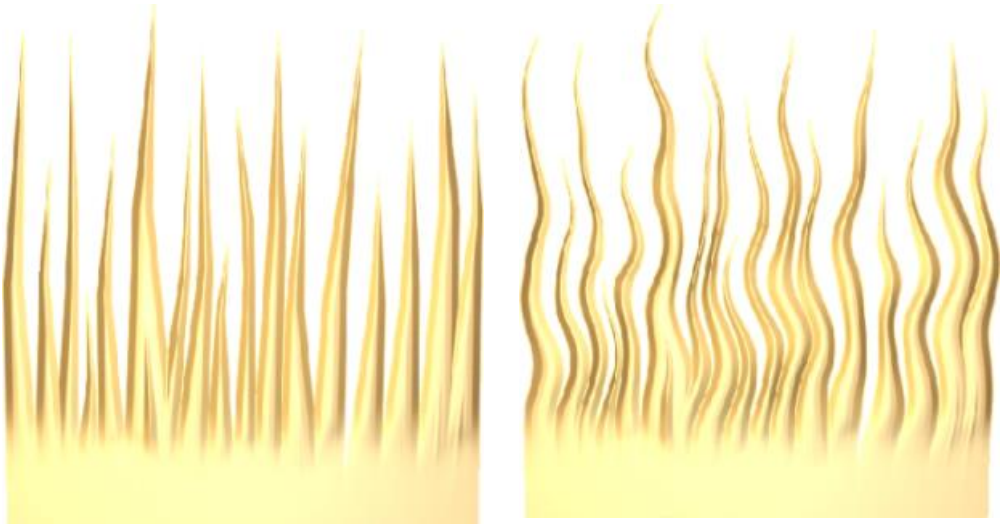
For example, you could increase the size of this octopus's head:

Before *After*

Anticlockwise/Clockwise Whirl — Select one of these options to twist the model anticlockwise or clockwise about the centre of the tool.

For example, you could add waves to this spikey shape to give it an underwater feel:

Before *After*



Pinch — Select this option to decrease the size of the model within the area of the tool radius.

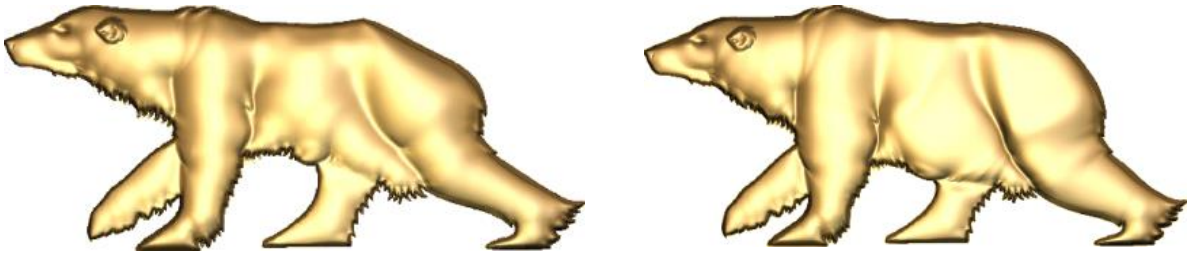
For example, you could shrink this mask's nose:

Before *After*

Pucker — Select this option to increase the area of the model from the centre of the tool radius to the edge of the tool radius.

For example, you could increase the size of this bear:

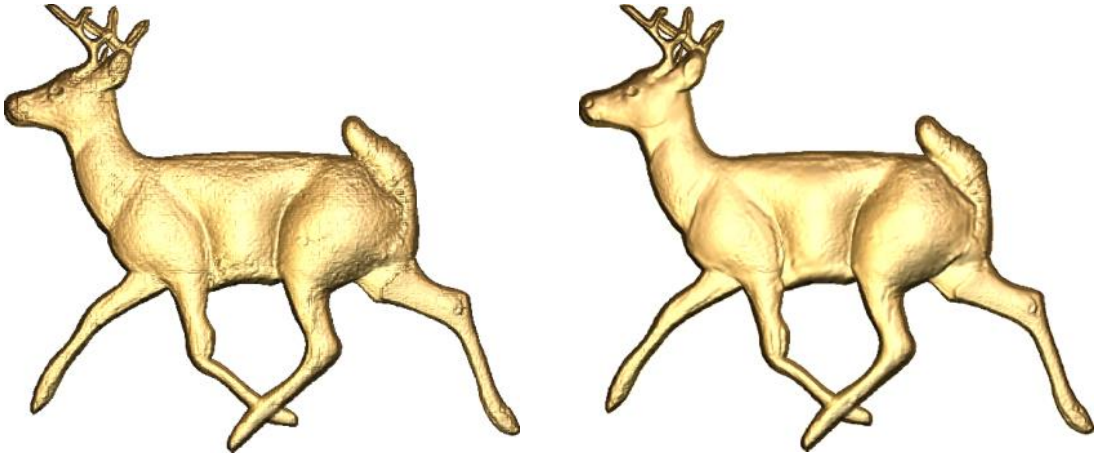
Before *After*



Ridge — Select this option to create a sharp line along the line you sculpt.

For example, you could define features and sharpen edges after distorting a piece of clipart using other Putty tools. In this example, the deer relief has been smoothed, then the features have been redefined using the Ridge tool.

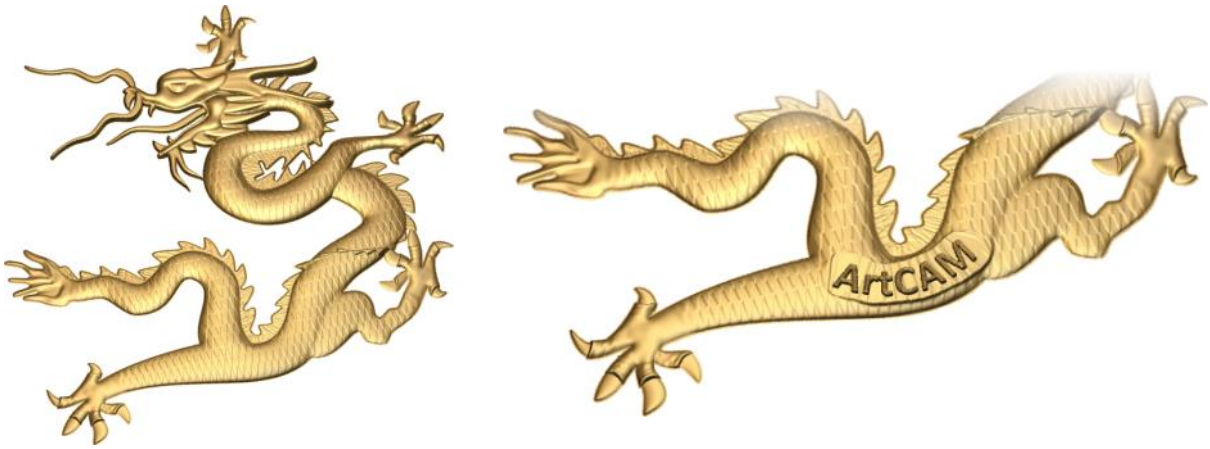
Before *After*



Ruck — Select this option to create a plateau the width of the brush at the height of the surrounding clipart.

For example, you could artistically clear an area before adding text.

Before *After*



Tool — Use the **Tool** area to define the parameters of the putty tool.

Shape — Select a brush shape from the list. To use a circular brush, select **Round**. To use a brush that is the shape of the relief on the active relief layer, select **Relief Layer**.

Radius — Drag the slider to define the radius of the tool. This setting determines the area of the object that is affected by each mouse movement. The size is shown in pixels and units.

Strength — Drag the slider to define the pressure of the tool. This setting determines the strength of the affect of the tool on the object. The greater the strength, the greater the affect of the tool on the object.

*When using the **Displace** brush, setting a strength of 100% enables the cursor to most closely track the changes to the selection.*

Smoothness — Drag the slider to define the sharpness of the tool. This setting determines the smoothness of the blend between the material under the tool and the surrounding object. The higher the smoothness, the softer the blend.

Behaviour

Scatter Distance — Select this option to apply the tool's effect to the selected object at random intervals. In the **Scatter Distance** field, specify the maximum distance from the sculpting cursor at which the putty action can be applied.

Sculpting Session — Use the **Sculpting Session** area to create a restore point or undo all sculpting since the last restore point.

Revert — Click **Revert** to restore an object to its original state, or to the last restore point, if one was created.

Snapshot — Click **Snapshot** to create a restore point in your current sculpting session.

*You can use the **Undo** and **Redo** buttons on the **File** toolbar to undo and redo step by step. This is useful for undoing minor mistakes.*

Display Settings — Click the control bar to show the **Display Settings** options.

Grid — Select this option to toggle on grid lines in the model area. The grid lines distort with the object as you use the Putty tool, enabling you to see how much an object has been modified from the original.

Boundary — Select this option to toggle on the display of the boundary which is drawn around the sculpting area. You cannot sculpt past the boundary even if it is not visible.

If you try to move an object past this boundary, the object is squashed up against it.

Live modelling tools

Several modelling tools are improved so that you now receive instant feedback while you work with them. This real-time feedback gives you fine control over relief creation and enables you to be more creative because you can play with a model, tweaking it until it looks right, rather than having to undo, then repeat steps, until the desired result is achieved.

The following tools are now live:

- Shape Editor (see page 13)
- Two Rail Sweep (see page 15)
- Extrude (see page 17)
- Spin (see page 19)
- Turn (see page 21)

Changes to the Shape Editor tool

ArtCAM Insignia, ArtCAM Pro, and ArtCAM Jewelsmith only.

In ArtCAM 2015, the **Shape Editor** has undergone several changes to improve usability.

- When you open the **Shape Editor**, it opens as a Tool Settings panel, rather than as a floating dialog.

- The **Zero** and **Zero Rest** buttons (see page 54) are renamed to **Zero Inside Vector** and **Zero Outside Vector** are now located on the **Relief Editing** toolbar.

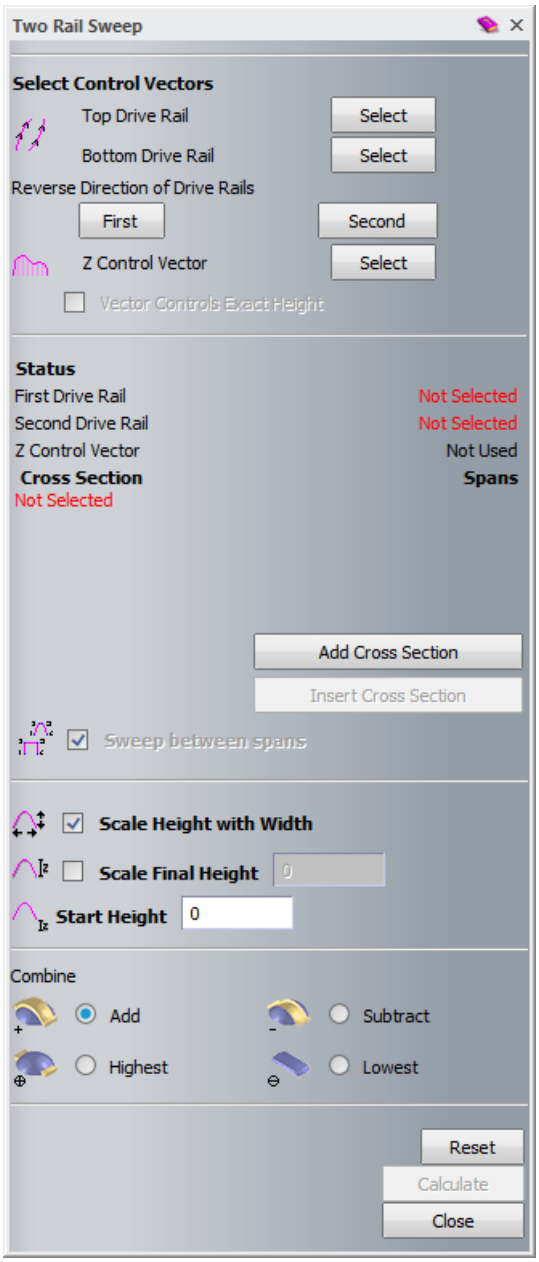
- The shape calculation is much faster than in previous versions, even in large models.
- The reliefs are calculated in real time, so you get instant feedback while you use the tool.
- You can edit nodes in the relief boundary and the relief updates as you edit.
- You can instantly see the effect of any changes on the relief stack.

