
PowerSHAPE 2012

What's New



PowerSHAPE

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Patent Information

Emboss functionality is subject to patent number GB 2389764 and patent applications US 10/174524 and GB 2410351.

Morphing functionality is subject to patent application GB 2401213.

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What's New in PowerSHAPE 2012

The following areas have been updated in PowerSHAPE 2012:

- User interface (see page 2)

- Direct Modelling (see page 22)

- Surface modelling (see page 41)

- Solid modelling (see page 42)

- Triangle modelling (see page 46)

- Assembly modelling (see page 48)

- Delcam Draft (see page 50)

- Delcam Render (see page 50)

- Other changes in PowerSHAPE 2012 (see page 51)

User interface

A number of changes have been made to the user interface in PowerSHAPE 2012. Updated areas include:

- Graphics and instrumentation (see page 2).
- Toolbars (see page 8).
- Dialogs (see page 10).
- Menus (see page 20)

Graphics and instrumentation

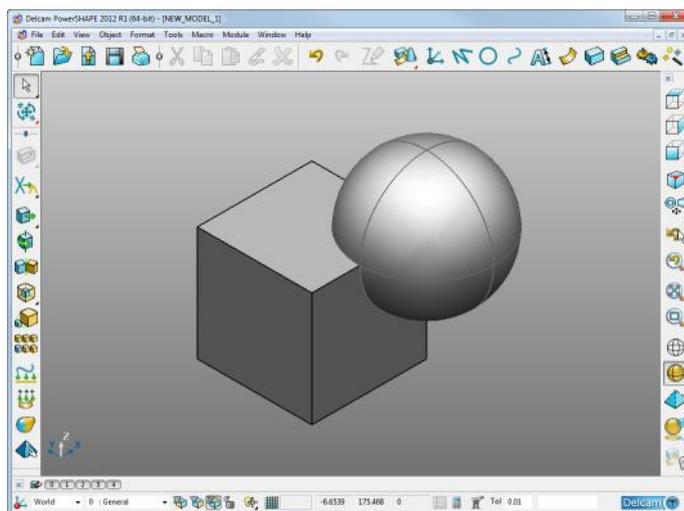
Updated graphics and 3D instrumentation have been included in PowerSHAPE 2012. Changes include:

- new default colour scheme (see page 2).
- new 3D instrumentation (see page 4).
- updated context-sensitive cursor graphics (see page 6).

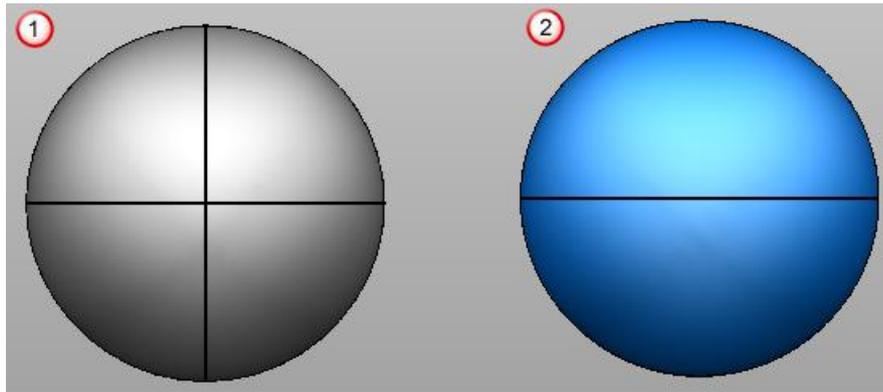
New colour scheme

The following updates have been made to PowerSHAPE's colour scheme:

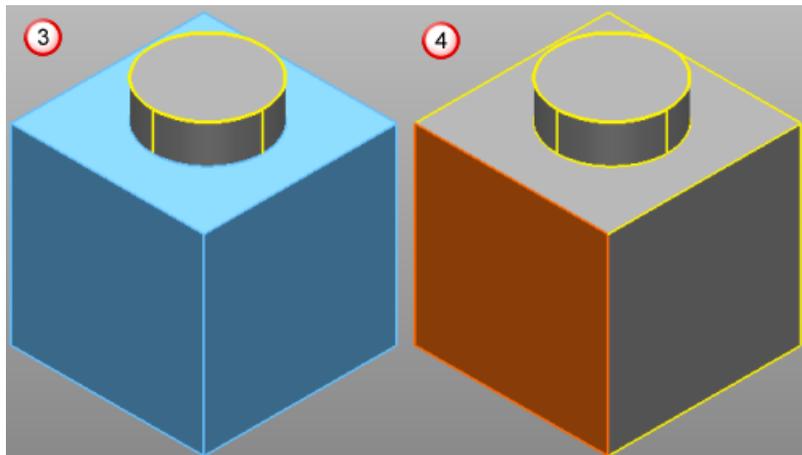
- The new default colour scheme is *black_on_grey*.



- The default solid material is *solid grey* ①. The default surface material is unchanged *surface_blue* ②.



- Solid features are now highlighted light blue ③. When individual faces are selected, they are highlighted orange ④.



To compliment the new colour scheme, the context-sensitive cursors (see page 6) and 3D instrumentation (see page 4) have been updated.

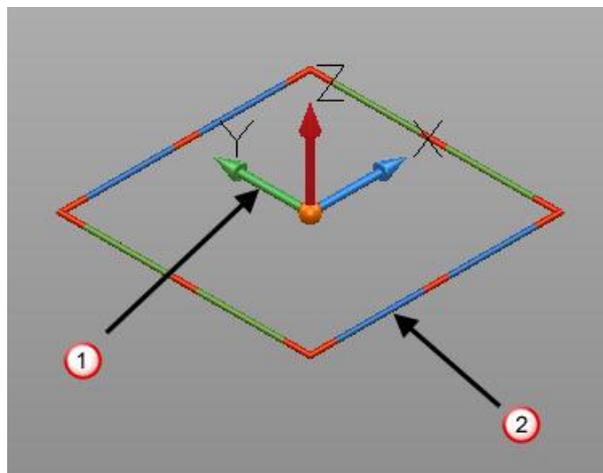
3D instrumentation

3D instrumentation has been added to:

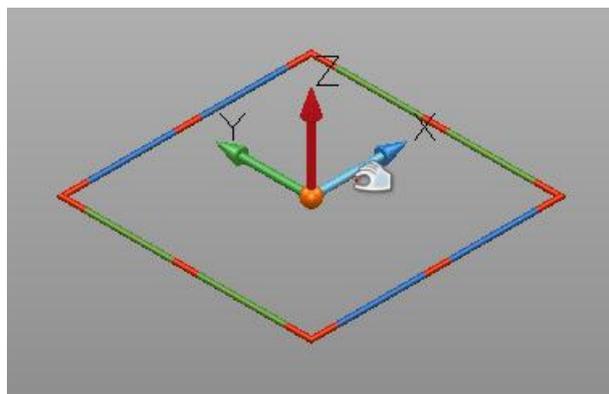
- workplanes (see page 4).
- solid primitives and solid features (see page 5).

3D instrumentation - Workplanes

- The active workplane is now rendered in 3D and each axis has been given a separate colour. Use the new 3D instrumentation for improved selection and control when modifying workplanes.
 - Click and drag to move the workplane along the selected axis **1**.
 - Click and drag to rotate the plane around the selected axis. The edges of the plane box are colour coded to match the axis **2**.



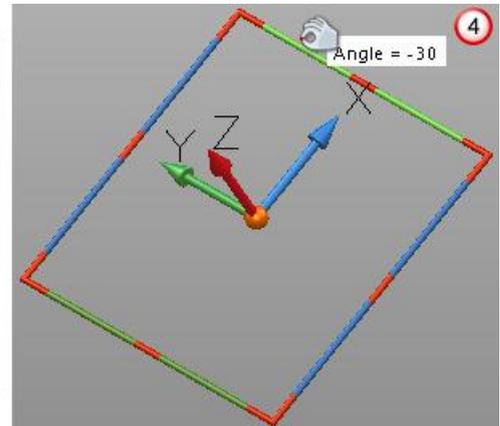
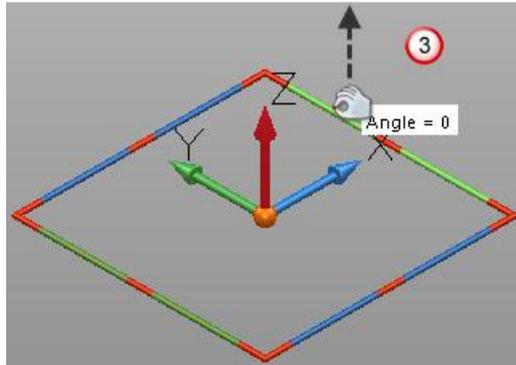
- Move the cursor over the workplane to highlight the available selection.



- Dynamic angle feedback is displayed when rotating the edges of the plane box:

- Use  on the edge corresponding to the axis you want to rotate around **3**.

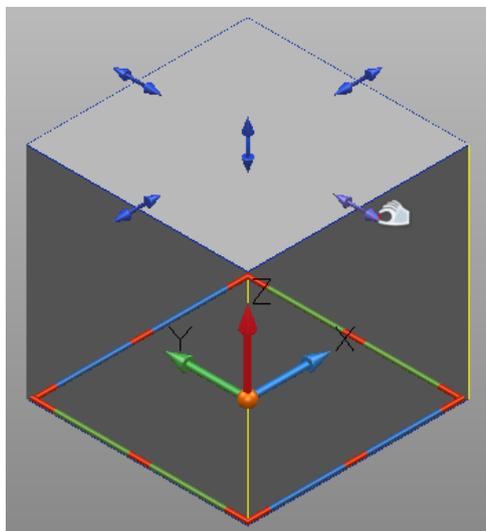
- Use  to rotate the plane box. The angle is displayed next to the cursor **4**.



- Use  **Ctrl** to disable intelligent cursor snapping and allow easy relative rotation.

3D instrumentation - Solid primitives and solid features

The drag handles on solid primitives and solid features have been rendered in 3D. The shading of the handles lightens when you pass the cursor over them to make it clear which handle can be selected.



Context sensitive cursors

Many of the PowerSHAPE cursors have been updated.

- Annotation (see page 6).
- Curve toolbar (see page 6).
- Drafting (see page 6).
- General edits toolbar (see page 7).
- View toolbar (see page 7).
- Other (see page 7).

Context sensitive cursors - Annotation toolbar

Old	Function	New
	Add text along a curve	
	Add text (horizontally or vertically)	

Context sensitive cursors - Curve toolbar

Old	Function	New
	Stop curve	
	Close curve	
	Sketch curve	
	Select start and end point (composite curve)	

Context sensitive cursors - Drafting

Old	Function	New
	Active view	
	View selection	
	Drawing selection	

Context sensitive cursors - General edits toolbar

Old	Function	New
	Limit cut	
	Limit point	
	Move/copy/stretch (also used for drag-move)	
	Rotate items	
	Mirror items	
	Mirror items across a user defined plane	
n/a	Mirror items in a wireframe line	
	Offset items	
	Scale items	

Context sensitive cursors - View toolbar

Old	Function	New
	Zoom to box	
	Zoom	
	Rotate	
	Pan	

Context sensitive cursors - Other

Old	Function	New
	Warning/error	
	Selection hand	
	Edge-pick hand	
	Closed selection hand	
	Add component	

	Principal plane-lock toggled	
	No entry	
	No entry, plane	
	No entry, arc	
	Paste attributes	
	Selection filter	

Toolbars

Updates have been made in the following areas:

- Solid editing:
 - Divide face (see page 43)
 - Solid selection modes (see page 42)
- Text creation (see page 10).
- Mesh surfacing (see page 41).
- General editing (see page 8).

In addition:

- A component selection button has been added to the **Select** flyout. This selects components and instances of sub-assemblies.



- **Restore selection**  has been added to the **View** toolbar. This toggles between the previous and current selection. It also works on sub-item selection of a solid. The corresponding **Restore Selection** option has been removed from the **View** popup menu.

General editing

The following changes have been made to the **General Edits** functionality:

- The display of transformed items is controlled by **Show a preview of transformed items** on the **Tools > Options > General > General Edits** options dialog. By default the option is selected.
 - When the option is selected,  and  buttons are displayed on the editing toolbars.

- When the option is deselected, ✓ and ✗ are not displayed on the editing toolbars.
- Transform operations can be used to edit faces of solids (see page 9).
- Scale (see page 9) and Offset (see page 9) toolbars have been updated.

Editing faces

The following **General Edits** operations can be used to edit faces of a solid as part of the Direct Modelling functionality.

- **Move** (see page 32)
- **Rotate** (see page 33)
- **Mirror** (see page 36)
- **Scale** (see page 38)
- **Offset** (see page 40)

Next Solution and **Previous Solution** buttons are added when these toolbars are used to edit faces. If there is more than one possible solution, use these buttons to select the required solution



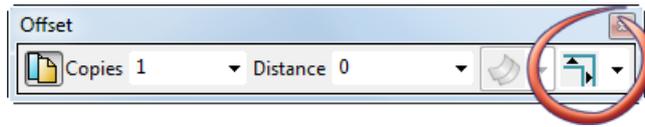
Scale

- The **Scale** toolbar has been updated as follows:
 - The scaling cursor has been redesigned (see page 7).
 - ✓ and ✗ buttons have been added. The display of these is controlled by **Show a preview of transformed items** on the **General Edits** options dialog (see page 19).
 - Selecting **Non-uniform scale** from the drop-down list no longer displays the **Non-uniform scaling** dialog. Scale factor boxes for X, Y and Z are displayed on the toolbar.
 - A graphical preview of the scaled items is displayed. The display of this is controlled by **Show a preview of transformed items** on the **General Edits** options dialog (see page 19).