Two Rail Sweep

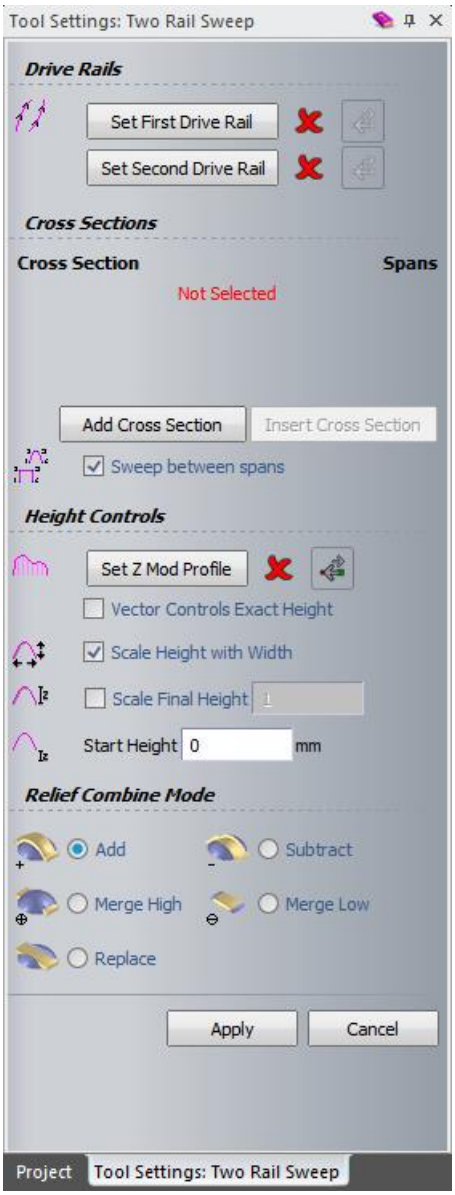
ArtCAM Insignia, ArtCAM Pro, and ArtCAM Jewelsmith only.

The **Two Rail Sweep** tool now works live, so instead of pressing calculate and waiting for the results, you can select different vectors or edit nodes and ArtCAM immediately recalculates the relief. The tool also opens as a Tool Settings panel, and is tabbed with the **Project** panel.

ArtCAM 2013



ArtCAM 2015



In addition:

- The marker points on the drive rails that denote where the cross sections are placed can now be dragged into position using the cursor.

- **Top Drive Rail** is renamed to **Set First Drive Rail**.
- **Bottom Drive Rail** is renamed to **Set Second Drive Rail**.
- The **Reverse Direction of Drive Rails** options are replaced by the **Reverse Direction** buttons.
- **Z Control Vector** is renamed to **Set Z Mod Profile**, and is now in the **Height Controls** area.
- There is a **Replace** (see page 32) option in the **Relief Combine Mode** area.
- The **Reset**, **Calculate**, and **Close** buttons are replaced by **Apply** and **Cancel**.

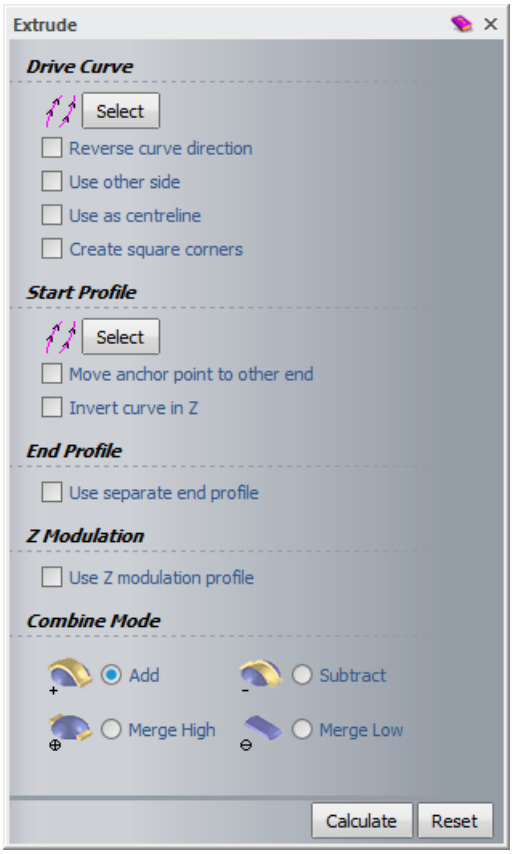
*You must click **Apply** before closing the panel or the relief is reset.*

Extrude

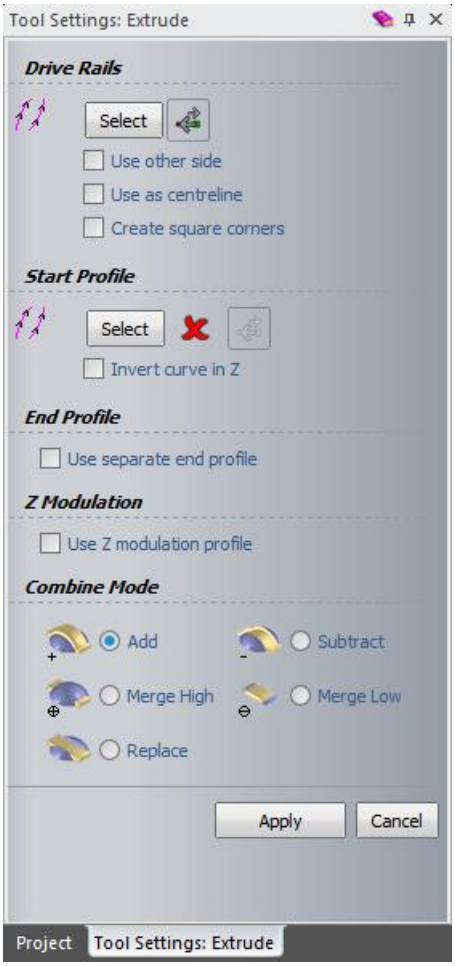
ArtCAM Insignia, ArtCAM Pro, and ArtCAM Jewelsmith only.

The **Extrude** tool now works live, so instead of pressing calculate and waiting for the results, you can select different vectors or edit nodes and ArtCAM immediately recalculates the relief. The tool also opens as a Tool Settings panel, and is tabbed with the **Project** panel.

ArtCAM 2013



ArtCAM 2015



In addition:

- The **Drive Curve** area is now the **Drive Rails** area.
- In the **Drive Rails** area, **Reverse Direction** replaces the **Reverse curve direction** option.
- In the **Start Profile** area, **Reverse Direction** replaces the **Move anchor point to other end** option.
- There is a new **Replace** (see page 32) option in the **Combine Mode** area.

- The **Calculate** and **Reset** buttons are replaced by **Apply** and **Cancel**.

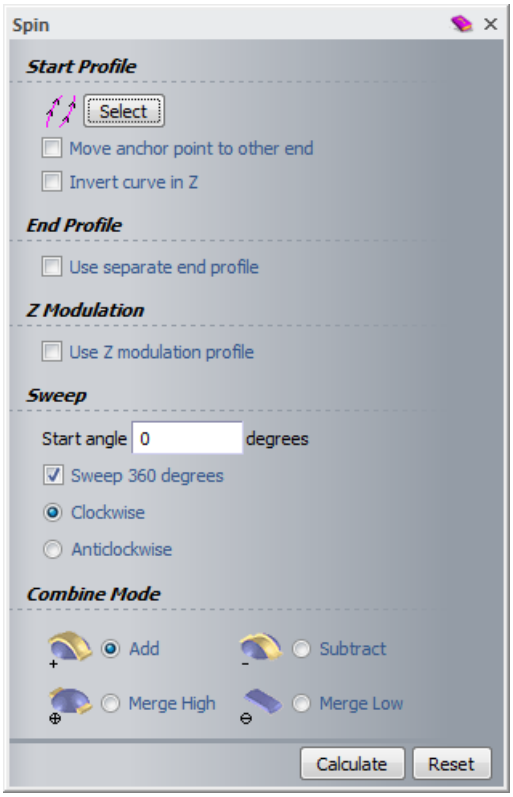
  *You must click **Apply** before closing the panel or the relief is reset.*

Spin

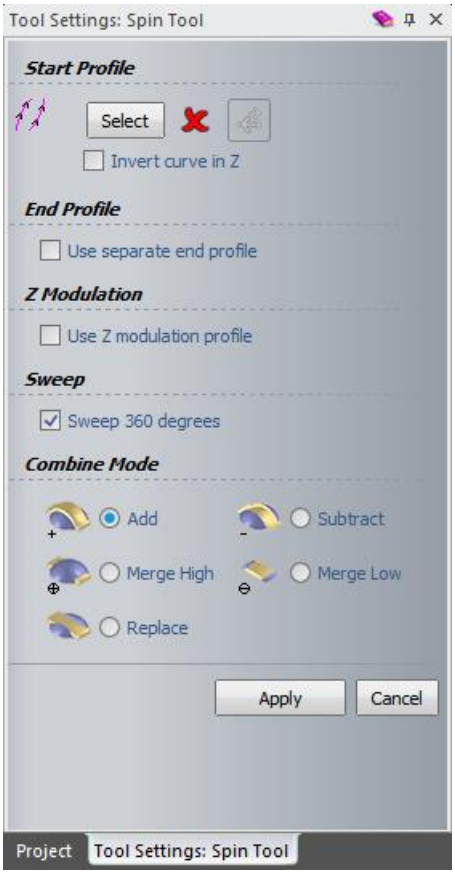
ArtCAM Insignia, ArtCAM Pro, and ArtCAM Jewelsmith only.

The **Spin** tool now works live, so instead of pressing calculate and waiting for the results, you can select different vectors or edit nodes and ArtCAM immediately recalculates the relief. The tool also opens as a Tool Settings panel, and is tabbed with the **Project** panel.

ArtCAM 2013



ArtCAM 2015



In addition:

- In the **Start Profile** area, **Reverse Curve** replaces the **Move anchor point to other end** option.
- In the **Sweep** area, the **Start angle** field, **Clockwise** option, and **Anticlockwise** option are hidden unless **Sweep 360 degrees** is deselected.
- There is a new **Replace** (see page 32) option in the **Combine Mode** area.
- The **Calculate** and **Reset** buttons are replaced by **Apply** and **Cancel**.

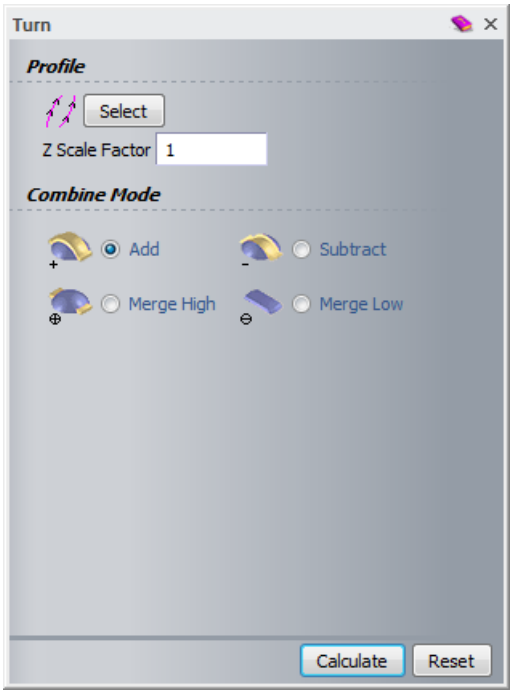
*You must click **Apply** before closing the panel or the relief is reset.*

Turn

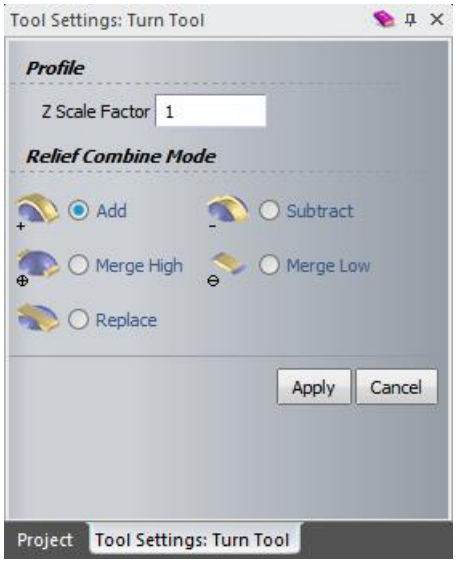
ArtCAM Insignia, ArtCAM Pro, and ArtCAM Jewelsmith only.

The **Turn** tool now works live, so instead of pressing calculate and waiting for the results, you can select different vectors or edit nodes and ArtCAM immediately recalculates the relief. The tool also opens as a Tool Settings panel, and is tabbed with the **Project** panel.

ArtCAM 2013



ArtCAM 2015



In addition:

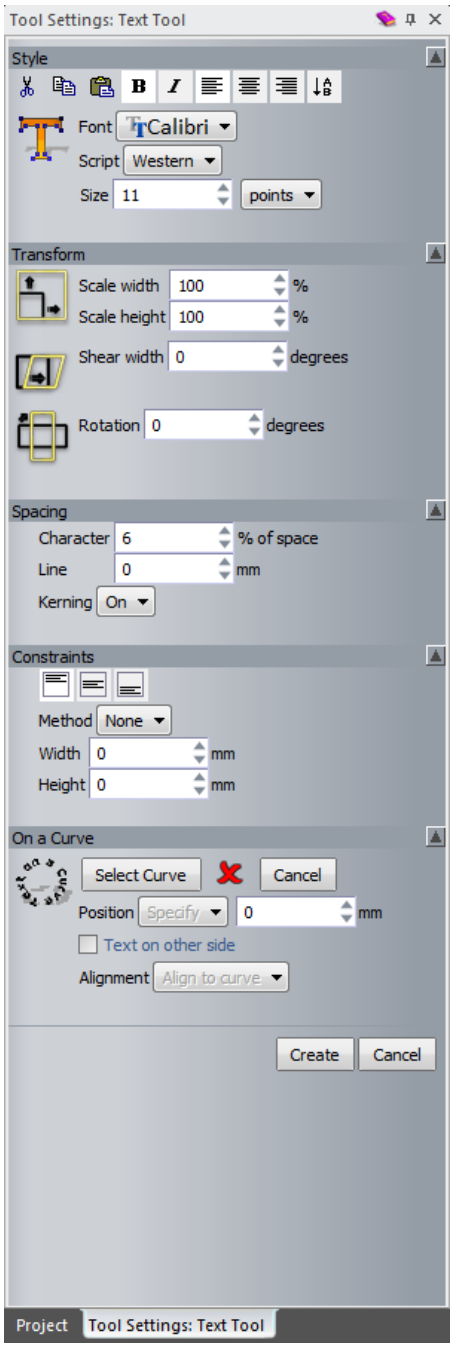
- There is no **Select** button. The vector is selected automatically with the cursor.
- **Combine Mode** is now called **Relief Combine Mode**.
- There is a new **Replace** (see page 32) option in the **Relief Combine Mode** area.
- The **Calculate** and **Reset** buttons are replaced by **Apply** and **Cancel**.

*You must click **Apply** before closing the panel or the relief is reset.*

Creating vector text

In ArtCAM 2015 there are improvements to the performance and layout of the Text Tool to make it easier for you to create and edit vector text. In addition, the settings from the **Tool Settings: Text On A Curve** panel are now included on the Text Tool panel, which means that all vector text creation settings are accessible from the same tool.

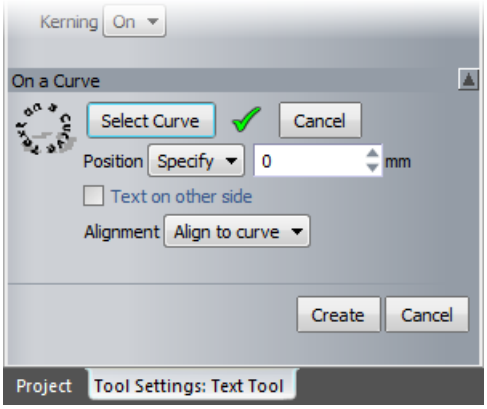
To display the **Tool Settings: Text Tool** panel, click **Create Vector Text** on the **Design Tools** toolbar.



Layout

The **Tool Settings: Text Tool** panel has a new layout, and some options have been renamed or modified.

- In the **Transform** area:
  - Graphics have been added to illustrate the options.
  - **Resize** is now **Scale width** and **Scale height**.
  - **Angle** is now **Shear width**.
- The **Kerning** area has been combined with the **Spacing** area, and you are no longer able to manually alter the kerning using the **Tool Settings: Text Tool** panel. If you would like to manually edit the kerning, you must use the **Font Editor** module.
- The options that were previously on the **Tool Settings: Text on a Curve** panel are now at the bottom of the **Tool Settings: Text Tool** panel.



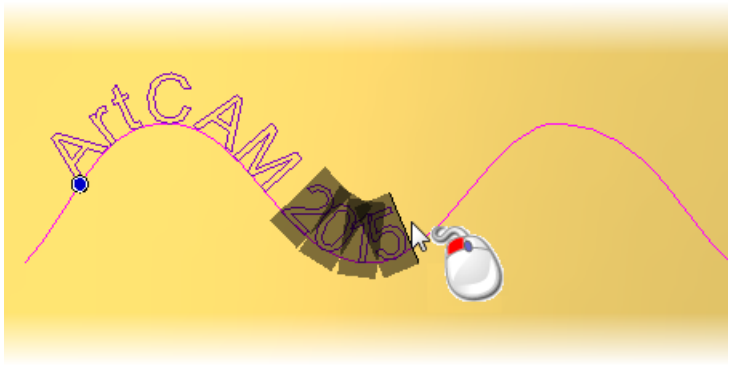
Performance

The Text Tool includes the following improvements to performance:

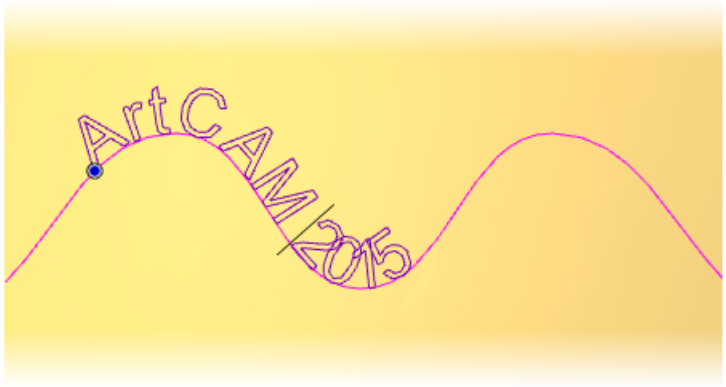
- You can create and edit all vector text in the **3D View** window.
- Text is fully transformable and the bounding box that surrounds the text behaves the same as the **Transform Tool** transform box. This enables you to rotate, scale, and angle the text using the cursor while in **Text Tool** mode.

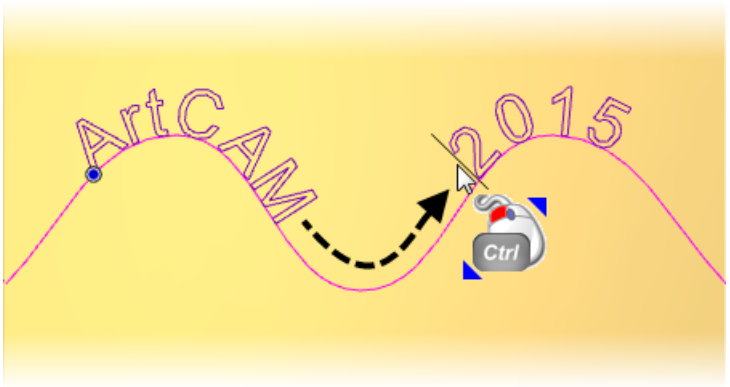
- You can now either select the curve and then create and edit the text, or create the text and then, while still in Text Tool mode, select the curve. Previously, in order to wrap text on a curve, both the text and the curve had to exist.
- When wrapping text to a curve, a dark blue anchor point indicates the origin of the text. The direction in which the text expands from the anchor point is controlled by the alignment mode. For example, if you select a centre alignment, text expands in both directions from the anchor point. Change the position of the control point by clicking and dragging it along the curve, either before or after you type the text.

- You can now click and drag to select characters that are wrapped to a curve, which means you can edit sections of text simultaneously.



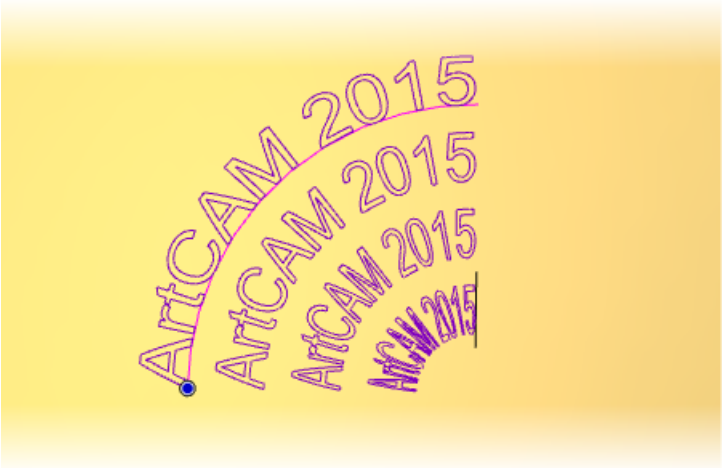
- When text is wrapped to a curve, press and hold down the **Ctrl** key while dragging to increase or decrease the space between two characters.





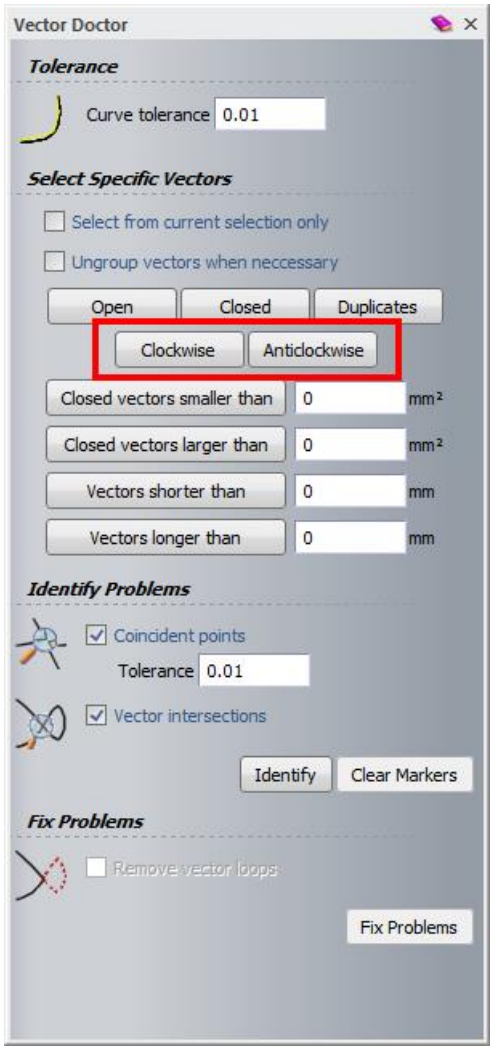
- If text exceeds the length of the curve, the text continues along the tangent of the curve.

- You can now wrap multiple lines of text along a curve. Press **Enter** while typing to start a new line of text that is wrapped to the same curve.



Selecting vectors with the Vector Doctor

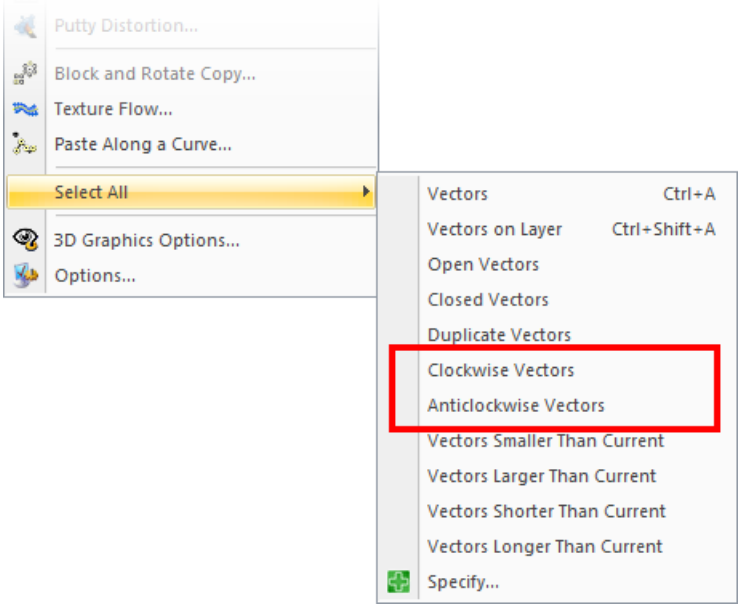
There are two new buttons on the **Vector Doctor** panel, which give you more control when selecting vectors.