Offset

The **Offset** toolbar has been updated as follows:

- The corner drop-down list has been moved to the right-hand-side of the toolbar.



- Undo and redo operations are now available when the toolbar is displayed. In previous versions, clicking **Undo** closed the offset operation and removed the toolbar.

Annotation toolbar - Text creation

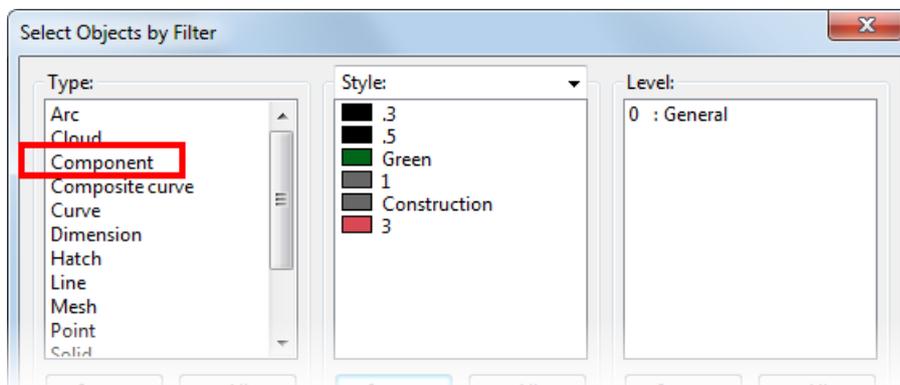
Text creation buttons (*Annotation toolbar*) have been updated for PowerSHAPE 2012.

Old	Function	New
	Create horizontal text	
	Create vertical text	
	Create text on a curve	

Dialogs

There have been updates to the following dialogs:

- **Select Objects by Filter** dialog has been updated to include **Component** in the **Type** list. This selects components and instances of sub-assemblies.



- **Align Items** dialog has been updated so that the progression through the selection options is automatic.
- Import File (see page 11)
- Export (see page 11)
- Options (see page 16)

Import File dialog

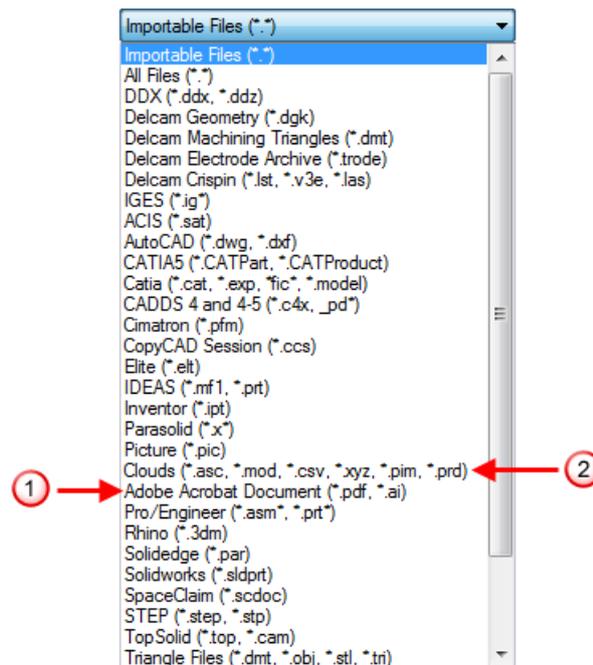
The following file formats have been added to the file types that can be imported using the **Import File** dialog:

- *.ai and *.pdf are imported using Delcam Exchange.

Both formats are listed in the *Acrobat Adobe Document* section of the drop-down list ①.

- *.prd (curve) and *.pim (cloud).

Both formats are listed in the *Clouds* section of the drop-down list ②.

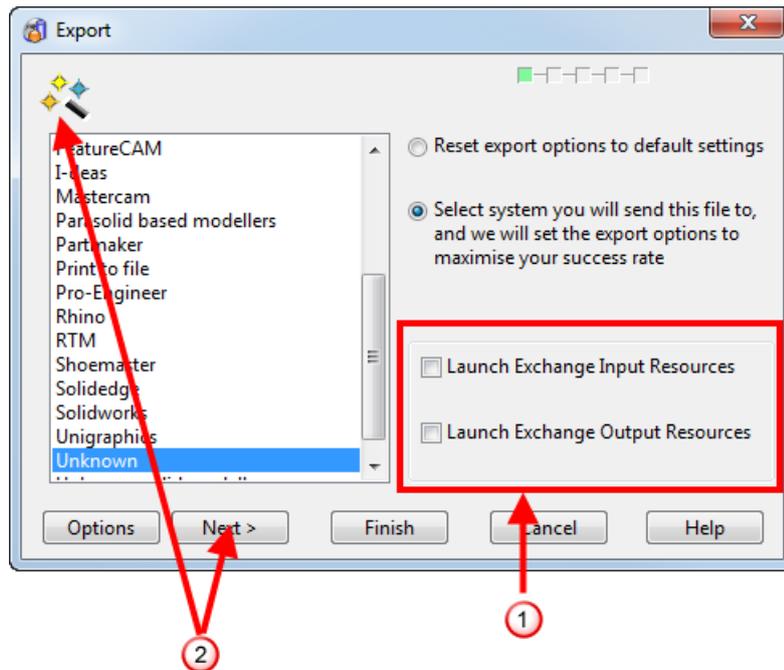


Export dialog

The **Export** dialog has been updated to include:

- access to Delcam Exchange input and output resources ①. All the Delcam Exchange options are documented in that product.

- access to the remaining pages of the **Export Wizard** (see page 12) **2**.



If you export without using the wizard, the following defaults will be used:

- export selected items or the entire model if nothing is selected.
- if a workplane is active, export the geometry to active, otherwise, export to World.
- if a drawing window is active, export the converted drawings.



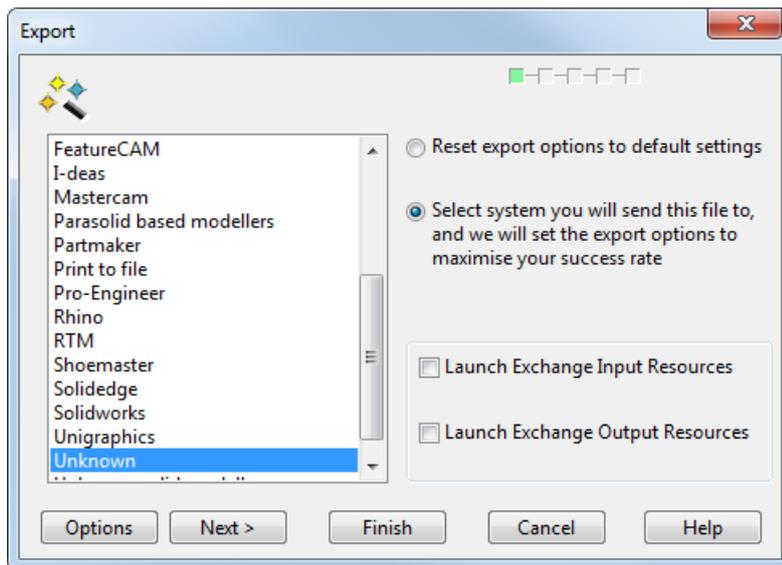
*The default for .dgn is to still export to World. You can use the **Export Wizard** to export .dgn to the active workplane.*

Using the Export Wizard

Use the **Export Wizard** to:

- export selected model items, visible items or all items.
- export relative to an active workplane or World.
- export drawings.

- 1 Select **File > Export** to display the **Export** dialog



- 2 Select the target system for export from the scroll-down list.

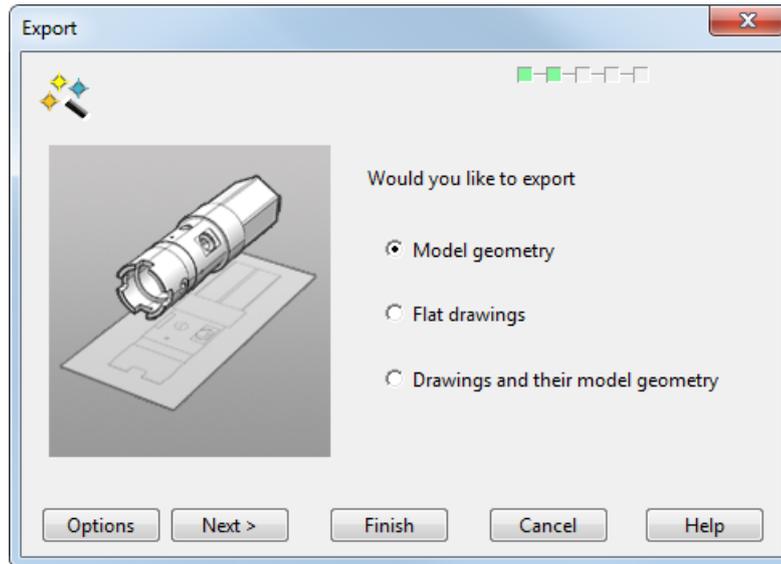
- 3 Click **Next** to display the **Export File** dialog.

The filename of your model is automatically displayed as the filename. Change the **Filename** as required and select the file type from the **Save as type** drop-down list.

- 4 Click **Save**. The subsequent pages that are displayed depends on your export:
 - if you are exporting a model that includes at least one drawing, page 2 is displayed (see page 14).
 - if you are exporting a model that does not include drawings, page 3 is displayed (see page 14).
 - if your model includes workplanes, page 4 is displayed (see page 15).
 - if you are exporting a model that includes mutiple drawings, page 5 is displayed (see page 16).
- 5 Select the appropriate options on the export pages that are displayed.
- 6 Click **Finish** to complete the export.

Page 2 - Exporting a model that includes drawings

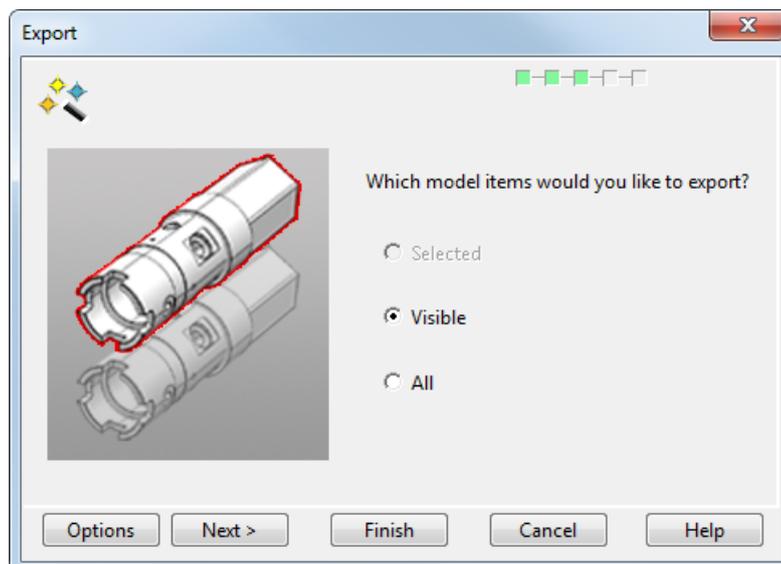
Use this page to export a model that includes drawings.



- 1 Select one of the options to specify the items to be exported:
 - model geometry only
 - drawings
 - drawings and associated model geometry
- 2 Click **Next** or **Finish**.

Page 3 - Exporting a model

Use this page to specify the model items that you want to export.



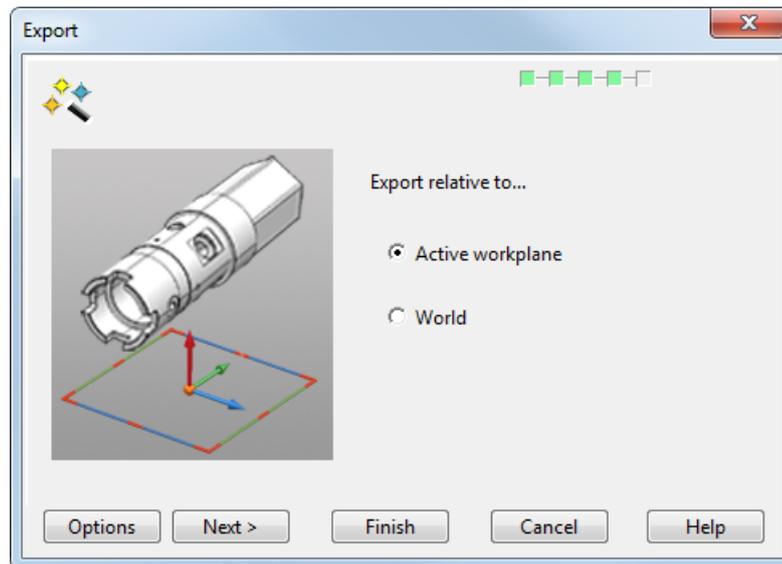
- 1 Select one of the options to specify the items to be exported:
 - If items were pre-selected, then **Selected** is the default option.

- **Visible** exports items that are visible on the screen; if an item is blanked it will not be exported. This option is useful for exporting the workplanes with a model.
- **All** is the default option and will be automatically selected if there are no pre-selected items.