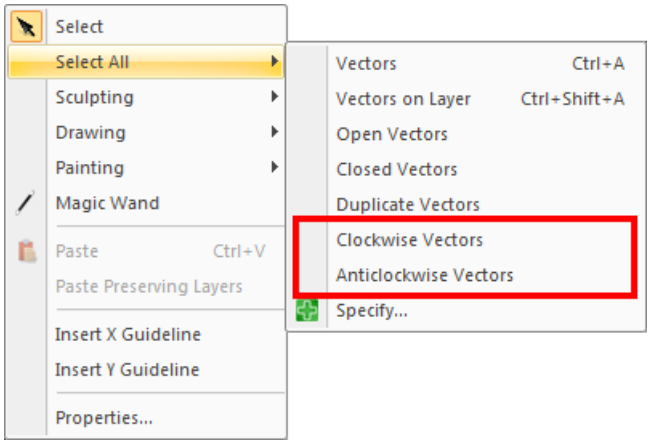
- Click **Clockwise** to select closed vectors with a clockwise direction.
- Click **Anticlockwise** to select closed vectors with an anticlockwise direction.

These options are also available from:

- the **Edit > Select All** menu on the **Main Menu** bar.



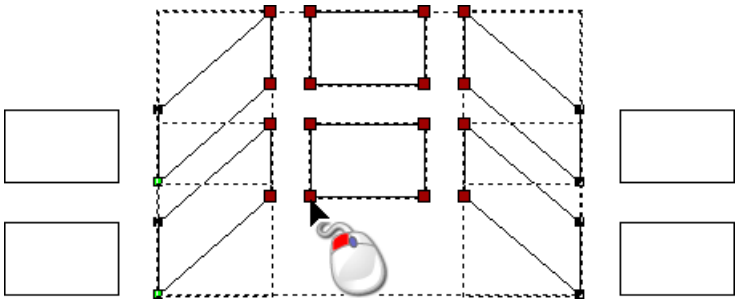
- the context menu, which is displayed when you right-click in the **View** window.



Editing nodes

In ArtCAM 2015, you can now select multiple vectors when you are in **Node Editor** mode. This means you can select and edit the nodes of several different vectors simultaneously. Previously, you could select only one vector at a time when editing nodes.

In the following example, the nodes of six vector shapes are selected, and you only need to move one node to control them all.

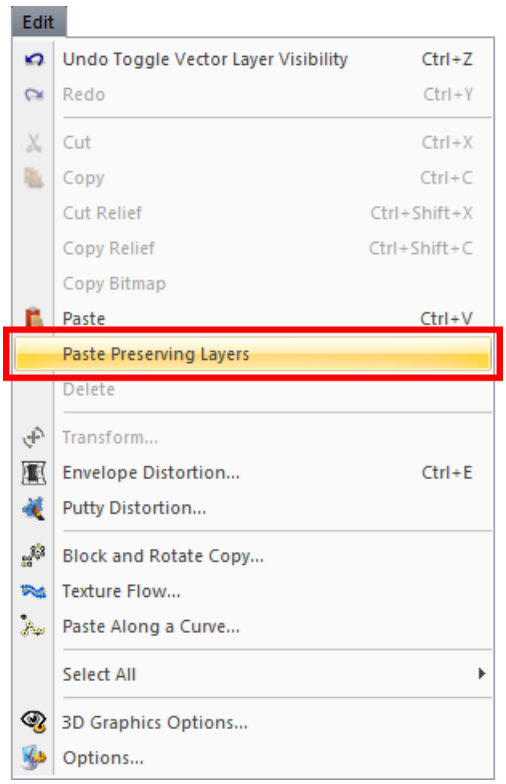


Pasting vectors

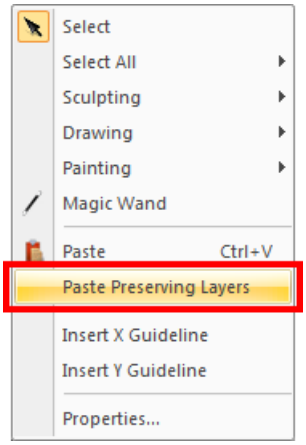
When you paste vectors, you can now choose to preserve the vector layers of your original selection. Previously, vectors would be pasted into the active vector layer and any colour attributes would be lost.

The new **Paste Preserving Layers** option can be found in two locations:

- The **Edit** menu on the **Main Menu** bar.



- The context menu that is displayed when you right-click in the **View** window.

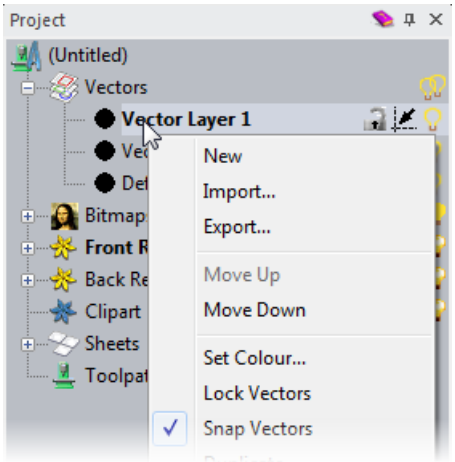


Exporting vectors

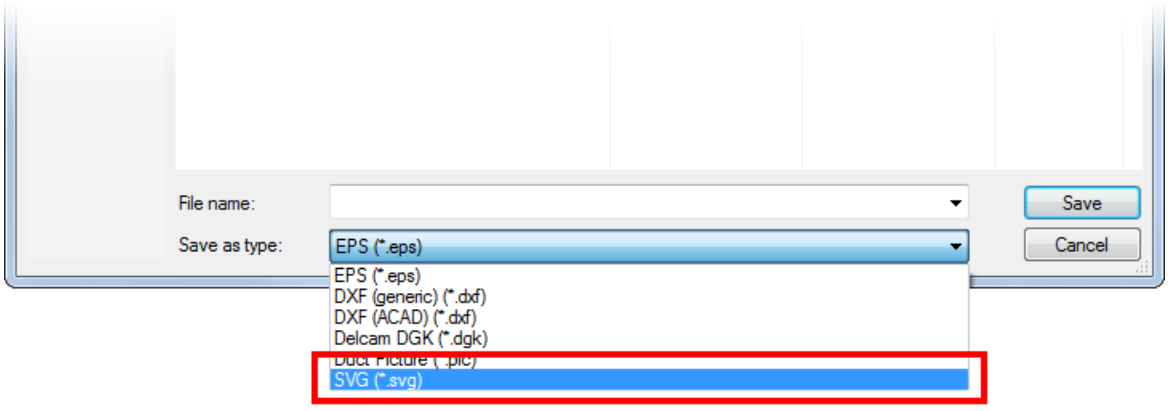
You can now export vector layers to .svg (Scalable Vector Graphic) files, which enables you to open the vector layers in paint type programs, such as Inkscape

To export a vector layer as an .svg file:

1. In the Project Tree, right-click the vector layer you want to export.



2. Select **Export**. The **Save Vector Layer** dialog is displayed.
3. Navigate to location in which you want to save the file.
4. In the **Save as type** list, select **SVG (*.svg)**.



5. Enter a file name.
6. Click **Save**. The vector layer is saved as an .svg file and the dialog is closed.

Filleting vectors in the 3D View window

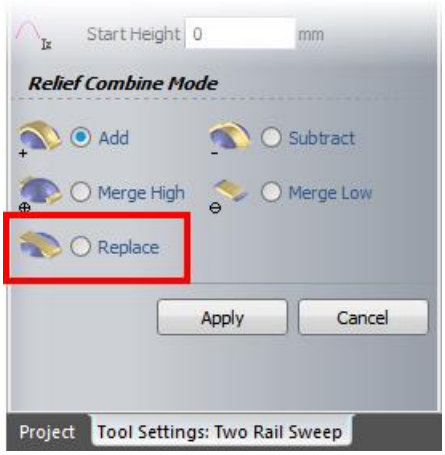
You can now use the **Fillet Vectors** tool on vectors in the **3D View** window. Previously this tool worked only in the **2D View** window.

Combining reliefs

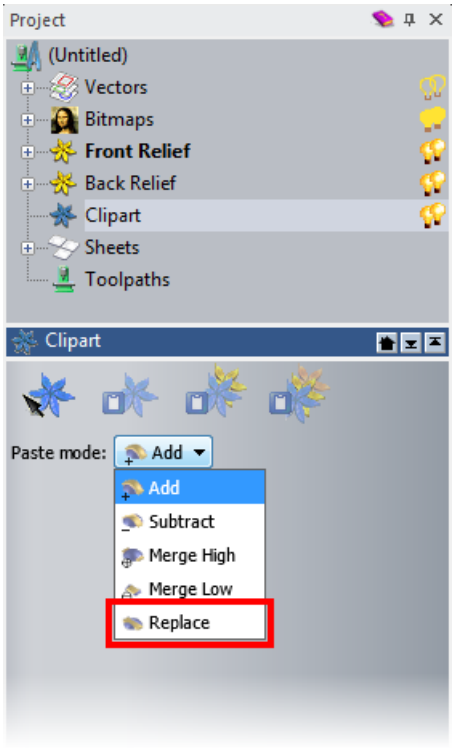
There is a new **Replace** option available when you are combining a calculated relief with the active layer or with the relief layer stack. The **Replace** option replaces the current relief with any areas of the calculated relief that are greater than zero. Previously, a replace option was only available from the **Relief Editing** toolbar, and it worked in conjunction with shape attributes applied to the Colour Palette.

The **Replace** option is available from:

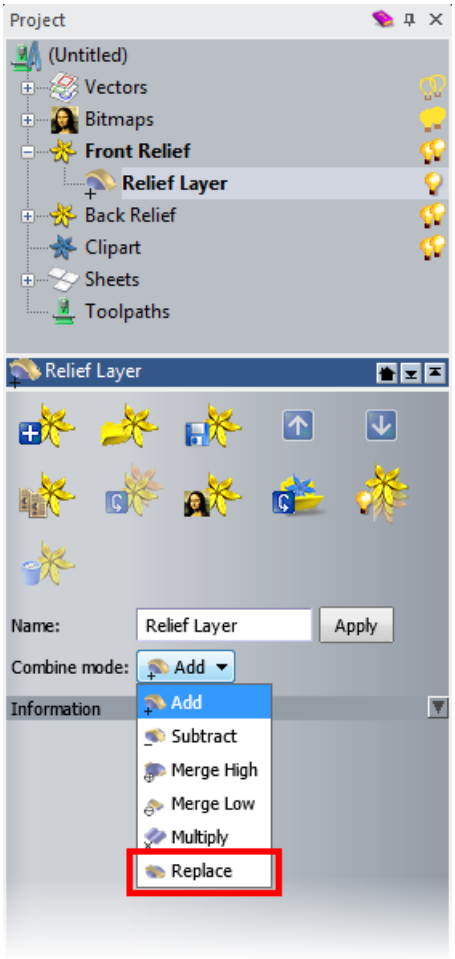
- the **Relief Combine Mode** area which is included in some **Tool Settings** panels.



- the **Paste mode** list on the **Clipart** panel that is displayed below the splitter bar when you select the **Clipart** item from the Project Tree.



- the **Combine mode** list on the **Relief Layer** panel that is displayed below the splitter bar when you select a relief layer from the Project Tree. (*ArtCAM Insignia, ArtCAM Pro, and ArtCAM JewelSmith only*)

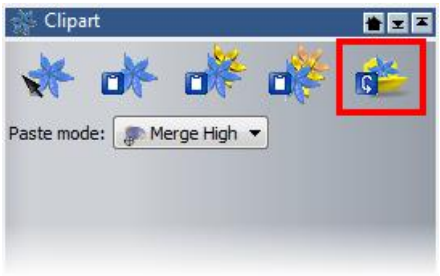


In the **Tool Settings** panels and **Clipart** panel, the combine modes control how the relief combines with the active layer. In the **Relief Layer** panel, the combine mode controls how the active layer combines with the relief layer stack. (*ArtCAM Pro, and ArtCAM JewelSmith only*)

Sending relief clipart to the Relief Clipart Library

ArtCAM Insignia, ArtCAM Pro, and ArtCAM Jewelsmith only.

You can now send relief clipart to the Relief Clipart Library using the new **Send to Relief Clipart Library** button on the **Clipart** panel. This is useful if, for example, you have created relief clipart using the **Relief Cookie Cutter** tool. Previously you had to paste the cookie-cut relief clipart into a relief layer and then send the relief layer to the Relief Clipart Library.



To send relief clipart to the **Relief Clipart Library**:

1. In the **Relief Clipart Library** panel, choose the library to which you want to add the relief clipart.
2. In the 3D View window, select one or more pieces of relief clipart.
3. In the Project Tree, click the **Clipart** item to display the **Clipart** panel.
4. In the **Clipart** panel, click **Send to Relief Clipart Library** .

   Each piece of relief clipart selected is added as a separate item to the library.