2 Click **Next** or **Finish**.

Page 4 - Exporting workplanes

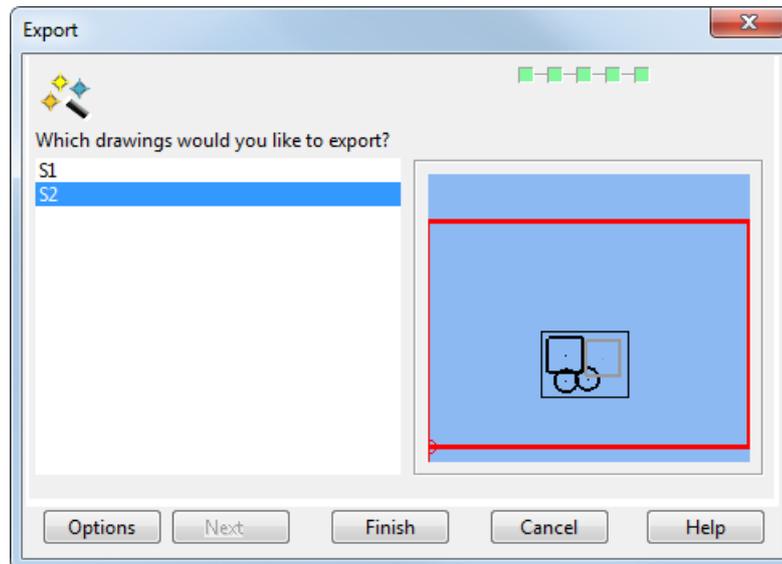
Use this page to specify the workplane to be used at export.



- 1 Select the option to be used when exporting:
 - Export relative to active workplane.
 - Export relative to World.
- 2 Click **Next** or **Finish**.

Page 5 - Selecting a drawing to export

Use this page to select the drawings to be exported. This page is only displayed if there are multiple drawings associated with the model.



- 1 Select the drawings to be exported.
- 2 Click **Finish**.

Options dialogs

In PowerSHAPE 2012 there have been some changes to several **Tools > Options** dialogs:

- The following **Options** dialogs have been renamed:
Data Exchange > Import/Export → **Data Exchange > Version 8/Surfaces**
Manufacturing > Feature Export → **Manufacturing > Export**
- The following **Options** dialogs have been restructured as part of the rationalisation of import and export functionality:
 - **IGES**
 - **Delcam Exchange**

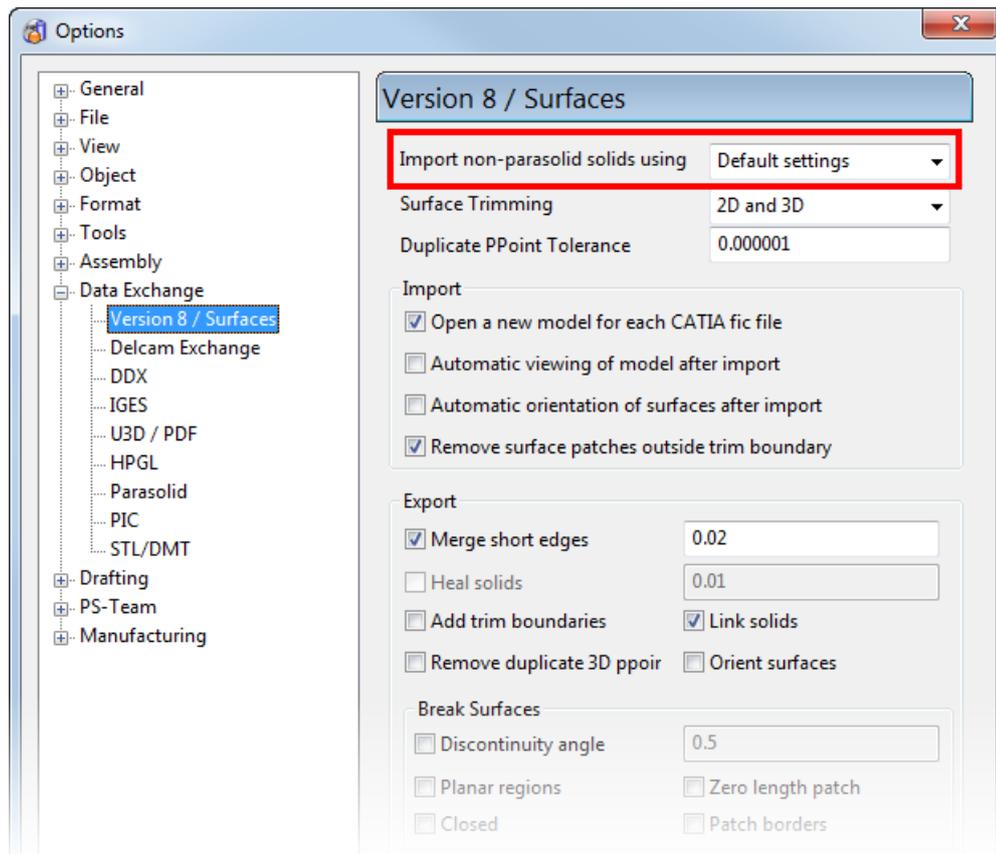
Exchange options can now be accessed from the **Export** dialog.

Updates have been made to the following **Options** dialogs:

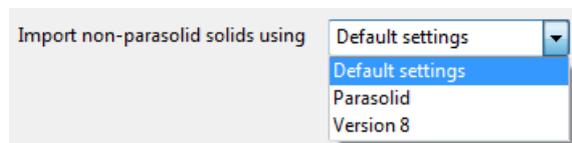
- Import/Export (see page 17)
- File Doctor (see page 18)
- General Edits (see page 19)

Import/Export

Import / Export has been renamed **Version 8 / Surfaces**.



Import non-parasolid solids using has been added to the dialog. This lets you specify the method to be used to import non-parasolid solids.



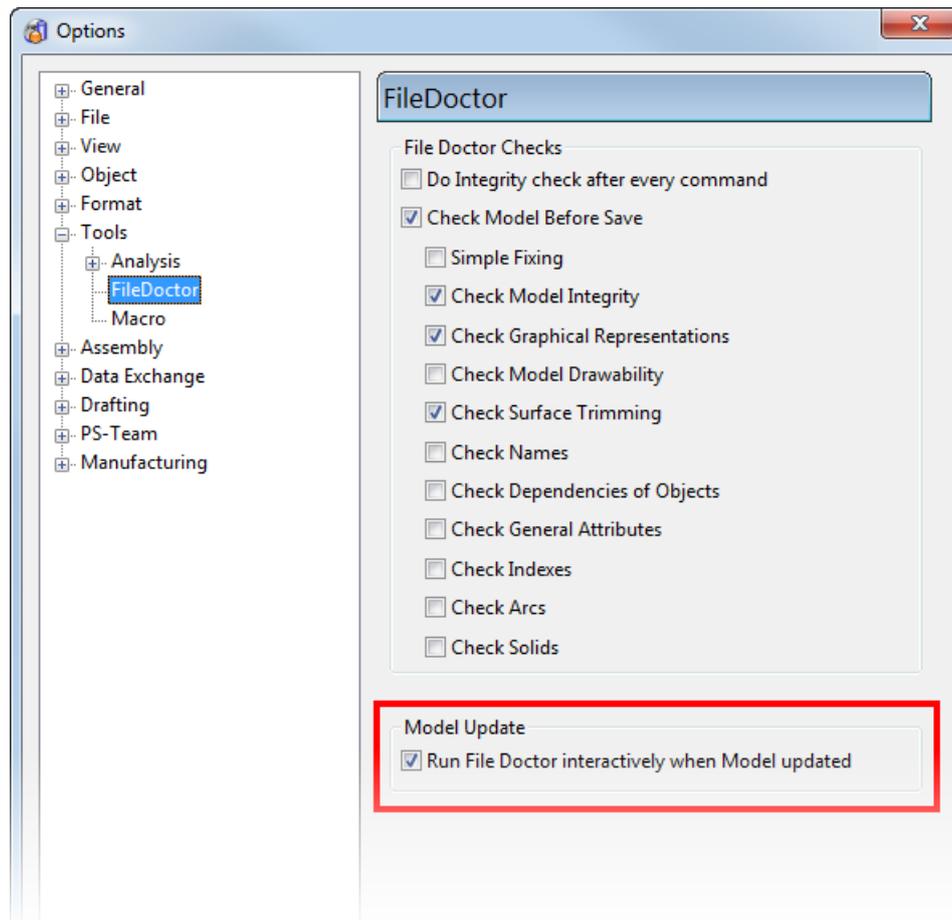
Default settings detects the file type and imports solids as Parasolids or version 8 solids depending on the file type:

- If the file is from a solid modeller, it is imported as a Parasolid.
- If the file is not from a solid modeller, it is imported as a version 8 solid.

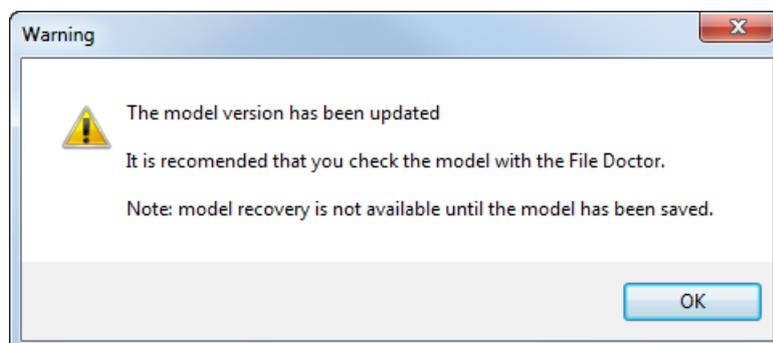
Alternatively, you can use the options in the drop-down list to specify the import method.

File Doctor

There is a new option on the **Tools > Options > Tools > File Doctor** dialog that controls how **File Doctor** is run.

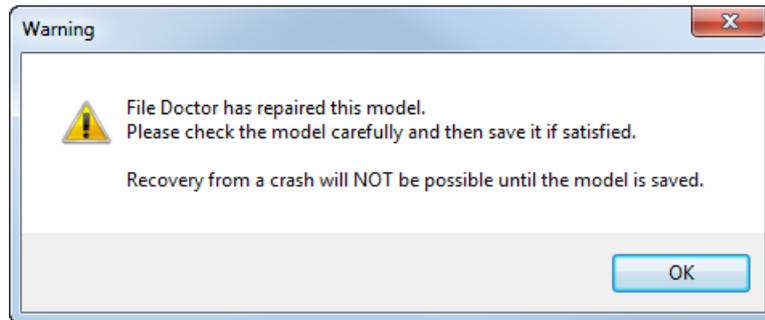


- If **Run File Doctor interactively when Model updated** is selected (default) and the model version has been updated, the **File Doctor** is run interactively. The following warning dialog is displayed:



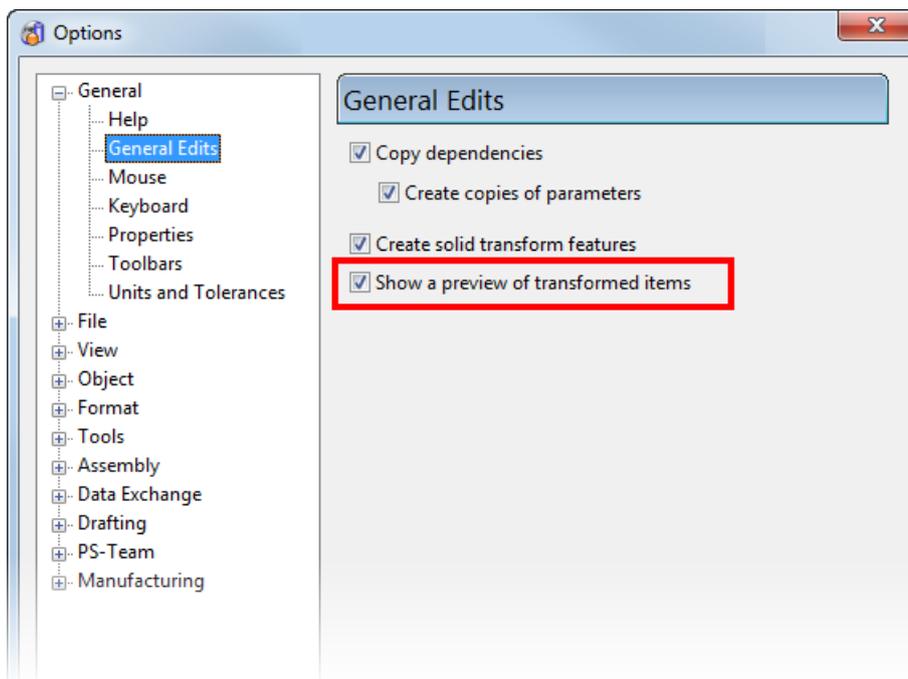
*You are recommended to run **File Doctor** when opening an old version model in a version of PowerSHAPE that uses a later version model. However, if you select **Close** on the **File Doctor** dialog, the model is unchanged.*

- If **Run File Doctor interactively when Model updated** is deselected and the model version has been updated, the **File Doctor** is run automatically (as in previous versions of PowerSHAPE)



General Edits

Control the display of transformed items using the new option on the **Tools > Options > General > General Edits** dialog.



Use **Show a preview of transformed items** to control the way transformed items are displayed. By default the option is selected.