Creating rotary models

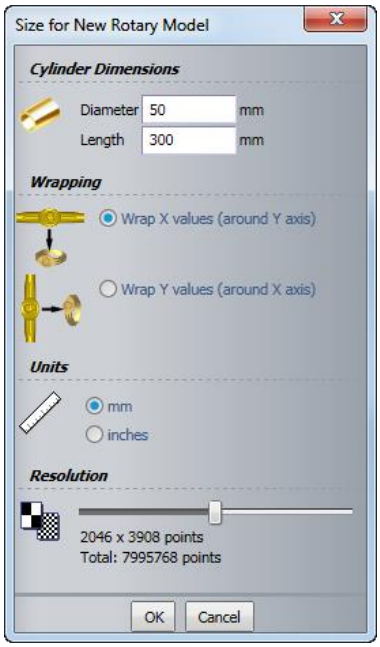
ArtCAM Insignia, ArtCAM Pro, and ArtCAM Jewelsmith only.

You can create blank rotary models in ArtCAM Insignia, ArtCAM Pro, and ArtCAM Jewelsmith with the **Size for New Rotary Model** dialog.

To display the **Size for New Rotary Model** dialog, click **File > New > Rotary Model**. This dialog enables you to create a rotary model, and choose whether the model wraps around the X or Y axis.

When you have created a rotary model, the Front Relief and Back Relief icons in the Project Tree change from to .

In ArtCAM Insignia the Relief icon changes from to .



To create a rotary model:

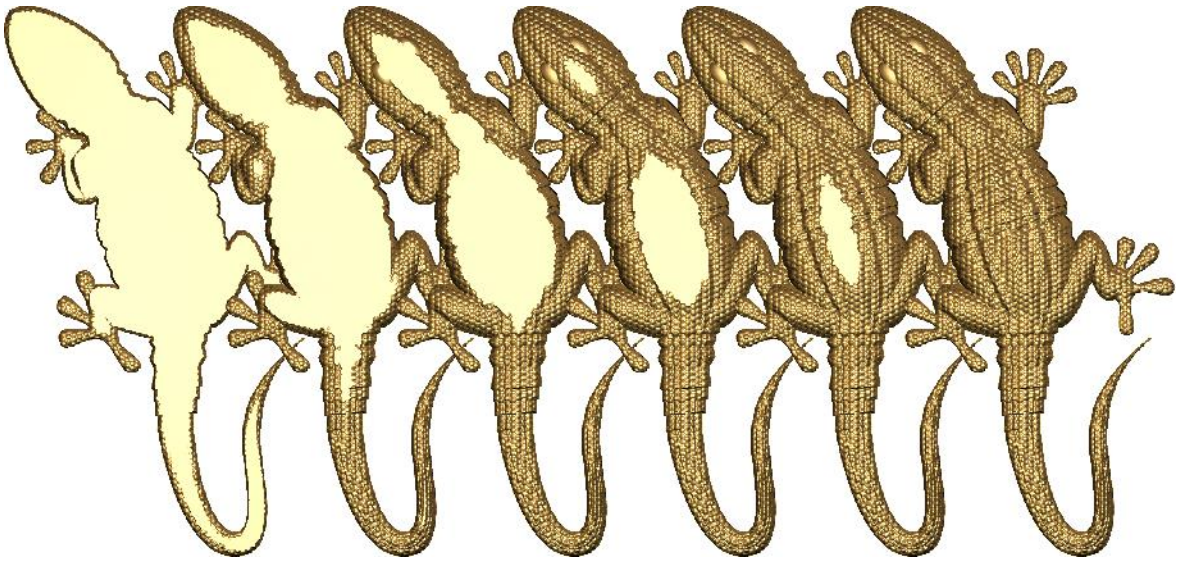
1. On the **Main Menu** bar, click **File > New > Rotary Model**.
2. In the **Cylinder Dimensions** area:
   a. Enter the **Diameter** of the cylinder.
   b. Enter the **Length** of the cylinder.
3. In the **Wrapping** area, select whether you want to wrap the model around the X axis or Y axis.
4. In the **Units** area, Select the units you want to work in.
5. In the **Resolution** area, use the slider to set the resolution for the model.
6. Click **OK** to create a new rotary model.

*The **3D View** window appears empty until you create a relief.*

Slicing reliefs

ArtCAM Insignia, ArtCAM Pro, and ArtCAM Jewelsmith only.

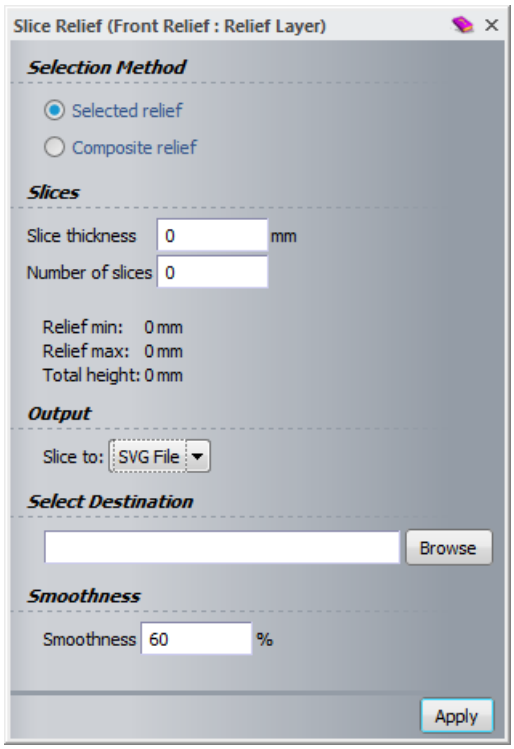
The **Slice Relief** tool is now available for Insignia users. You can use this tool to divide the composite relief or the content of a single layer into slices.



There are improvements to the tool and the layout of the panel:

- Slices can be exported to .svg, .png, or .rlf files. Previously, slices could only be created as relief layers.
- There is a new **Number of layers** field, which means you can enter the number of slices you want to create.

To display the **Slice Relief** panel, click **Slice Relief** on the **Relief Editing** toolbar.



The following settings are available:

Selection Method

Selected Layer — Select to create slices from the relief on the selected layer.

Composite Relief — Select to create slices from the composite relief.

Slices

Slice thickness — Enter the maximum thickness you want for each slice. The **Number of slices** field is automatically updated to display the number of slices this thickness creates.

Number of slices — Enter the number of slices you want to create. The **Slice thickness** field is automatically updated to display the maximum thickness of the slices.

Relief min, **Relief max**, **Total height** — This area displays the properties of either the composite relief or currently selected layer, depending on which option is selected in the **Selection Method** area.

Output

Slice to — Select which format you want to export the slices to:

- **ArtCAM Relief Layers** — Select to create each slice on a separate relief layer. This option is available only for ArtCAM Pro and ArtCAM JewelSmith.
- **ArtCAM RLF files** — Select to export each slice to a separate .rlf file. Each file is called *slice* and is numbered incrementally.
- **SVG file** — Select to export the slices to an .svg file.
- **PNG** — Select to export each slice to a separate .png file. Each file is called *slice* and is numbered incrementally.

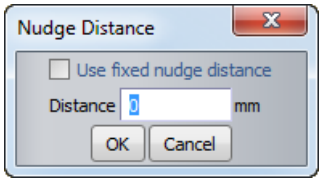
Select Destination — Browse to the location in which you want to save the slices. This field is displayed only if you select **ArtCAM RLF files**, **SVG file**, or **PNG** from the **Slice to** list.

Smoothness — Enter a percentage to control how smooth the vector tracing is. Increasing the value creates higher detail curves, but can also round the edges of cornered shapes. This field is available only if you select **SVG file** from the **Slice to** list.

Apply — Click to create the slices.

Nudging objects

In ArtCAM 2015, you can now define a fixed distance of movement using the new **Nudge Distance** dialog. In ArtCAM 2013, you could use the arrow keys to move, or nudge, selected objects around the workspace, but the distance of each individual movement was set according to the zoom level.



Use fixed nudge distance — When selected, the object moves by the distance specified in the **Distance** field every time you press an arrow key, even if you select another object. When deselected, you return to the traditional zoom based nudging.

Distance — Enter a value for the nudge distance.

To use a fixed nudge distance:

1. Select the object you want to nudge.
2. Press **Alt** and any arrow key. This displays the **Nudge Distance** dialog.
3. In the **Distance** field, enter the distance by which you want to nudge the object.
4. Click **OK**, or press the **Enter** key. The dialog closes and the object moves in the direction of the arrow key by the distance specified. Every time you press an arrow key, the selected object moves by this distance.

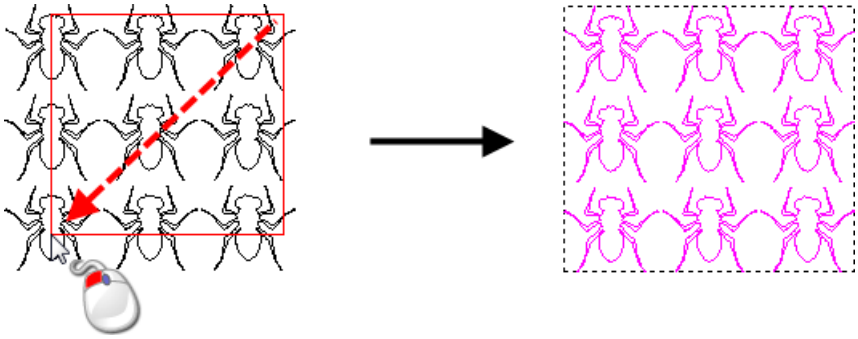
   *The **Use fixed nudge distance** option is selected automatically when you enter a distance and click **OK**. Deselect the option or enter a distance of **0** to return to zoom based nudging.*

5. Click **Cancel** to close the dialog without nudging the object.

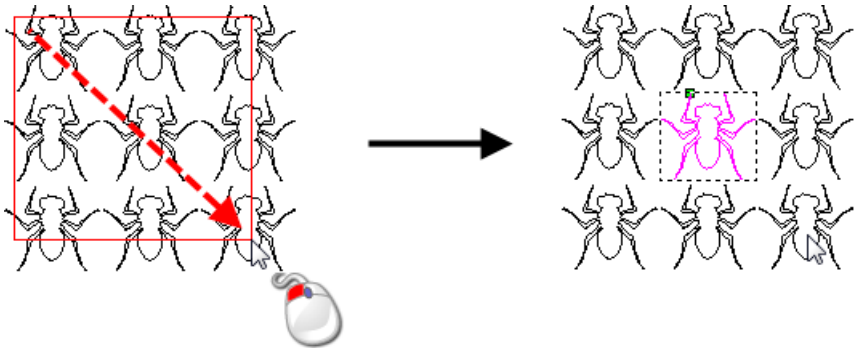
Box-selecting objects

In ArtCAM 2015, when you select objects by dragging the mouse from right to left, all objects within and partially within the bounding box are selected. When you select objects by dragging the mouse from left to right, only those objects wholly within the boundary were selected.

Box-selecting from right to left:



Box-selecting from left to right:



Selecting multiple items in the Project Tree

In ArtCAM 2015, there are some changes to the Project Tree to improve usability.

Multiple selection — You can select multiple items of the same type at the same time.

- Hold down the **Ctrl** key while clicking to select another item.
- Hold down the **Shift** key while clicking to select all items in between.
- Hold down the **Shift** key while pressing up or down arrows selects extra items.

Moving items — When you have one or more items selected, hold down the **Ctrl** key and press the up or down arrow keys to move the selected items up or down in the list.

Deleting items — Press the **Delete** key to delete selected items from the Project Tree.

New panels — Some options are displayed below the splitter bar when you have multiple **Vectors**, **Bitmaps**, **Reliefs**, **Sheets**, or **Toolpath** items selected.

New context menus — There are new context menus available when you have multiple **Vectors**, **Bitmaps**, **Reliefs**, **Sheets**, or **Toolpath** items selected.

Machining

This section describes enhancements made to the machining process in ArtCAM.

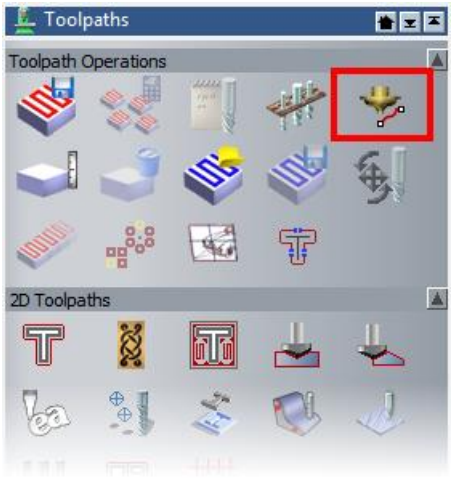
- **Updating bridges** (see page 48) — There is a new **Update All** button on the **Create Bridges** panel, and on the toolpath panels which contain bridge sections.
- **Importing .dxf files with the 2D Machining Wizard** (see page 48) — You can select the units used when you import a .dxf file.
- **Creating form tools** (see page 43) — You can create your own custom form tools from vectors and save them in the **Tool Database**.
- **2D toolpath shading (see page 50)** — If you are an ArtCAM Express customer and have the Advanced 2D Machining module, you can now preview toolpaths in the 2D View window.
- **Defining material dimensions in Express and Insignia** (see page 52) — In ArtCAM Express and ArtCAM Insignia, the **Setup New Model** dialog is replaced by the **Size For New Model** dialog to bring them in line with ArtCAM Pro and ArtCAM Jewelsmith.