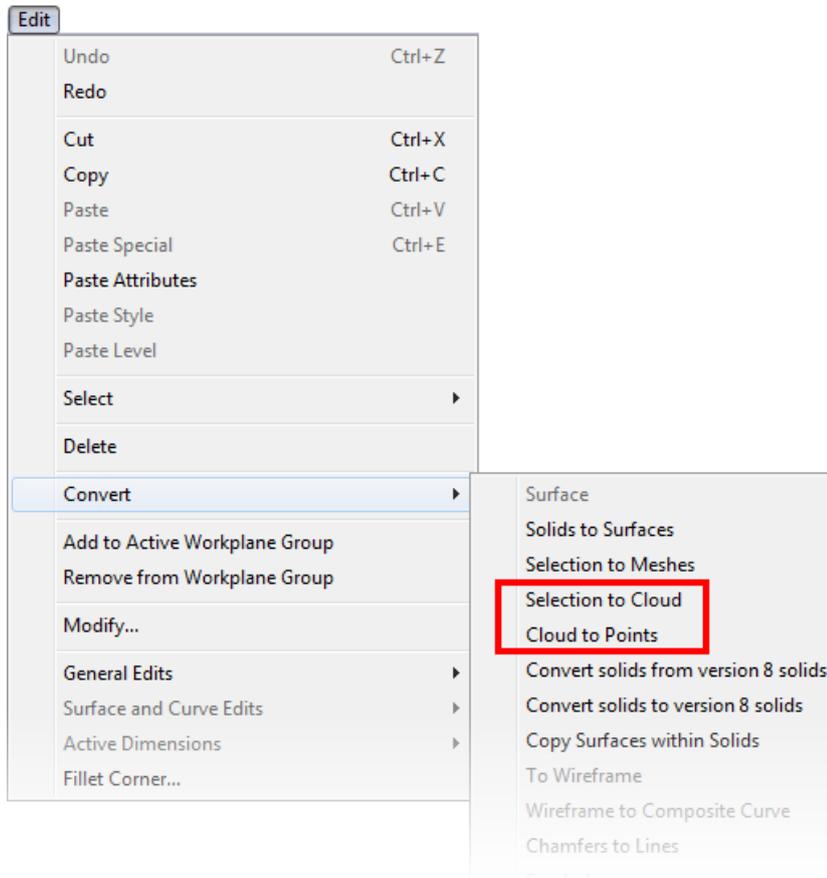
- When the option is selected:
 - ✓ and ✗ buttons are displayed on the editing toolbars.
 - a graphical preview of the transformed items is displayed.
- When the option is deselected:
 - ✓ and ✗ are not displayed on the editing toolbars.
 - no graphical previews are displayed.
 - the transform is applied immediately when the user inputs a value or a point.



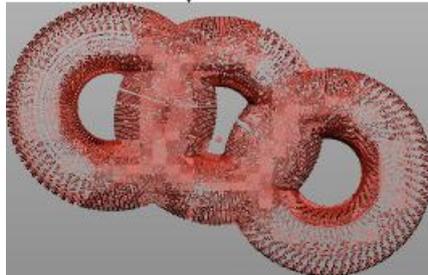
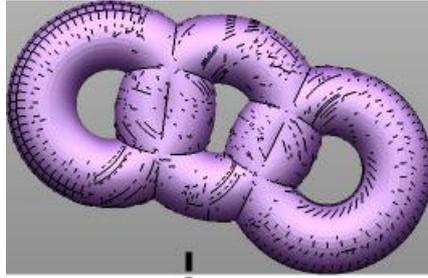
This is the old behaviour of the editing toolbars.

Menus

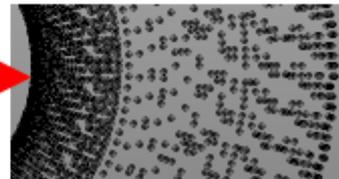
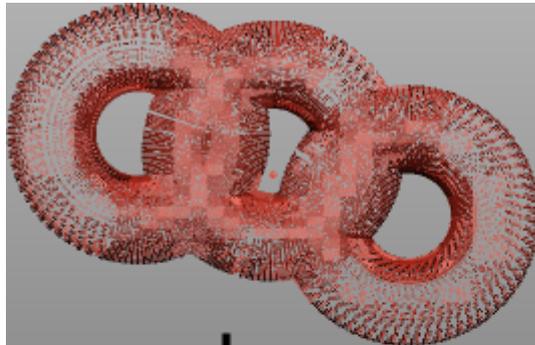
The following options have been added to the PowerSHAPE **Edit** menu:



- Click **Edit > Convert > Selection to Cloud** to convert a group of points or a mesh to a point cloud.



- Click **Edit > Convert > Cloud to Points** to explode a cloud into points.



Direct modelling

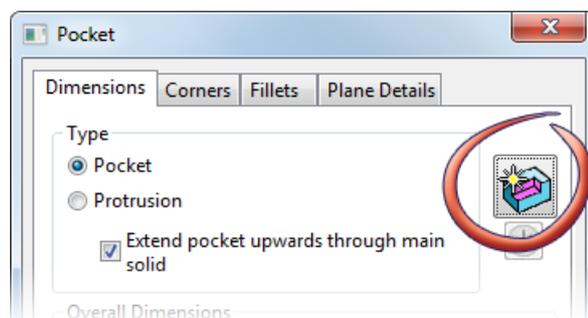
In PowerSHAPE 2012, Direct Modelling has been extended to include:

- Additional solid feature recognition and editing. The following are now included:
 - Pocket/Protrusion (see page 22)
 - Cut (see page 24)
 - Boss (see page 26)
 - Fillet (see page 28)
- Using the following **General Edits** operations on faces of solids:
 - Move (see page 32)
 - Rotate (see page 33)
 - Mirror (see page 36)
 - Scale (see page 38)
 - Offset (see page 40)

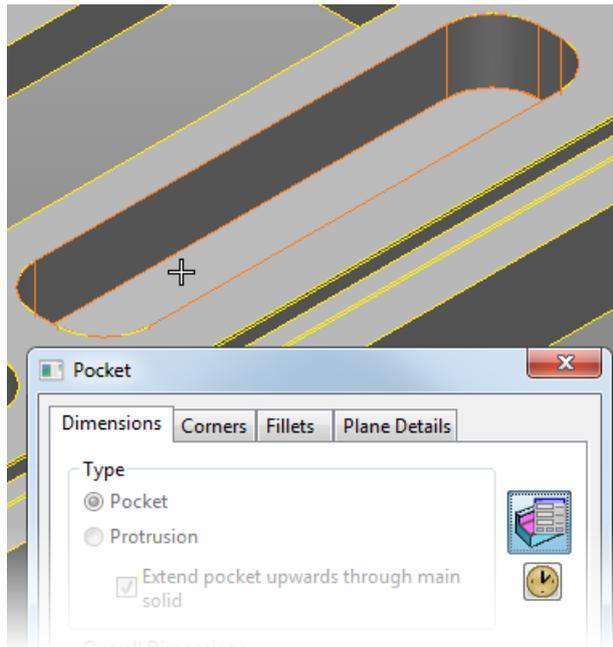
Pocket recognition & editing

Use the **Edit mode**  button on the **Pocket** dialog to identify pocket-like geometry in a solid.

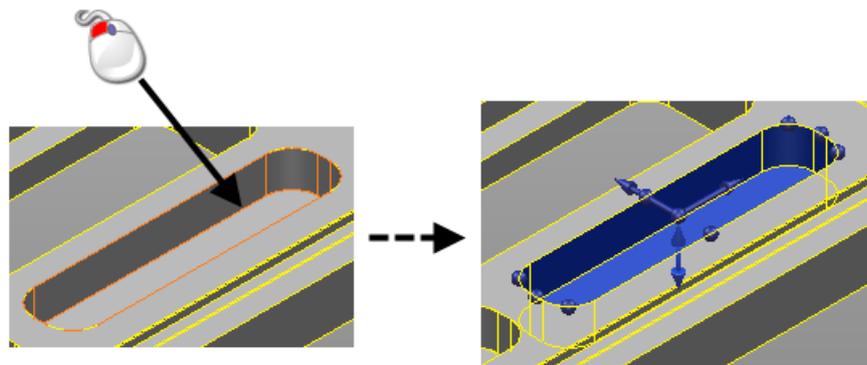
- 1 Click  (*Solid feature toolbar*) to display the **Pocket** dialog.
- 2 Click **Edit mode**  on the **Pocket** dialog.



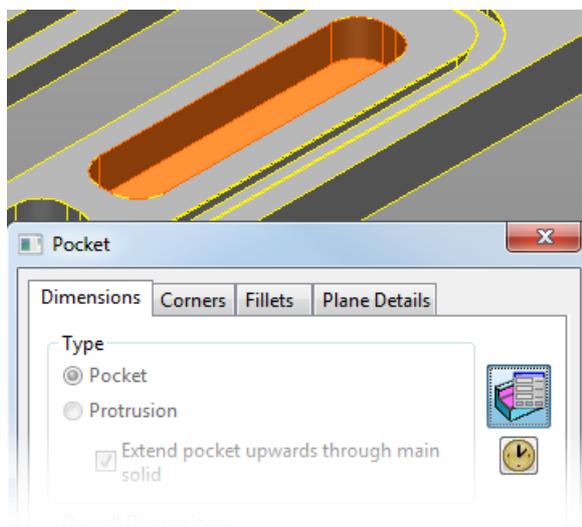
- 3 Move the cursor over the model. Pocket-like geometry on the active solid is highlighted as you move the cursor over the solid.



- 4 Click the required geometry to display the instrumentation.



- 5 Use the **Pocket** dialog to edit the pocket as required.
- 6 Click **Apply** to make the changes and create the pocket feature.



Edit mode remains active.

- 7 Identify more pockets or edit existing pocket features as required.



*If you want to identify multiple pockets or make changes to existing pockets without updating the geometry immediately, click  to turn on **Defer update**. The button changes to  to indicate that **Defer is ON**. Using **Defer** on multiple pockets is quicker because the tree is only updated when you click **OK**.*

- 8 Click one of the following:
 - **Cancel** to close the dialog and cancel any unapplied changes.
 - **OK** to close the dialog and apply any unapplied changes.

The new pocket feature is added to the solid tree.

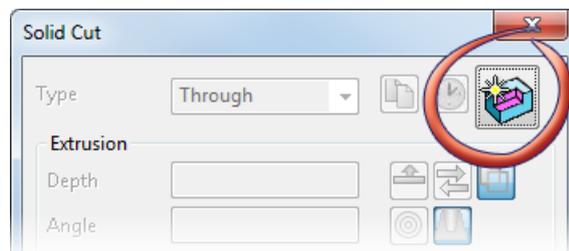


Protrusion recognition and editing works in a similar way.

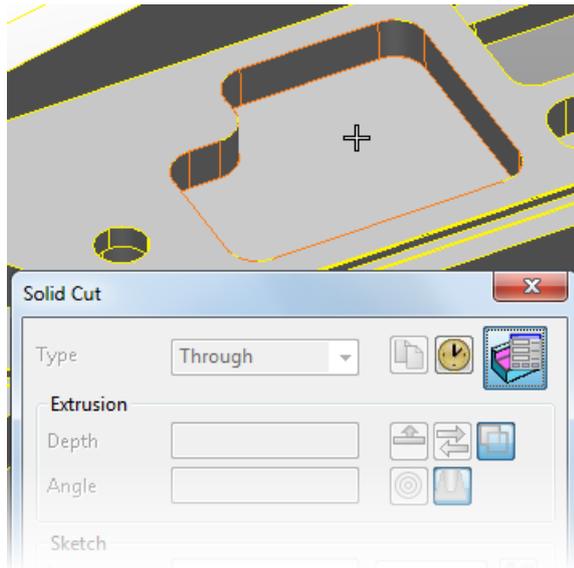
Cut recognition & editing

Use the **Edit mode**  button on the **Cut** dialog to identify cut-like geometry in a solid.

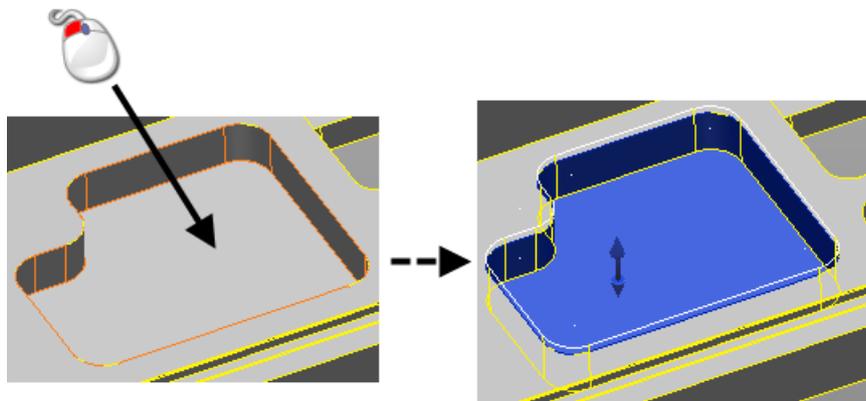
- 1 Click  (*Solid feature toolbar*) to display the **Cut** dialog.
- 2 Click **Edit mode**  on the **Cut** dialog.



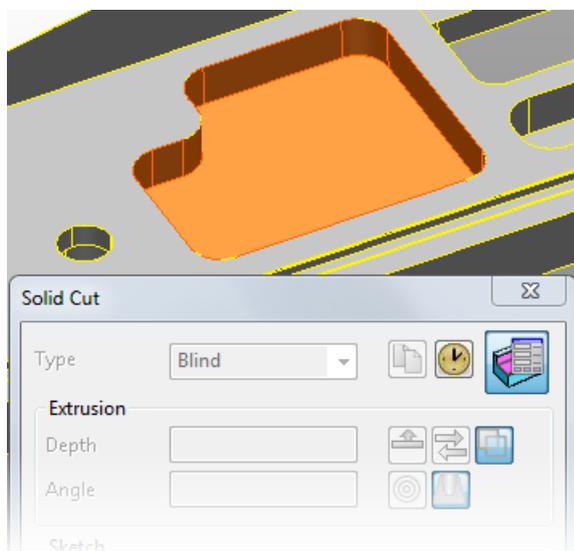
- 3 Move the cursor over the model. Cut-like geometry on the active solid is highlighted as you move the cursor over the solid.



- 4 Click to select the required cut.



- 5 Use the **Cut** dialog to edit the cut as required.
- 6 Click **Apply** to make the changes and create the cut feature.



Edit mode remains active.

- 7 Identify more cuts or edit existing cut features as required.

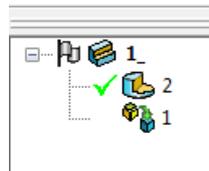


*If you want to identify multiple cuts or make changes to existing cuts without updating the geometry immediately, click  to turn on **Defer update**. The button changes to  to indicate that **Defer** is ON. Using **Defer** on multiple cuts is quicker because the tree is only updated when you click **OK**.*

- 8 Click one of the following:

- **Cancel** to close the dialog cancel any unapplied changes.
- **OK** to close the dialog and apply any unapplied changes.

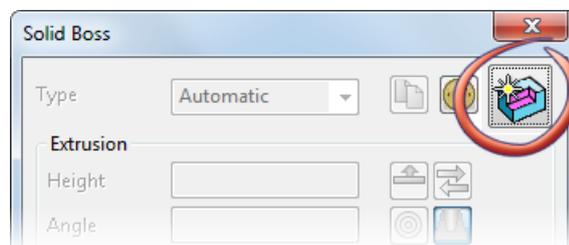
The new cut feature is added to the solid tree.



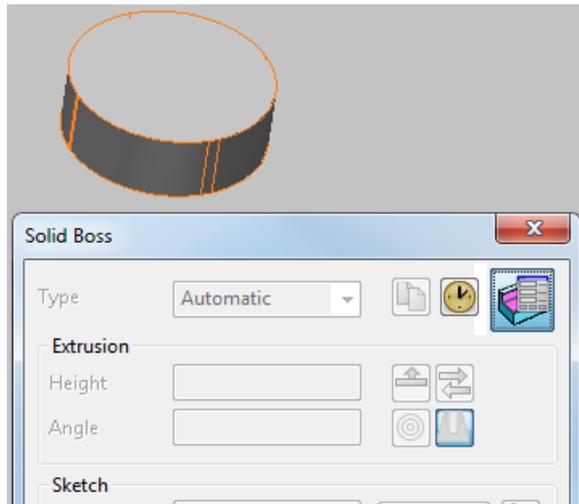
Boss recognition & editing

Use the **Edit mode**  button on the **Boss** dialog to identify boss-like geometry in a solid.

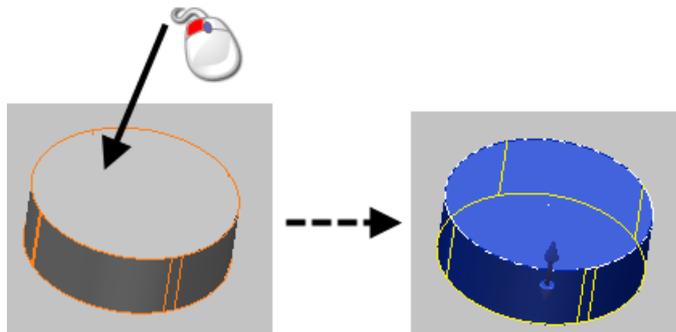
- 1 Click  (*Solid feature toolbar*) to display the **Boss** dialog.
- 2 Click **Edit mode**  on the **Boss** dialog.



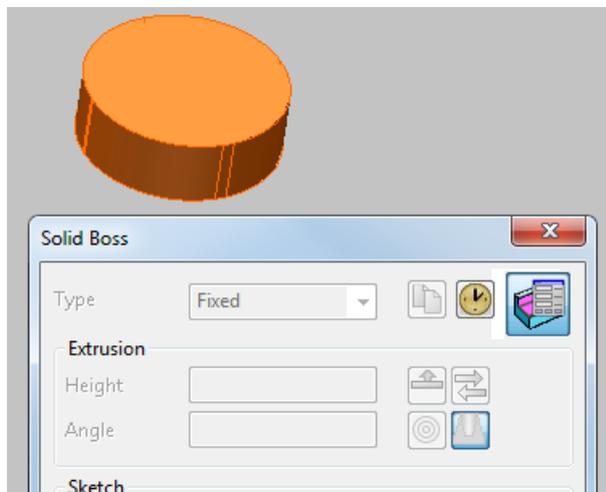
- 3 Move the cursor over the model. Boss-like geometry on the active solid is highlighted as you move the cursor over the solid.



- 4 Click to select the required boss.



- 5 Use the **Boss** dialog to edit the boss as required.
- 6 Click **Apply** to make the changes and create the boss feature.



Edit mode remains active.

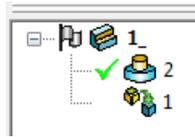
- 7 Identify more bosses or edit existing boss features as required.



If you want to identify multiple bosses or make changes to existing boss without updating the geometry immediately, click  to turn on **Defer update**. The button changes to  to indicate that **Defer** is ON. Using **Defer** on multiple bosses is quicker because the tree is only updated when you click **OK**.

- 8 Click one of the following:
 - **Cancel** to close the dialog cancel any unapplied changes.
 - **OK** to close the dialog and apply any unapplied changes.

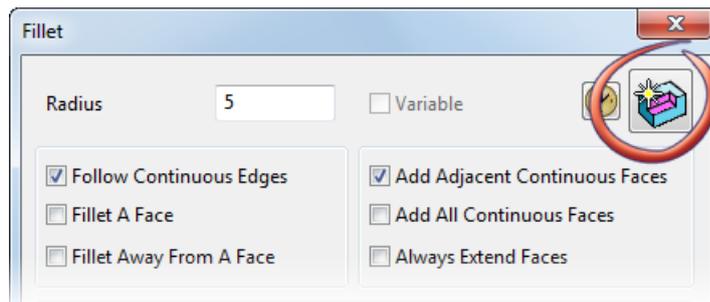
The new boss feature is added to the solid tree.



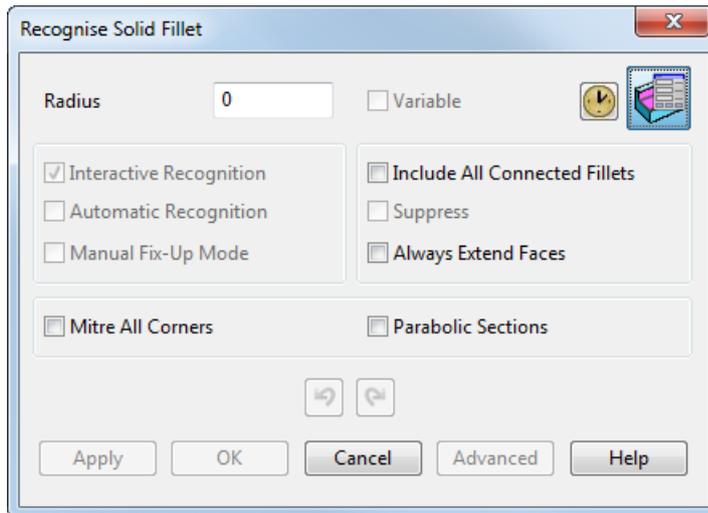
Fillet recognition & editing

Use the **Edit mode**  button on the **Fillet** dialog to identify fillet-like geometry in a solid.

- 1 Click  (*Solid feature toolbar*) to display the **Fillet** dialog.



- 2 Click **Edit mode**  on the **Fillet** dialog to display the **Recognise Solid Fillet** dialog.



- 3 Select the appropriate editing options on the **Recognise Solid Fillet** dialog.

Interactive Recognition to use the cursor to recognise the fillets (default).

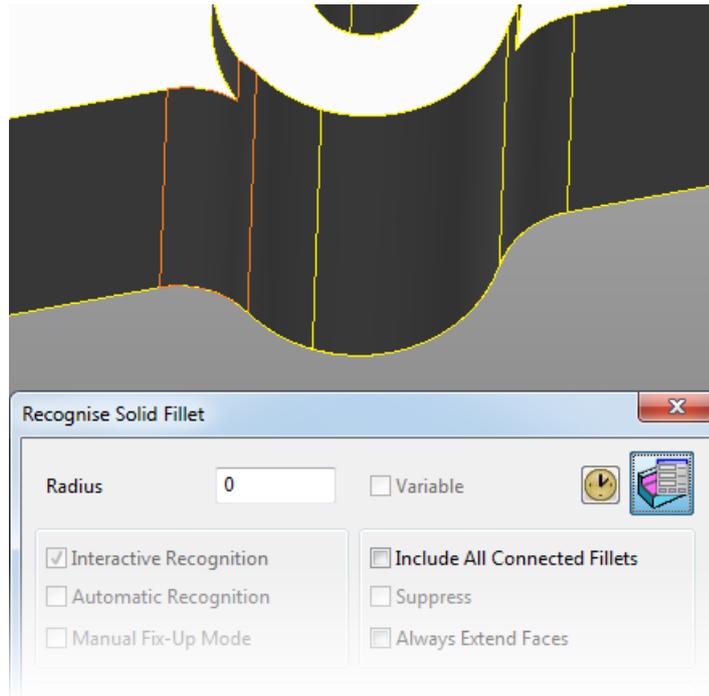
Automatic Recognition to automatically recognise all fillets

Manual Fix-Up Mode to edit the fillet recognition selection.

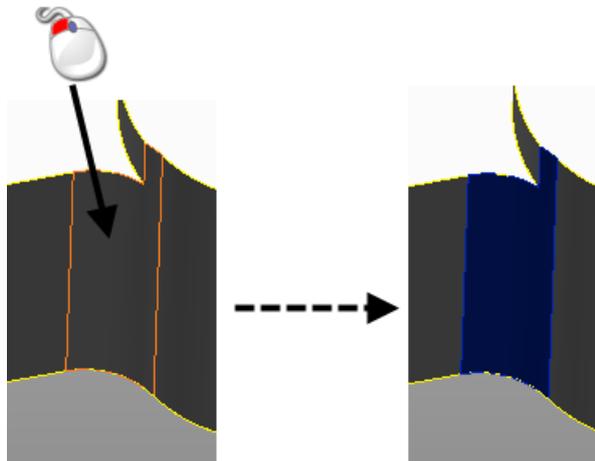
Include All Connected Fillets to include all fillet faces that are directly or indirectly connected.

Suppress to create a suppressed feature, effectively removing the fillet faces and healing the solids.

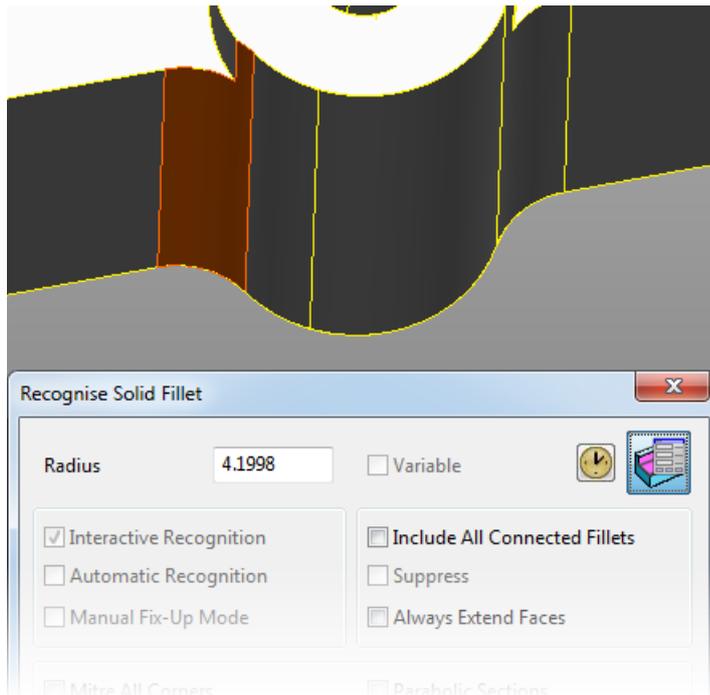
- 4 Move the cursor over the model. Fillets on the active solid are highlighted as you move the cursor over them.



- 5 Click to select the required fillet.



- 6 Click **Apply** to make the changes and create the fillet feature.



Edit mode remains active.

- 7 Identify more fillets or edit existing fillet features as required.

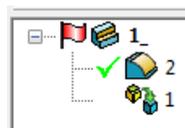


*If you want to identify multiple fillets or make changes to existing fillets without updating the geometry immediately, click  to turn on **Defer update**. The button changes to  to indicate that **Defer** is ON. Using **Defer** on multiple fillets is quicker because the tree is only updated when you click **OK**.*

- 8 Click one of the following:

- **Cancel** to close the dialog cancel any unapplied changes.
- **OK** to close the dialog and apply any unapplied changes.

The new fillet feature is added to the solid tree.



Using General Editing on faces

The following **General Edit** operations can be used on faces of a solid as part of the **Direct Modelling** functionality:

Move (see page 32)

Rotate (see page 33)

Mirror (see page 36)

Offset (see page 40)

Scale (see page 38)

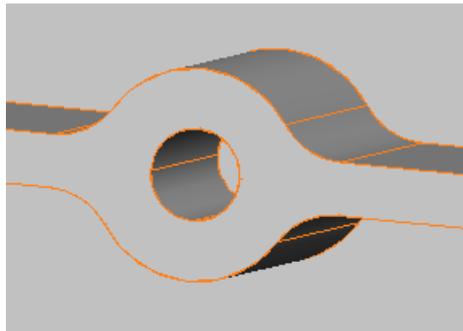


Use **Divide Face** (Solid Edit toolbar) to divide the faces of the selected solid using wireframe. This lets you to limit the effect of general editing operations.