Creating form tools

ArtCAM Insignia, ArtCAM Pro, and ArtCAM Jewelsmith only.

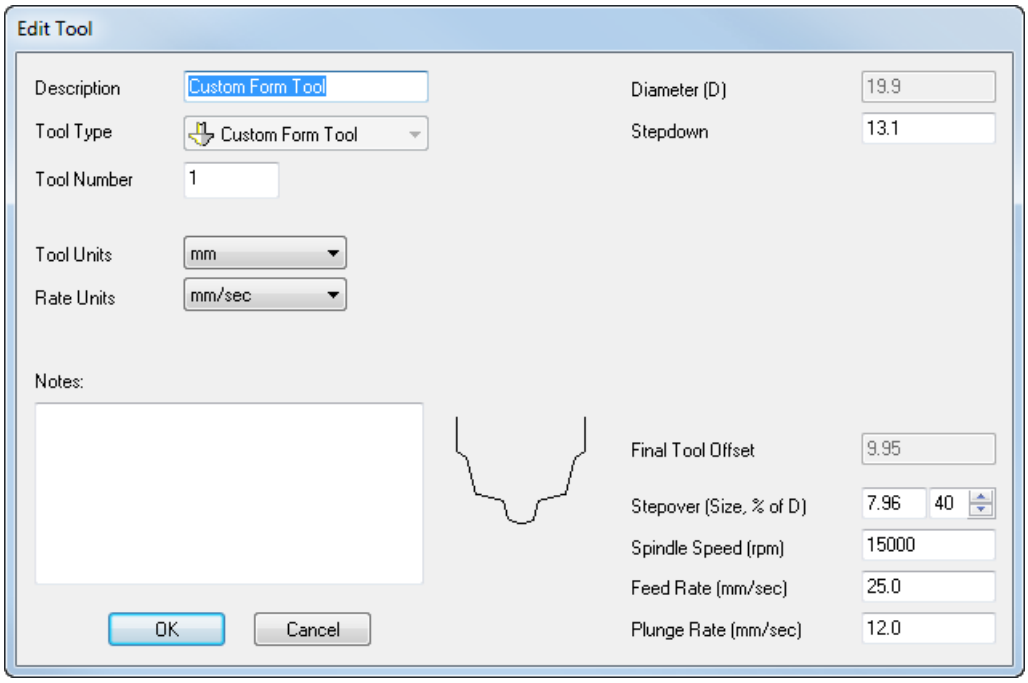
You can now create your own complex tools in the tool database to match those in your tool room. This enables you to simulate toolpaths more accurately, and can reduce simulation time because you no longer have to try to match a single tool with a combination of tools from the tool database.

The new **Create Custom Form Tool** button is located in the **Toolpath Operations** area of the **Toolpaths** panel.



Before you click **Create Custom Form Tool**, you must first import or create an open vector to define the half-profile of the form tool. This vector is revolved to create the tool, and the diameter of the tool is taken from the widest point of the profile. The custom form tool cannot be scaled after it is created so you must ensure the vector exactly matches the dimensions of your tool.

When you click **Create Custom Form Tool** , the **Edit Tool** dialog is displayed. Use this dialog to set the parameters for your tool.



Description — Enter a name for the tool.

Tool Type — The category of tool is displayed. This cannot be changed when creating a custom tool.

Tool Number — Specify the number of the tool to correspond with its position on a tool changer.

Tool Units — Select the unit of measurement for the tool from the list.

Rate Units — Select the unit of speed for the tool from the list.

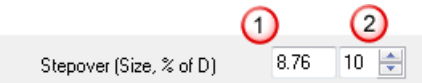
Notes — If you want to make any notes about the selected tool, enter them in this field.

Diameter (D) — The diameter of the tool is set by the size of the vector. This cannot be changed when creating a custom tool.

Stepdown — Enter the maximum cut depth of the selected tool.

Final Tool Offset — The tool offset value is displayed. It is half the diameter and cannot be changed.

Stepover (Size, % of D) — Enter a value in the first field (1) to specify the distance between adjacent machining passes made by the selected tool. Enter a value in the second field (2) to specify this distance as a percentage of the tool **Diameter (D)**.



- Each click on increases the stepover of the selected tool by 1% of the value shown in the **Diameter** field.
- Each click on decreases the stepover of the selected tool by 1% of the value shown in the **Diameter** field.

Spindle Speed (rpm) — Enter the rotational speed of the spindle.

Feed Rate (mm/sec) — Enter the rate at which the tool moves in relation to the material block.

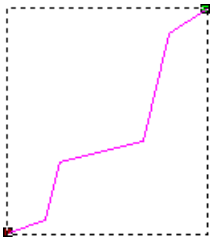
Plunge Rate (mm/sec) — Enter the rate at which the tool moves in the Z direction and plunges into the material block.

*You must have an open vector selected before you click **Create Custom Form Tool** or an error message is displayed.*

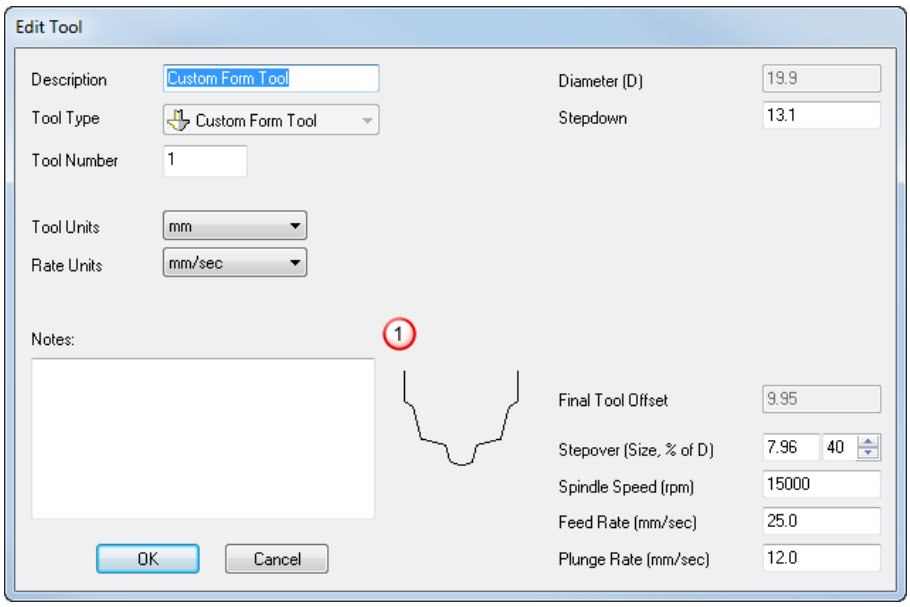
Your custom form tool is added to the **Tool Database** and can subsequently be edited in the same way as the standard tools, except you cannot change the diameter. For more information, see the *Using the Tool Database* in the Reference Help.

To create a custom tool:

1. Sketch or import an open vector that defines the exact dimensions of your tool's half-profile. This vector is revolved to create the tool.



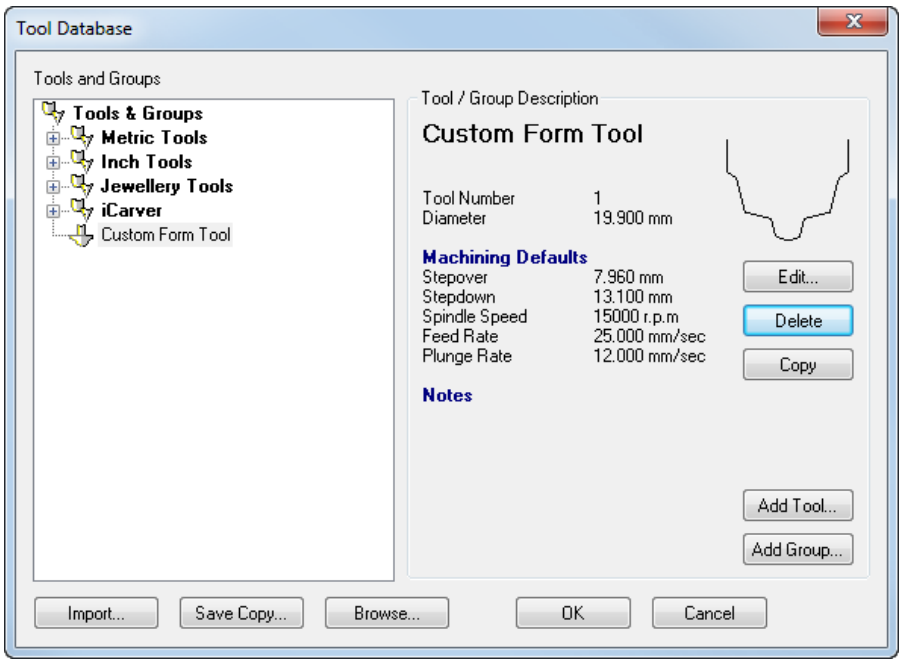
2 Ensure the vector is selected, then in the **Toolpath Operations** area of the **Toolpath** panel, click **Create Custom Form Tool** to display the **Edit Tool** dialog.



The dialog displays the profile of the tool you are creating (1), and contains fields in which to enter details about the tool.

3 Enter your tool's parameters. For more information about tool parameters, see the reference help.

4 Click **OK**. The **Tool Database** dialog is displayed.



Your custom tool is added to the bottom of the tool tree.

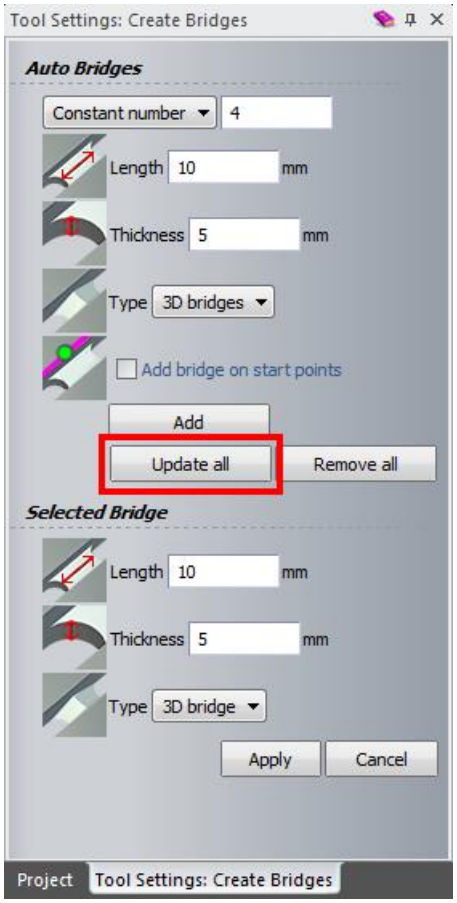
You can drag the tool to move it to a new location in the tool tree if you wish.

5 Click **OK** to close the dialog.

Updating bridges

*If you are working in ArtCAM Express, the **Create Bridges** option and full bridging functionality is only available with the **Advanced 2D Machining** module. If you do not have this module, you can add only one bridge to each vector, and this bridge can only be placed on the start point.*

There is a new **Update all** button on the **Tool Settings: Create Bridges** panel, and on the **Profiling**, **Bevel Carving**, **Female Inlay**, and **Male Insert** toolpath panels.



Click **Update all** to update any existing bridges on the selected vectors with the defined **Length**, **Thickness**, and **Type** values.