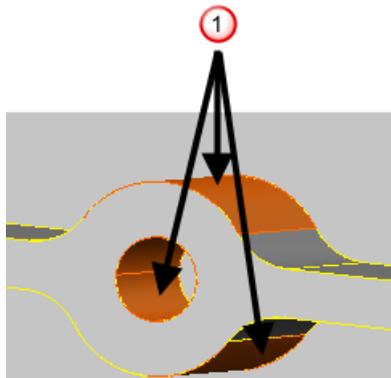
Move - an example

Use **Move**  to move a selected face.

- 1 Zoom in and rotate the model so that the details are clearly visible.

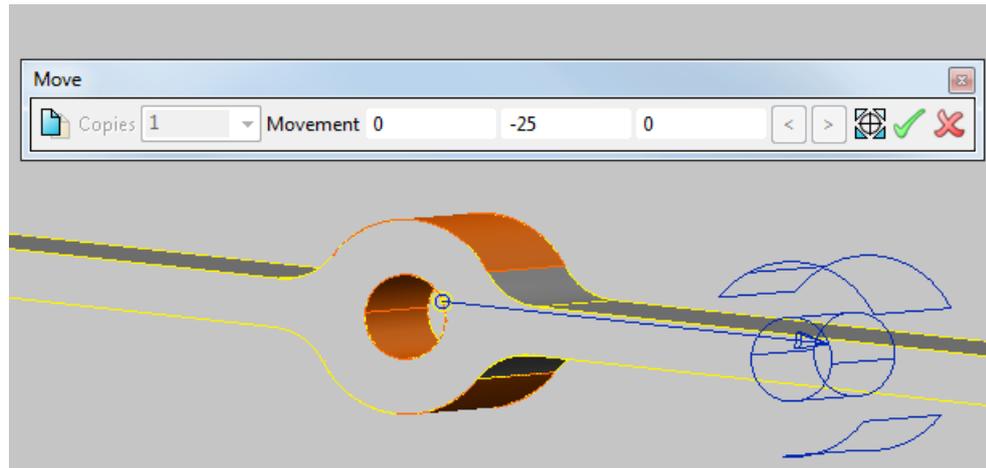


- 2 Select the faces to move .

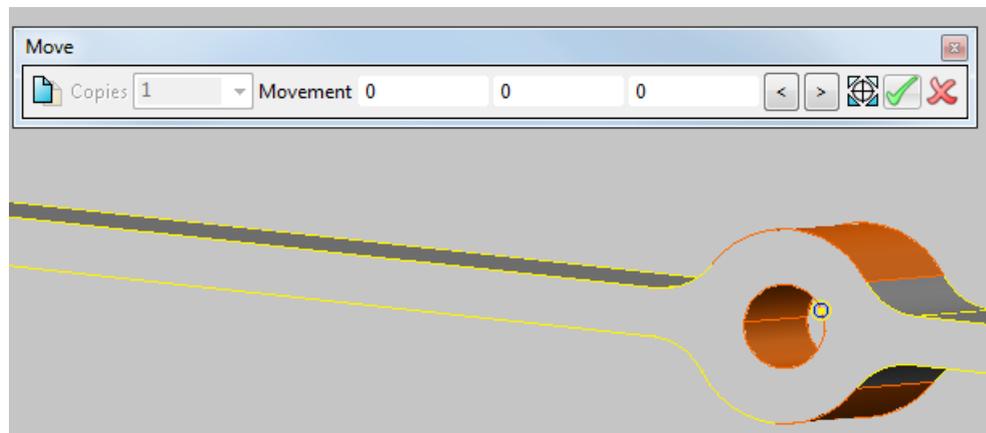


- 3 Click  (*General Edit toolbar*) to display the **Move** toolbar.

- 4 Enter Y value of **-25**. After entering the value, press the **Tab** key. The preview shows the new position, with an arrow indicating the direction of the move from the original.



- 5 Click  to confirm the position

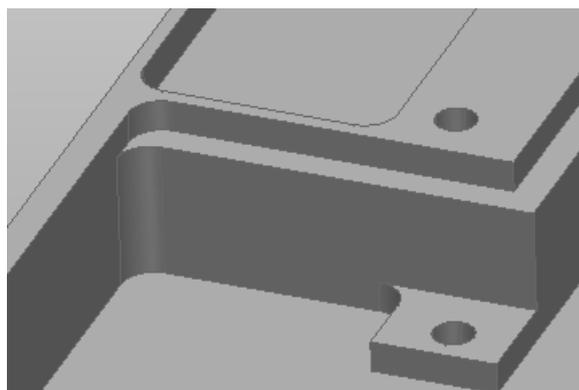


- 6 Click  to close the toolbar.

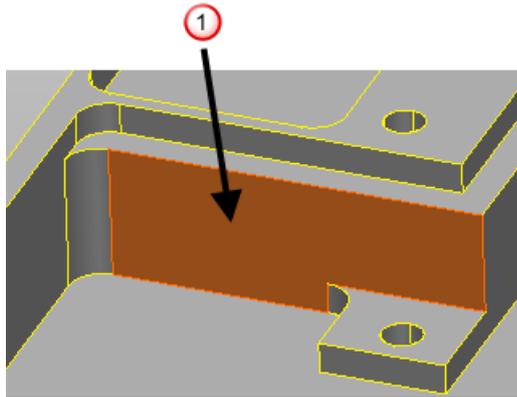
Rotate - an example

Use **Rotate**  to rotate a selected face.

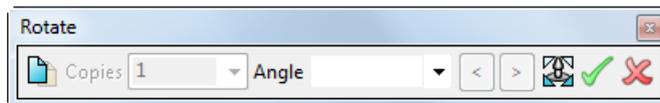
- 1 Zoom in and rotate the model so that the details are clearly visible.



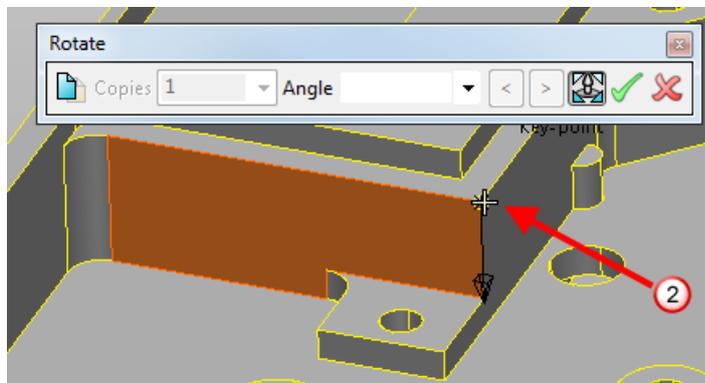
- 2 Select the face to rotate ①.



- 3 Click  (General Edit toolbar) to display the Rotate toolbar.

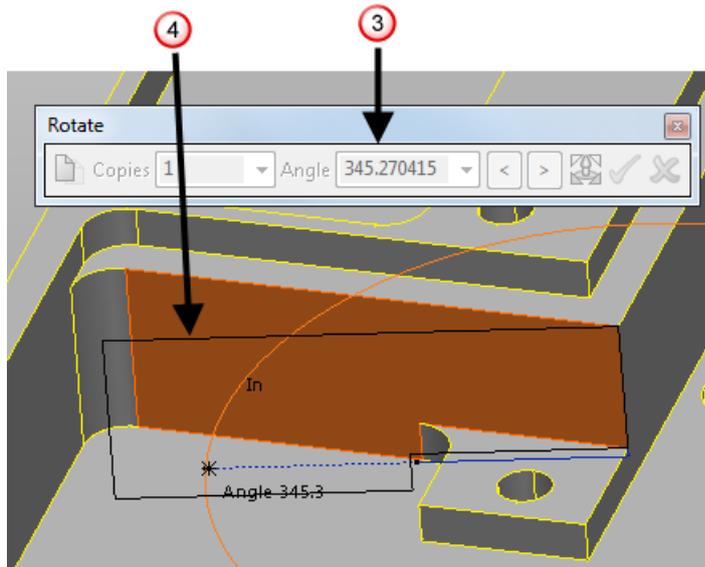


- 4 Click  and define the rotation axis as indicated ②.

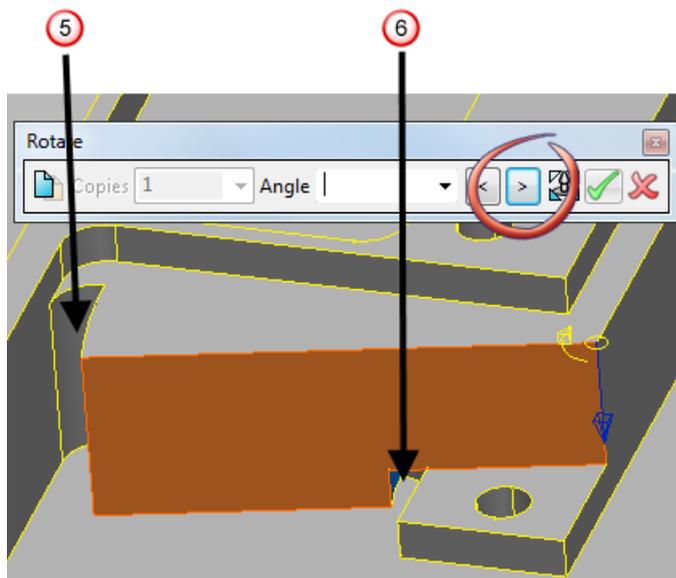


- 5 Click the face and drag the mouse to rotate the face around the rotation axis. The instrumentation information shows the updated angle of rotation and changes as you move the mouse. The **Angle** value in the dialog ③ is updated when you release the mouse button.

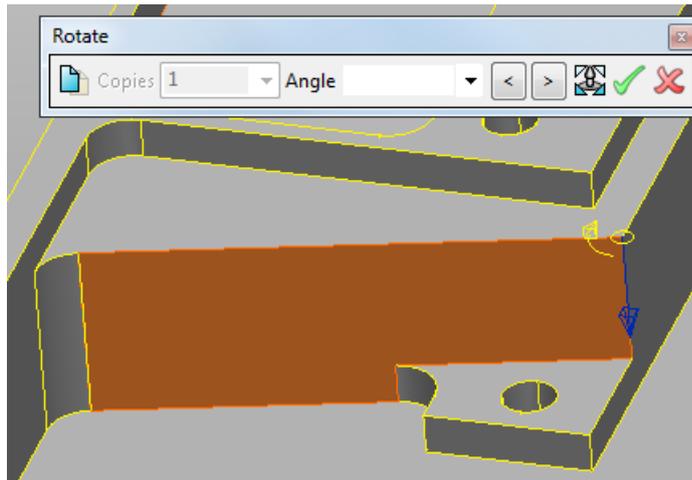
The preview **4** shows the changes that will be made when you apply the specified angle.



6 Click  to update the model. This solution leaves two steps **5** **6**.



- 7 Click  to display the **Next solution** to remove the steps as they aren't required in this example.

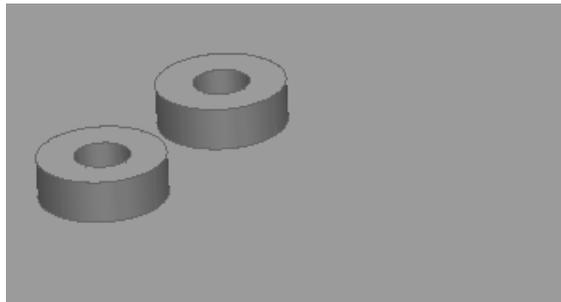


- 8 Click  to close the toolbar.

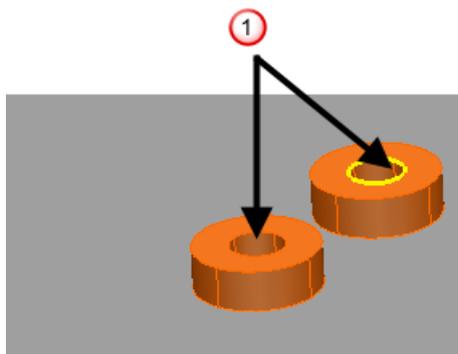
Mirror - an example

Use **Mirror**  to mirror selected faces.

- 1 Zoom in and rotate the model so that the details are clearly visible.



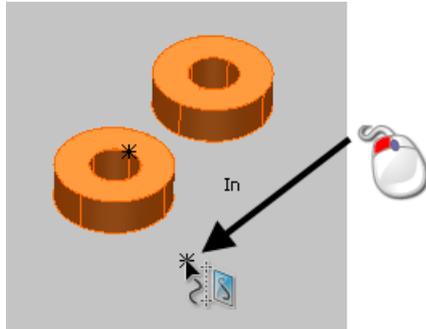
- 2 Select the faces to mirror .



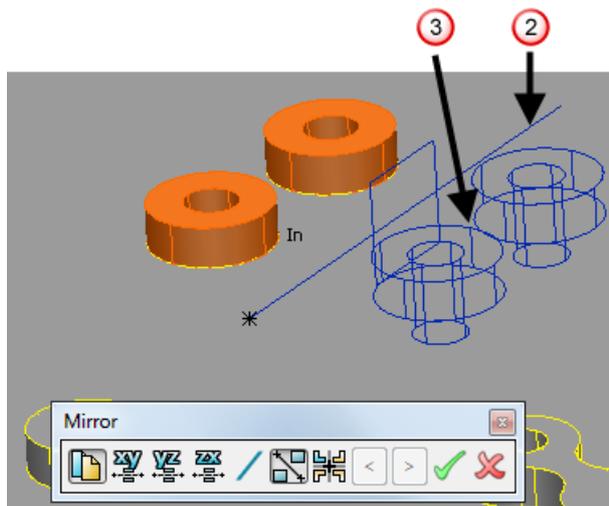
- 3 Click  (*General Edit toolbar*) to display the **Mirror** toolbar.



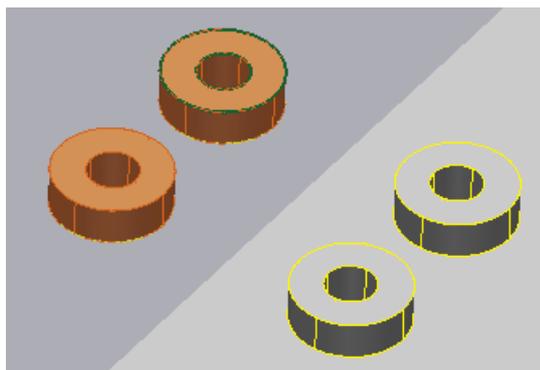
- 4 Click . The cursor changes to .
- 5 Click to define the start point of the mirror plane. As you move the mouse, the line and the mirrored objects are displayed.



- 6 Click to define the end point of the mirror plane. The mirror plane is displayed  with a preview of the mirrored object .



- 7 Click  to update the model.

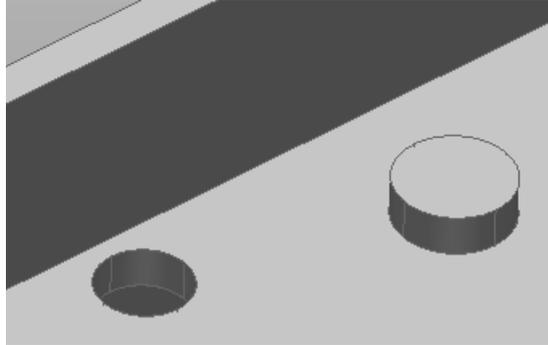


- 8 Click  to close the toolbar.

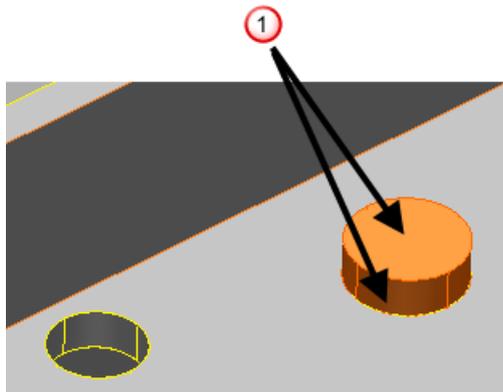
Scale - an example

Use **Scale**  to move a selected face.

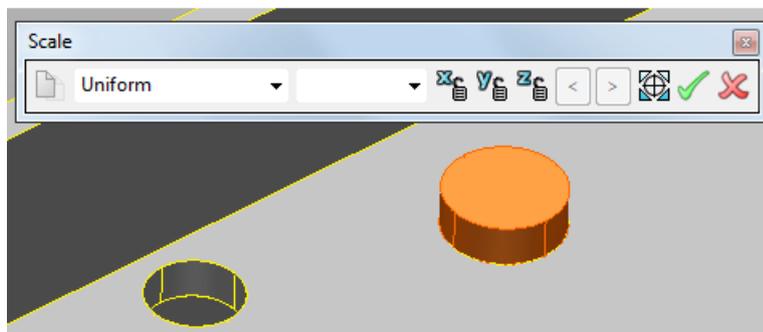
- 1 Zoom in and rotate the model so that the details are clearly visible.



- 2 Select the faces to scale .

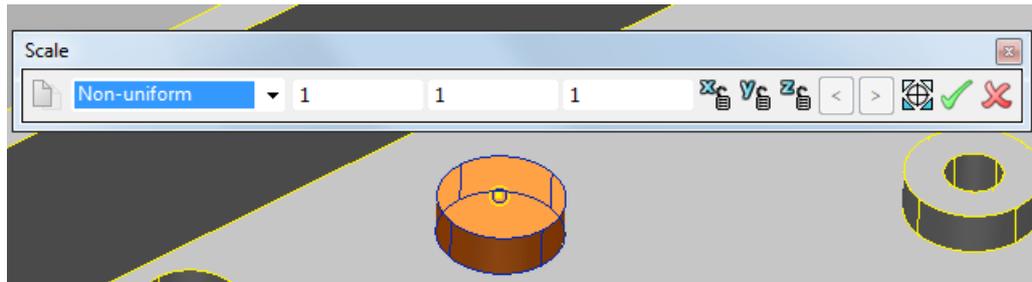


- 3 Click **Scale**  (*General Edit toolbar*) to display the **Scale** toolbar.



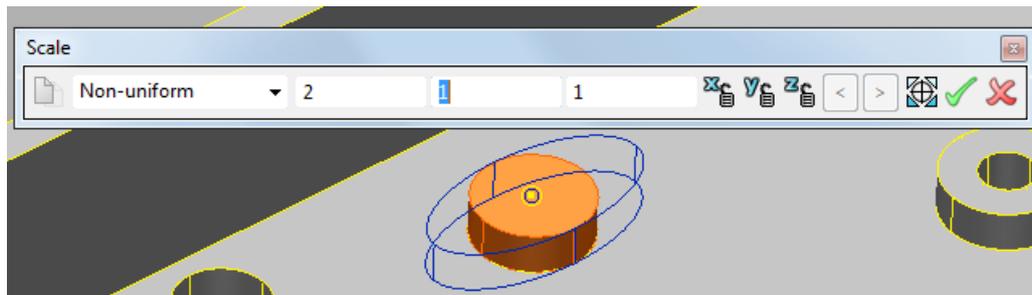
- 4 Select **Non-uniform** from the drop-down list.

- 5 Click  and click the centre of the selection to create a scale origin. The **Scale** toolbar is updated.

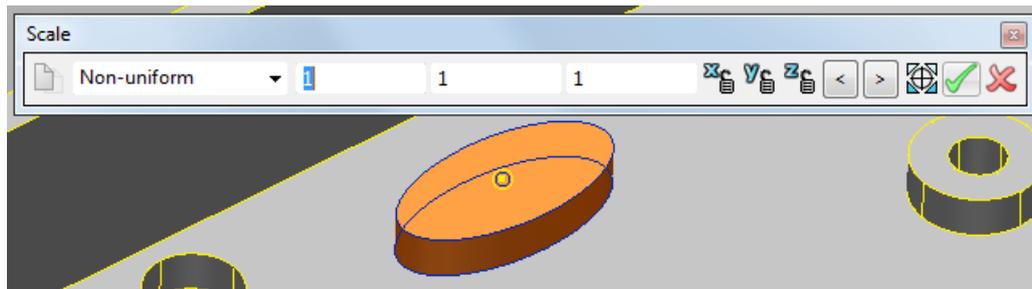


- 6 Enter an X value of **2** as the scaling factor.. After entering the value, press the **Tab** key.

The preview displays the changes that will be made when the scaling factor is applied.



- 7 Click  to apply the scaling factor and update the model.

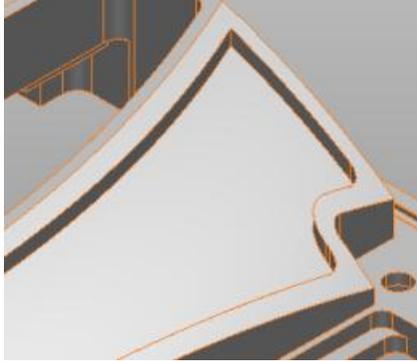


- 8 Click  to close the toolbar.

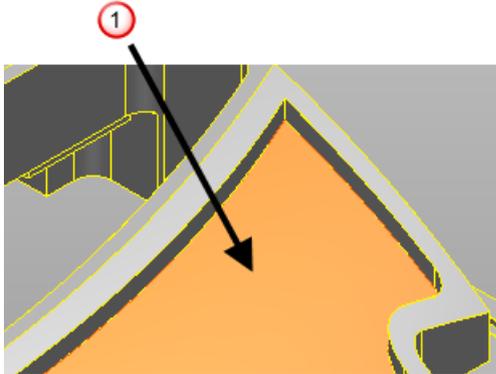
Offset - an example

Use **Offset**  to offset the selected faces by a specified distance.

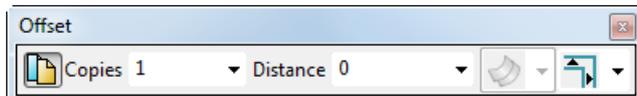
- 1 Zoom in and rotate the model to make the details clearly visible.



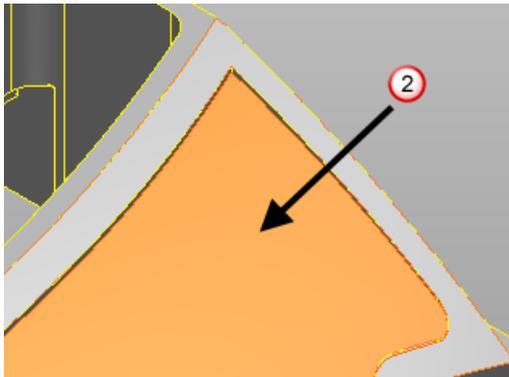
- 2 Select the face offset .



- 3 Click  (*General Edit toolbar*) to display the **Offset** toolbar.



- 4 Enter a **Distance** of 3. The face is updated .



- 5 Click  to close the toolbar.

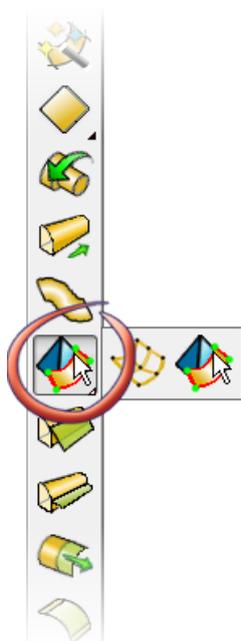
Surface modelling

Changes have been made to the following:

- Mesh surfacing (see page 41).
- PowerSHAPE checks that you have an appropriate licence when you try to use **Draft surfacing**. An error message is displayed if the appropriate licence is not available.

Mesh surfacing

- The surfacing toolbar has been updated to display **Mesh surfacing** as the default button on the **Mesh surfacing/Surface from Patches** flyout.



- The **Mesh surfacing** toolbar has been updated to include:
 - ① Separate **Tol** field for meshing tolerance.
 - ② Updated **Show/hide deviations** button.

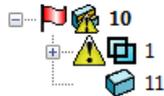


- **Undo** and **Redo** are available when you create a surface using the **Mesh surfacing** button.
- You can now enter a value of **0** for **U** and **V** to choose to insert zero laterals and longitudinal.

Solid modelling

Changes have been made to the following areas of solid modelling:

- Solid Edit toolbar (see page 42) has a new button and updated functionality.
- In the solid tree, a warning triangle is now displayed next to a solid whose tree contains any error-suppressed features.



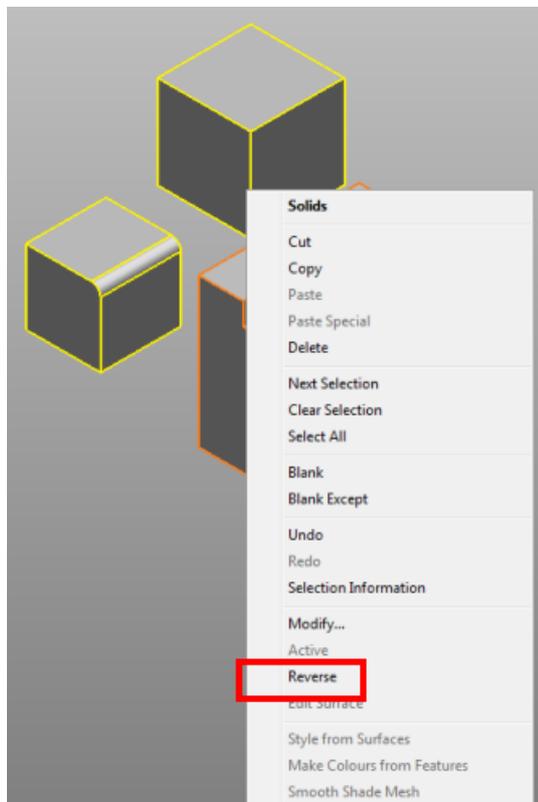
- **Split solid** (*Solid feature toolbar*) now lets you use a solid face as well as a workplane, solid or surface.

1 Select a solid.

2 Click to select one of the faces of the selected solid.

3 Click the **Split solid**  (*Solid feature toolbar*).

- When multiple solids are selected, **Reverse** is now available on the **Solid** popup menu.

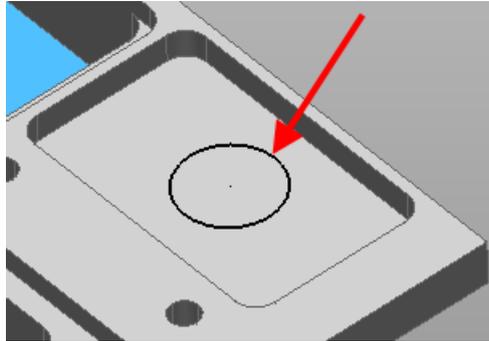


Solid Edit toolbar

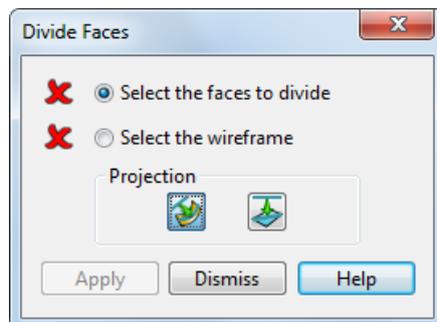
The following changes have been made to the **Solid Edit** toolbar:

Use this functionality to divide the faces of the selected solid using wireframe. This option is useful if you need to make small, localised changes, or to limit the effect of Direct Modelling editing operations (see page 32).