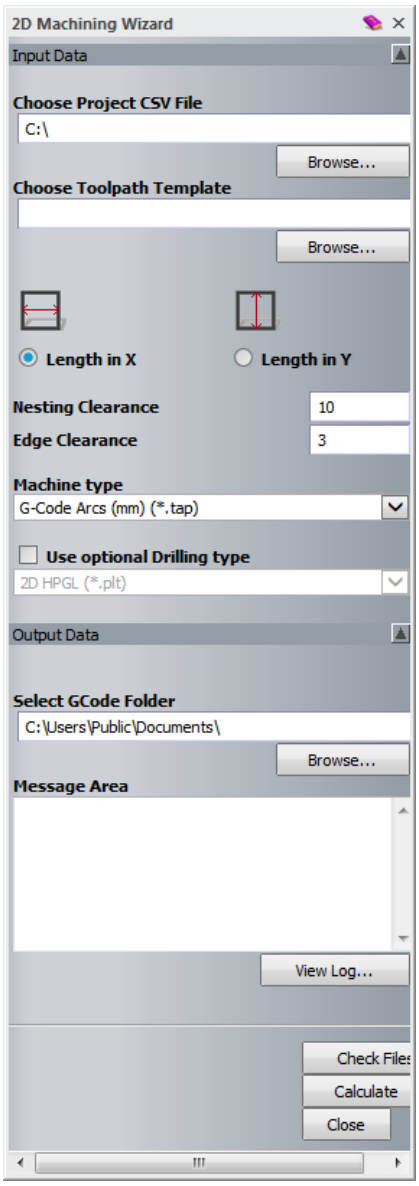
Importing .dxf files with the 2D Machining Wizard

ArtCAM Insignia, ArtCAM Pro, and ArtCAM Jewelsmith only.

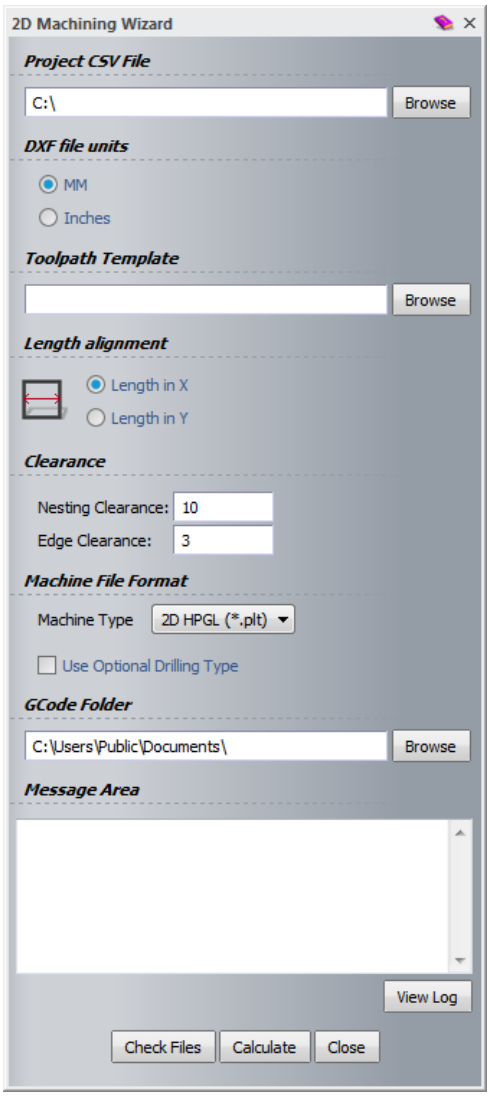
In ArtCAM 2015, the **2D Machining Wizard** panel has a new layout, and there are two new options, which enable you to choose the .dxf file's units.

Being able to choose the file's units means you can import .dxf files that have been saved in inches, but process them in a metric ArtCAM model with the **2D Machining Wizard** doing the necessary scaling. This workflow provides you with more flexibility. For example if you work in a field dominated by inches, but prefer to work in millimetres, if you get sent .dxf files in inches, you can still work with them in millimetres within ArtCAM.

ArtCAM 2013



ArtCAM 2015

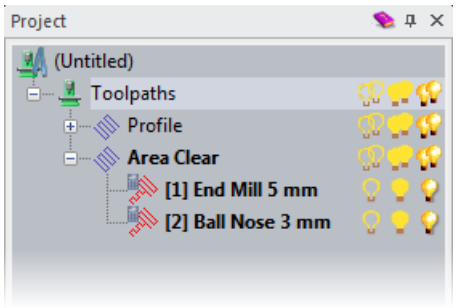


2D toolpath shading added to Advanced 2D Machining module

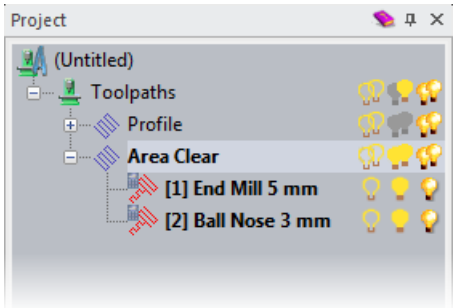
In ArtCAM 2015, ArtCAM Express customers who have the Advanced 2D Machining module can now apply shading to toolpath previews in the **2D View** window. This enables you to preview the areas of the material that will be cut by the calculated toolpaths.

To turn on shading:

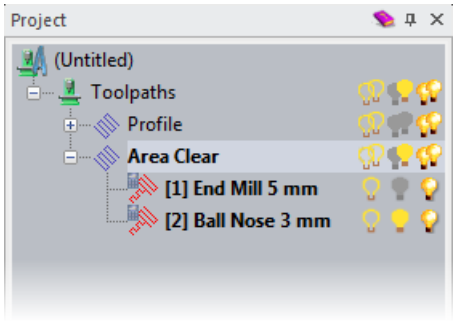
- Click the solid grey double light bulb icon beside the **Toolpaths** item in the Project Tree to display a shaded preview of all toolpaths in the Project Tree. All the solid light bulb icons turn yellow to indicate the toolpath previews are visible in the **2D View** window.



- Click the solid grey double light bulb icon beside a toolpath group to display a shaded preview of all toolpaths within that group. The icon turns yellow to indicate the toolpath previews are visible in the **2D View** window. The light bulb icon beside the **Toolpaths** item turns half yellow to indicate that only some toolpaths are previewed.



- Click the solid grey single light bulb icon beside a toolpath to display a shaded preview of an individual tool's toolpath. The icon turns yellow to indicate the toolpath preview is visible in the **2D View** window. The light bulb icons beside the **Toolpaths** item and the toolpath group turn half yellow to indicate that only some toolpaths are previewed.

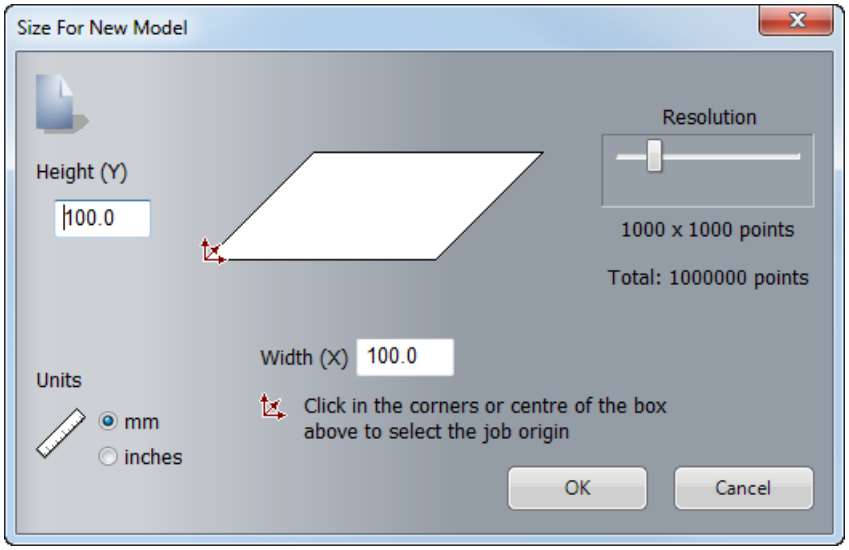


You can control the colour of the toolpath shading using the **Options** panel.

1. From the **Main Menu** bar, select **Edit > Options**. This displays the **Options** panel.
2. Click the **Drawing Colours** control bar to expand its settings.
3. In the **2D Drawing Colours** area, click the **Toolpath Simulation** colour swatch. This displays the **Color** dialog.
4. Select a new colour from the **Basic colors** area, or choose a custom colour from the colour matrix window, and click **OK**.
5. In the **Options** panel, click **Apply**.

Defining material dimensions in Express and Insignia

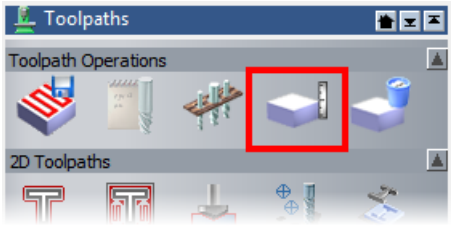
In ArtCAM 2015, when you create a new model in ArtCAM Express or ArtCAM Insignia, the **Size For New Model** dialog replaces the **Setup Job Dimensions** dialog, so you no longer have to define the material thickness or the model's position within the material before creating your model.



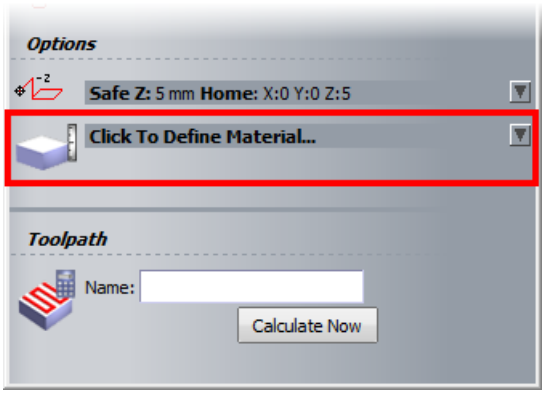
You must now set the material thickness and the model's position in the material using the **Material Setup** dialog, which matches the workflow used by ArtCAM Pro and ArtCAM Jewelsmith.

You can display the **Material Setup** dialog in two ways. Either:

- Click **Setup Material** in the **Toolpath Operations** area of the **Toolpaths** panel; or,



- Click the **Define Material** control bar when creating a toolpath.



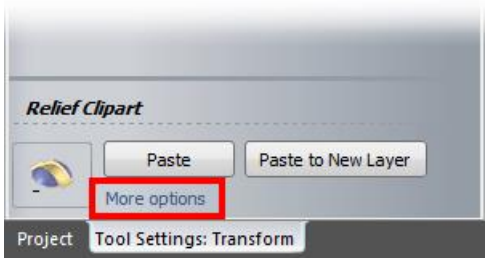
User interface changes

ArtCAM 2015 includes the following improvements to the ArtCAM user interface:

- **Transform panel** (see page 53) — There is an additional way to switch between the two **Transform** panel pages.
- **Set Model Size dialog (see page 54)** — The **Height In Z** field in the **Set Model Size** dialog now defaults to 0.
- **Defining material dimensions in Express and Insignia** (see page 52) — The **Setup Job Dimensions** dialog is replaced by the **Size For New Model** dialog in Express and Insignia to bring the workflow in line with Pro and Jewelsmith.
- **Resetting reliefs** (see page 54) — The **Zero** and **Zero Rest** options, which were previously located on the **Shape Editor** panel, are now called **Zero Inside Vector** and **Zero Outside Vector**, and are found on the **Relief Editing** toolbar.
- The following panels have a new layout:
  - **Tool Settings: Text Tool** panel (see page 22).
  - **Tool Settings: Two Rail Sweep** panel (see page 15).
  - **2D Machining Wizard** (see page 48).
- **Miscellaneous interface changes** (see page 55) — These options have the same behaviour, but a new name or location.

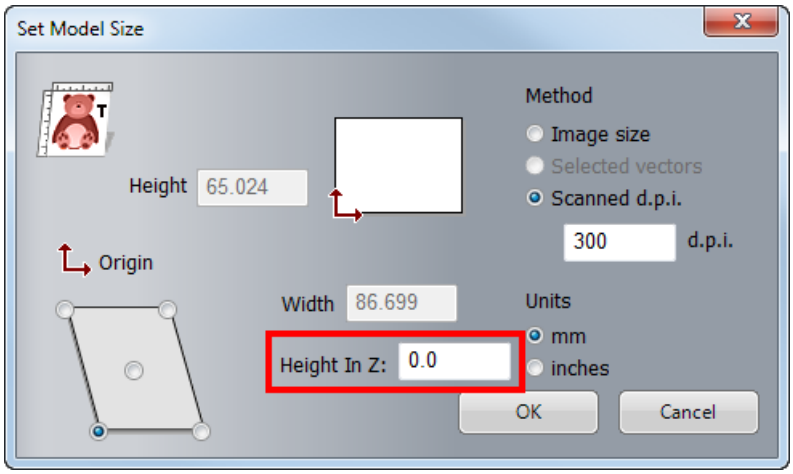
Transform panel

In the **Transform** panel, **More options** is added to the **Relief Clipart** area. This provides another way for you to quickly switch between the two **Transform** panel pages.