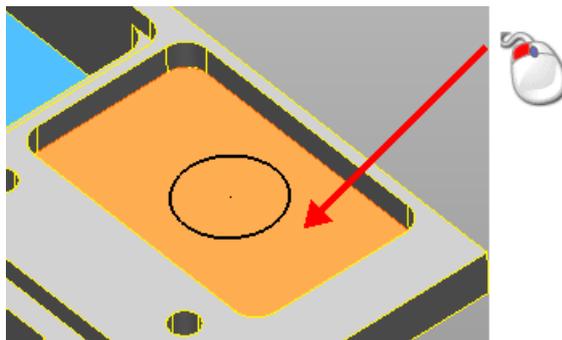
- 1 Create the wireframe that will be used to divide the face.



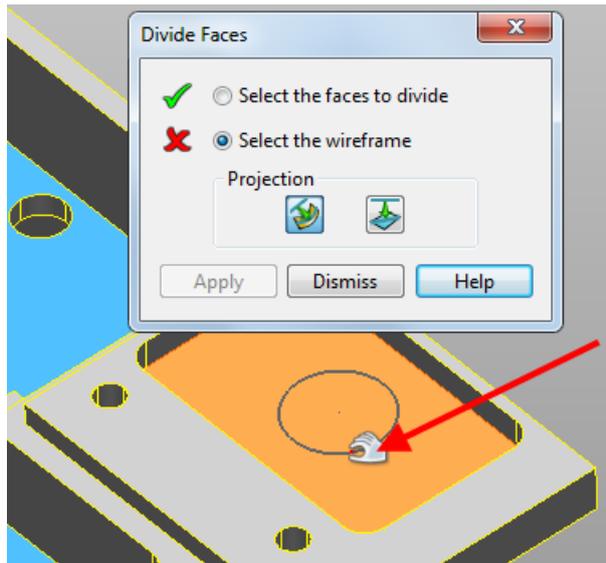
- 2 Click  (*Solid Edit toolbar*) to display the **Divide Faces** dialog.



- 3 Select the face to divide.



4 Select the wireframe.

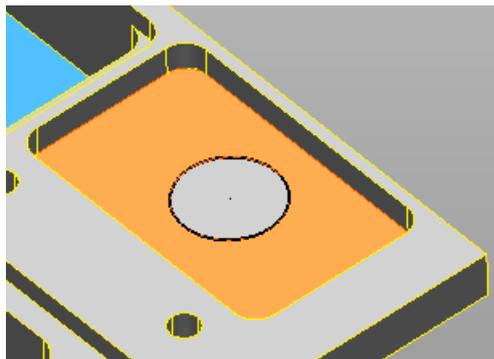


5 Select an appropriate projection option. **Project wireframe along face normal** is the default setting.

6 Click **Apply**. If you want to split another face, you can do this without closing the dialog.

7 Click **Dismiss**.

8 Move the cursor over the face to show the divided face or click one of the faces.



If you have an example where the wireframe does not completely divide the face, the Operation Fault report will be displayed. Add additional wireframe and repeat the divide face operation using both the original and additional wireframe.

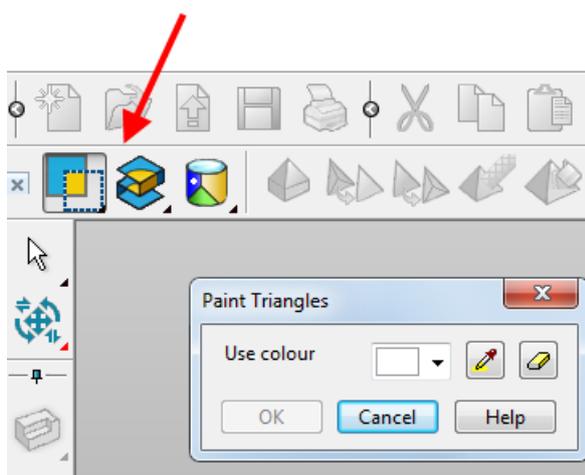
Triangle modelling

Changes have been made to the following areas of triangle modelling:

- Files imported that contain grouped points will be imported as clouds. If the points are not in a group then individual point entities will be created.
- You can now copy items from PowerINSPECT as a cloud and paste into PowerSHAPE.
- When creating a curve that is snapped to a mesh, enter a **Value** of **0** to create a curve with zero breakpoints.
- Error messages are displayed in the following circumstances:
 - If you try to use **Divide mesh by colour** with no colour selected.
 - If you try to use **Divide mesh by selection** without selecting any triangles.

Paint triangles

When the **Paint triangles** dialog is displayed, the triangle selection tools are available from the flyout on the **Mesh Edit** toolbar.



- 1 Choose the colour from the **Paint Triangles** dialog.
- 2 Choose the method of triangle selection (for example, distance, horizon angle, discontinuity angle).
- 3 Pick the triangles using your chosen method. The triangles are painted in the colour indicated in the **Paint Triangles** dialog.
- 4 Click **OK** on the **Paint** dialog to paint the selection.



Selecting triangles and colouring them in this way is useful for dividing the mesh. Once the triangles are painted, use  to divide the mesh by colour.

Assembly modelling

Changes have been made to the following areas of assembly modelling:

- **Modify Properties** dialog (see page 48).
- A component selection button has been added to the **Select** flyout. This selects components and instances of sub-assemblies.



- Highlighting of components has improved when using the popup menus to modify components.

Move the mouse over the popup menu buttons to highlight the components that will be modified with the following:

- Component popup menu (assembly tree or graphics area):
 - All Instances > Modify Geometry**
 - All Instances > Modify Parameters**
 - All Instances > Modify Properties**
- Component library popup menu:
 - Modify > Geometry**
 - Modify > Parameters**
 - Modify > Properties**

Modify Properties dialog

- Both component and component definition properties are displayed when the **Modify Properties** dialog is displayed for a component.

Component definition properties are inherited by all instances of the component definition. Individual component instances can, optionally, overwrite the default property values set by the component definition.

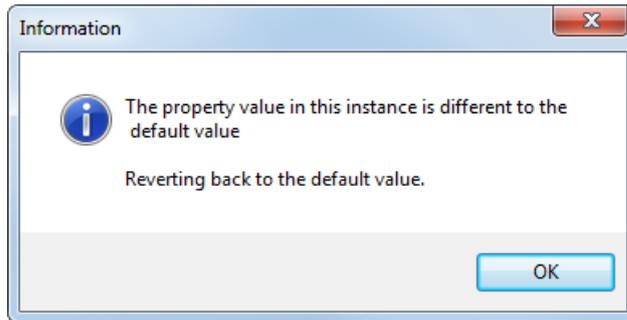


Name is case-sensitive, so "Width_1" is not the same as "width_1"

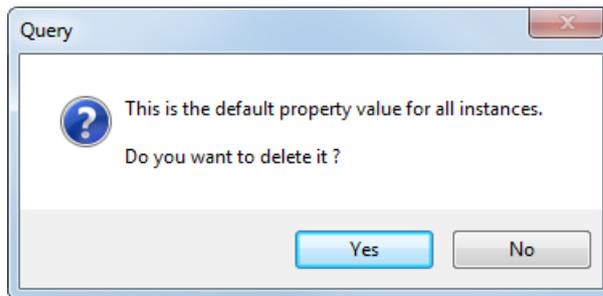
- **Information** or **Query** dialogs are displayed if you attempt to use the **Modify Properties** dialog to delete or rename a property when this action could have unexpected consequences.

The relevant query dialog is displayed if you try to do one of the following:

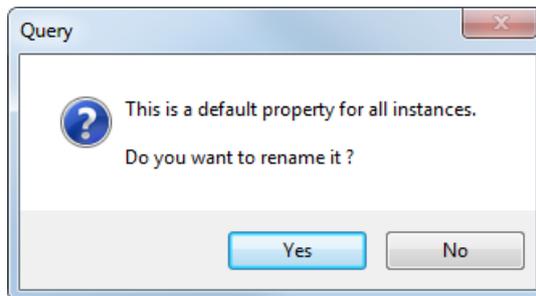
- Delete a property defined in the component and component definition.



- Delete a property defined in the component definition only:



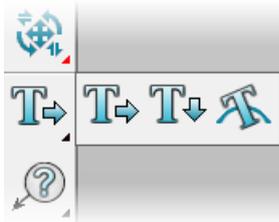
- Rename a property defined in the component definition.



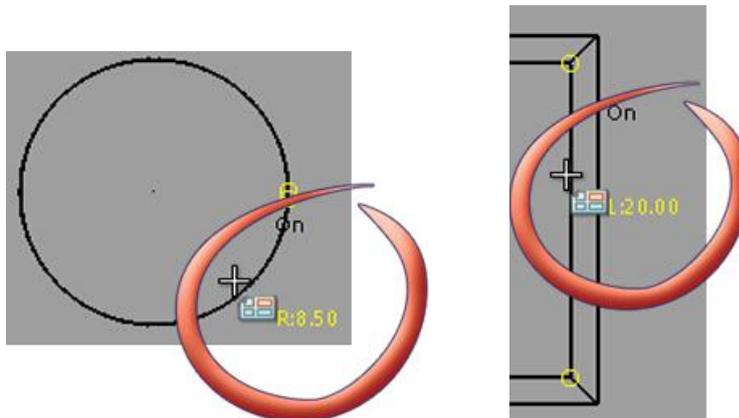
Delcam Draft

The following changes have been made to drafting functionality:

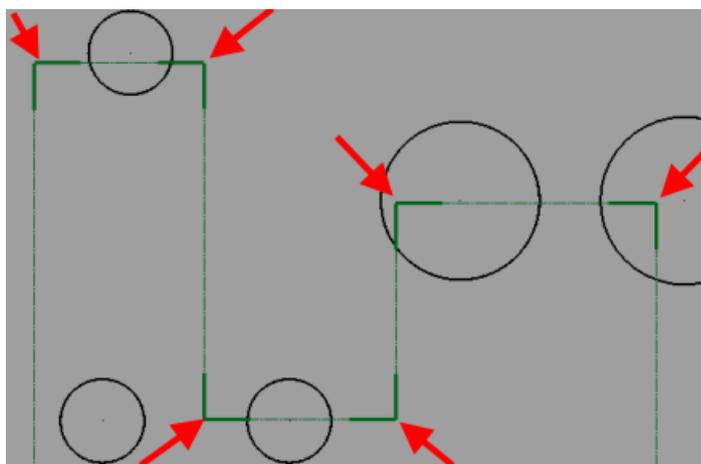
- Text creation buttons (*Annotation toolbar*) have been re-styled.



- Arc and line lengths are displayed on the cursor when creating dimensions.



- Bold corners have been added to stepped section lines.



Delcam Render

Changes have been made to the following areas of Delcam Render:

- POV-Ray is now the default **Render system**. Lightworks is no longer available from the **Render system** drop-down list on the **Render** dialog.

If POV-Ray is not already installed, it can be installed from the PowerSHAPE installer.

- PowerSHAPE will attempt to check the POV-Ray settings before launching POV-Ray and change the input/output restrictions where appropriate. If you do not install POV-Ray in the default location, a dialog is displayed to enable you to set the input/output restrictions manually.
- Create rendered movie is now only available if POV-Ray is installed.

Other changes

Changes have been made to the following areas of PowerSHAPE:

- Graphic formats (see page 51).
- Variables (see page 52).
- General operation (see page 52).

Graphic formats

Two resources have been added to control the image formats used in *.psmodel* files.

- In the previous versions of PowerSHAPE, all label images were stored as *.tifs*, that could result in large model files. In PowerSHAPE 2012 you can, optionally, store the model version 23 images in the format that will be used in the next model version:
 - images that originated in *.jpg* files are stored as *.jpgs* in the model file
 - images that originated in lossless files such as *.tif* or *.png* are stored as *.pngs*.

To enable this behaviour, uncomment the **lossy_in_23** resource in the *powershape.con* file and restart the program.

This change results in much smaller model files. This action is only required for version 23 models created with PowerSHAPE 2012 or later. Future model versions will incorporate this change when creating models.



PowerSHAPE 2011 R3 used version 23 models; images from this version of PowerSHAPE store the images in the same way as they were in model version 22.



Models using this resource that are saved using model version 23 in PowerSHAPE 2012, will not be readable by previous versions of PowerSHAPE. However, exporting such models to model version 22 creates psmodels that are valid for all model version 23 and later.



Models that are written using this resource can be read by PowerSHAPE 2012, irrespective of the settings in the .con file.

- From PowerSHAPE 2012 onwards, you can force lossless images to be stored in the .tiff format.

To enable this behaviour, uncomment the **use_tiff_for_labels: true** resource in the *powershape.con* file and restart the program.

Variables

Use **VAR_NAME** and **NAME** variables to rename the following:

- lines.
- chamfers.
- arcs.
- curves.
- composite curves.
- points.
- primitive surfaces.
- general surfaces.
- primitive solids.
- general solids.
- workplanes.

Other changes

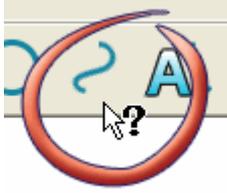
- The *.dmp* files that are created in the *temp* directory if PowerSHAPE crashes are now named using the following format:

PowerSHAPEXXXXXx32_yyyymmdd-hhmmss.dmp (32-bit PowerSHAPE)

PowerSHAPEXXXXXx64_yyyymmdd-hhmmss.dmp(64-bit PowerSHAPE)

Please send these files to Delcam support when reporting problems.

- Use **Shift + F1** to display context-sensitive Help when used with 64-bit versions of Windows 7.



- Use **Copy / Paste** techniques to transfer solid and surface geometry as Parasolid (.x_t) data to FeatureCAM.

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