Set Model Size dialog

The **Height In Z** field in the **Set Model Size** dialog, which is displayed when you select **File > New > From Image File**, now defaults to 0. If you enter in a value, ArtCAM remembers this the next time you open this dialog.

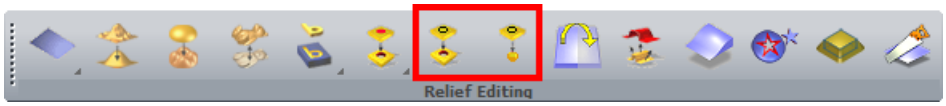


Resetting reliefs

ArtCAM Insignia, ArtCAM Pro, and ArtCAM Jewelsmith only.

There are the following improvements to the way you access the buttons that enable you to reset, or zero, relief:

- The buttons have a new design and are now located on the **Relief Editing** toolbar, rather than on the **Shape Editor** panel.

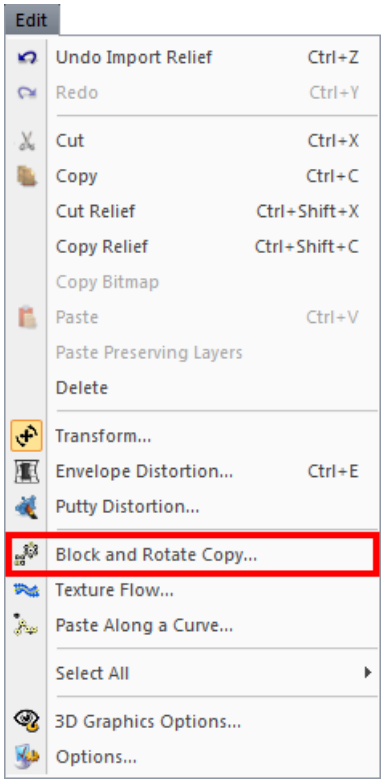


- The buttons are renamed to make their function more clear:
  - **Zero** is now called **Zero Inside Vector** .
  - **Zero Rest** is now called **Zero Outside Vector** .
- There are two new keyboard shortcuts, which can help to speed up your workflow.
  - Press **Ctrl+0** to zero inside a vector.
  - Press **Ctrl+Alt+0** to zero outside a vector.

Miscellaneous interface changes

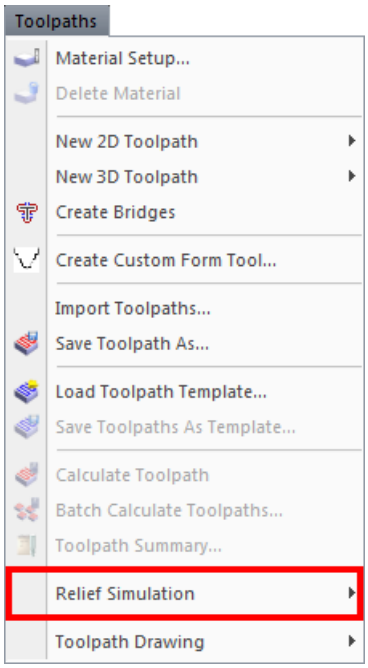
The following options have the same behaviour, but a new name or location:

- In the **Edit** menu, the **Block Copy / Rotate** option is now called **Block and Rotate Copy** to make it consistent with the panel.

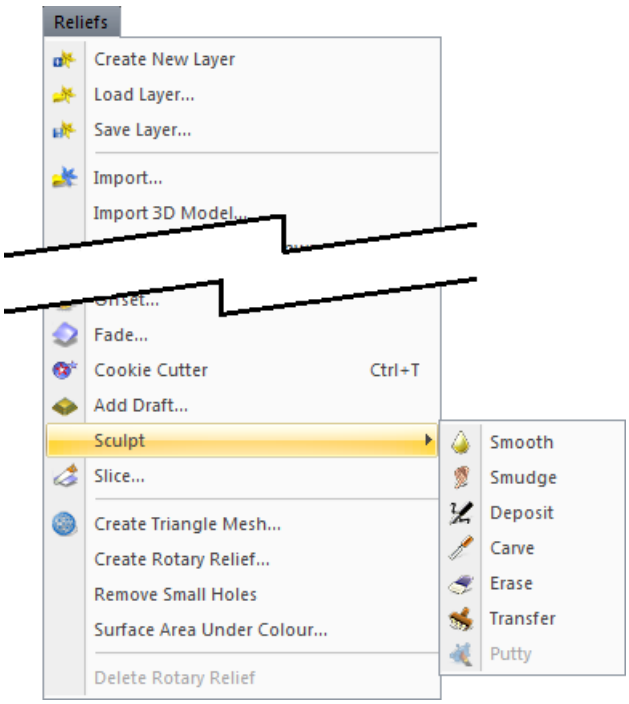


- The **Wrap text around a curve** button is no longer available from the **Design Tools** toolbar because this tool is now part of the **Tool Settings: Text Tool** (see page 22) panel.

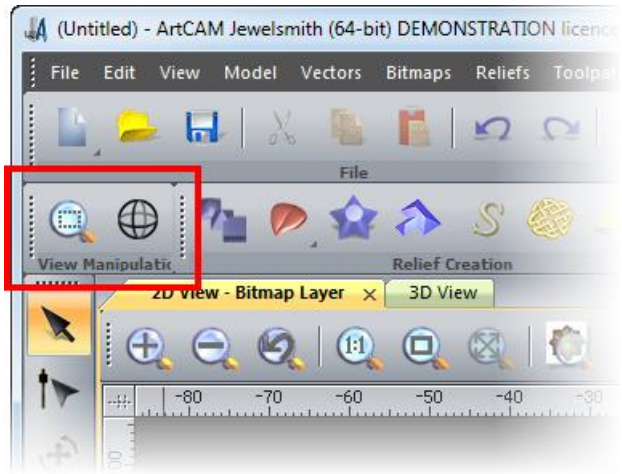
- In the **Toolpaths** menu, the **Simulation** submenu is now called **Relief Simulation**.



- The **Create Vector Boundary** panel is now called **Create Boundary from Relief** to make the button and panel consistent with each other.
- The sculpting tools from the **Design Tools** toolbar are also available from the **Reliefs > Sculpt** menu.



- When running ArtCAM in standard layout mode, the **View Manipulation** toolbar is docked in the top toolbar by default.



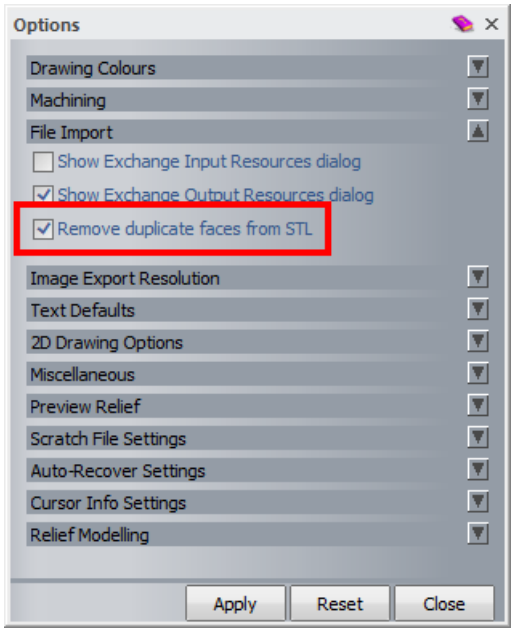
General enhancements

There are the following general enhancements in ArtCAM:

- **Importing STL files** (see page 59) — By default, ArtCAM now identifies and removes duplicate faces when you import STL files.
- **New Express modules** (see page 60) — There are four new modules available for ArtCAM Express customers: Bevel Carving, Fluting, Multi-plate engraving, and Panelling.
- **New Insignia tools** (see page 61) — Several tools that were previously available only for Pro and Jewelsmith users are now available for Insignia users.
- **Licencing information** (see page 62) — The type of licence you hold is now displayed in the product banner.

Importing STL files

Some STL models have duplicate faces, which can be problematic for some operations, such as creating supports for 3D printing. By default, ArtCAM now identifies and removes any duplicate faces when you import STL files. To disable this process, deselect **Remove duplicate faces from STL** in the **File Import** area of the **Options** panel.



New Express modules

There are four new modules available to ArtCAM Express customers:

Bevel Carving — This module enables you to create a toolpath that replicates a bevelled look for the vector artwork that you have selected.

Fluting — This module enables you to create and control ramping cuts along vectors.

Multi-plate Engraving — This module enables you to create sheets of badges or name-plates, each with its own unique details, using only vector artwork to control the shape and layout, a text file (*.txt or *.csv) containing the data you want to feature on the plates, and vector text to set how and where this data is used.

Panelling — This module enables you to machine a design larger than the bed-size of your router, or larger than the sheets of material that are currently available.

New Insignia tools

You can now use the following tools in ArtCAM Insignia:

Weave Wizard — Use the Weave Wizard to create a woven relief using at least two vectors.

Extrude — Use the Extrude tool to create an extruded relief using at least two vectors.

Spin — Use the Spin tool to create a relief by spinning a vector around its start node. You can control the profile using an additional two vectors.

Turn — Use the Turn tool to create a relief by turning a vector about an axis drawn between the vectors start and end nodes.

Offset (Classic) tool clearance strategy — The Offset (Classic) tool clearance strategy is now available for Insignia users when creating Machine Relief toolpaths.

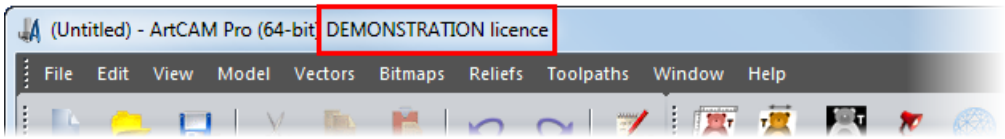
Material Setup slider — Use the slider on the **Material Setup** dialog to set the position of the model within the material when creating toolpaths.

Relief Slicer — Use the **Relief Slicer** to slice a relief and export the slices as .rlf, .svg, and .png files.

For more information about these tools, refer to the Reference Help.

Licencing information

The product banner includes your licence type.



One of the following licence types will be displayed in the product banner:

TIME-LIMITED licence — This licence allows you to use ArtCAM for a fixed period of time. When this licence expires, the licence will stop working; you will still be entitled to run previously maintained versions.

FULL licence — This licence allows you to use versions of the product released prior to your maintenance contract expiry date. When your maintenance contract expires, you will not have access to future releases.

ACADEMIC licence — This licence is for use of an academic institution. It is time-limited and should not be used for commercial purposes.

DEMONSTRATION licence — This licence allows you to demonstrate new products.

In all cases, the number of remaining licence days will be included if the number of days remaining is less than, or equal to 30 days.

Licencing information is also displayed in the **About** dialog.

Index

2

2D machining wizard • 49

B

Bevel carving • 61
Box-selecting objects • 41

C

Combine replace • 33
Create bridges • 48
Custom form tools • 44

D

Define material dimensions • 52

E

Edit nodes • 29
Exporting vectors • 31
Express modules • 61
Extrude • 18, 53

F

Fillet vectors • 32
Fluting • 61

I

Insignia tools • 62
Interface changes • 53

L

Licencing • 63
Live tools • 1, 13, 14, 16, 18, 20, 21
    Extrude • 18, 53
    Shape editor • 1, 14
    Spin • 20, 53
    Turn • 21, 53
    Two rail sweep • 16, 53

M

More options • 53
Multi-plate engraving • 61

N

Node edit • 29
Nudge distance dialog • 1, 40

O

Overview • 1

P

Panelling • 61
Paste preserving layers • 30

Project tree • 42
Putty tool • 1, 7

R

Relief clipart • 35
Replace • 33
Reset reliefs • 53, 55
Rotary models • 36

S

Sculpting tools • 7
Set model size • 53, 54
Shape editor • 1, 14
Slice relief • 37
Spin • 20, 53
STL files • 60
SVG files • 31, 37

T

Text tool • 1, 22, 53
Toolpath • 50
Transform • 53
Turn • 21, 53
Two rail sweep • 16, 53

U

User interface changes • 53

V

Vector doctor • 27
Vectors
  Box-selecting objects • 41
  Edit nodes • 29
  Exporting vectors • 31
  Fillet vectors • 32
  Node edit • 29
  Paste preserving layers • 30
  Spin • 20, 53
  Text tool • 1, 22, 53
  Turn • 21, 53
  Two rail sweep • 16, 53
  Vector doctor • 27
  Zero inside vector • 55
  Zero outside vector • 55

Z

Zero inside vector • 55
Zero outside vector • 55