

# Creating shapes for use with HarnWare and adding them to a stencil

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## 1 Introduction

You can set up your own shapes and if you wish HarnWare to recognise the shape in the part selection, wire routing and parts listing processes you will need to add the correct information to the shape in the data1 field. The Tools>Create shape menu option assists with certain aspects of creating your own shapes for use with HarnWare.

Before selecting this menu option a single shape or group should be selected in Visio. As some of the changes made by this option cannot be undone, it is advisable to make a copy of your shape before using this option.

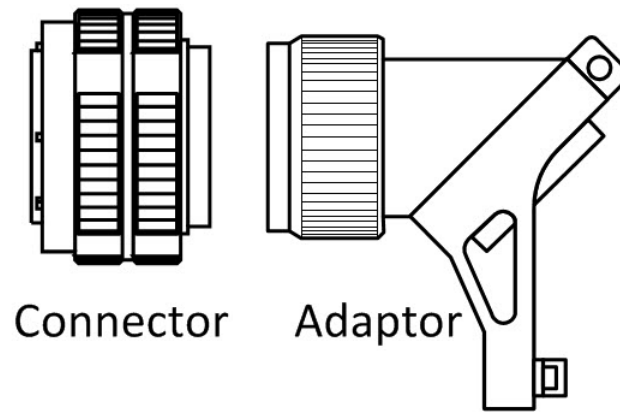
The more common part classes (connectors, adaptors, etc) are listed and when selected provide a basic setting for the shape Data1 field which is used to store most of the data used by HarnWare.

## 2 Drawing a shape

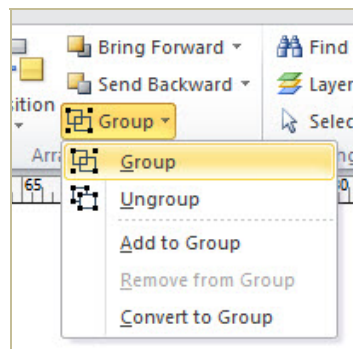
When drawing shapes for parts such as connectors or adaptors you may need to omit the geometry which is normally hidden when assembled with a boot.

If possible keep the drawing symmetrical about the part centre line. If not, try adding two connection points and use the 'Twist shape' option to realign the shape.

Generally shapes should be drawn with closed lines which can be filled to help shape selection in Visio.



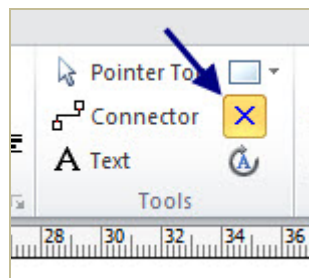
Finished shapes must be grouped using the ‘Ctrl + Shift’ and ‘G’ command or by using the menu option Home>Arrange>Group.

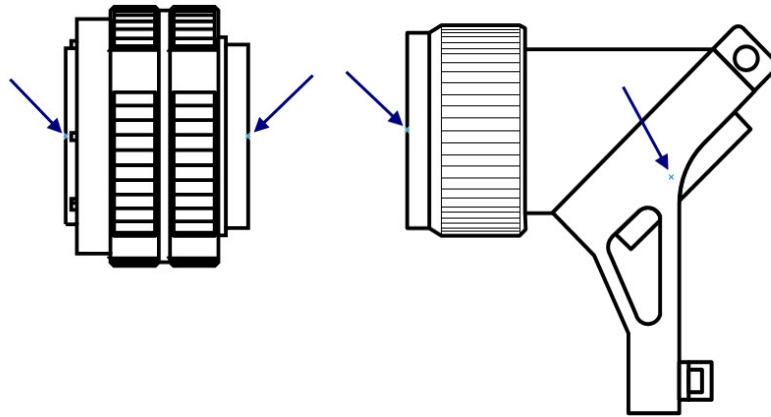


### 3 Adding connection points

The opening positions in the part are indicated by two connection points which must be added to the shape. In the case of a straight part, try to keep the drawing symmetrical about the part centre line. For angled parts position the connection points at the opening positions.

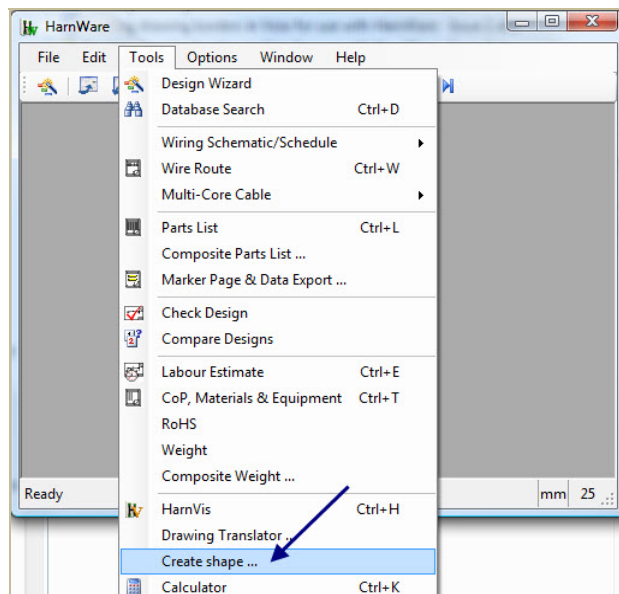
The connection point tool can be found in the menu option Home>Tools>Connection point. Hold the Ctrl key and click where you want to add, move, or delete a connection point.



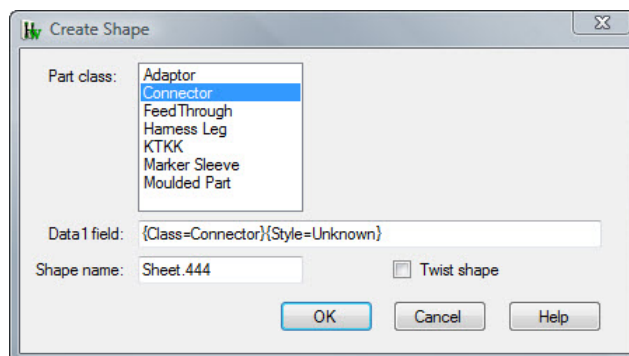


## 4 Using the HarnWare 'Create Shape' option

The HarnWare>Tools>Create Shape menu option assists with the main aspects of creating your own shapes for use with HarnWare.

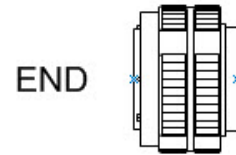


Before selecting this menu option a single shape or group should be selected in Visio. As some of the changes made by this option cannot be undone, it is advisable to make a copy of your shape before use.

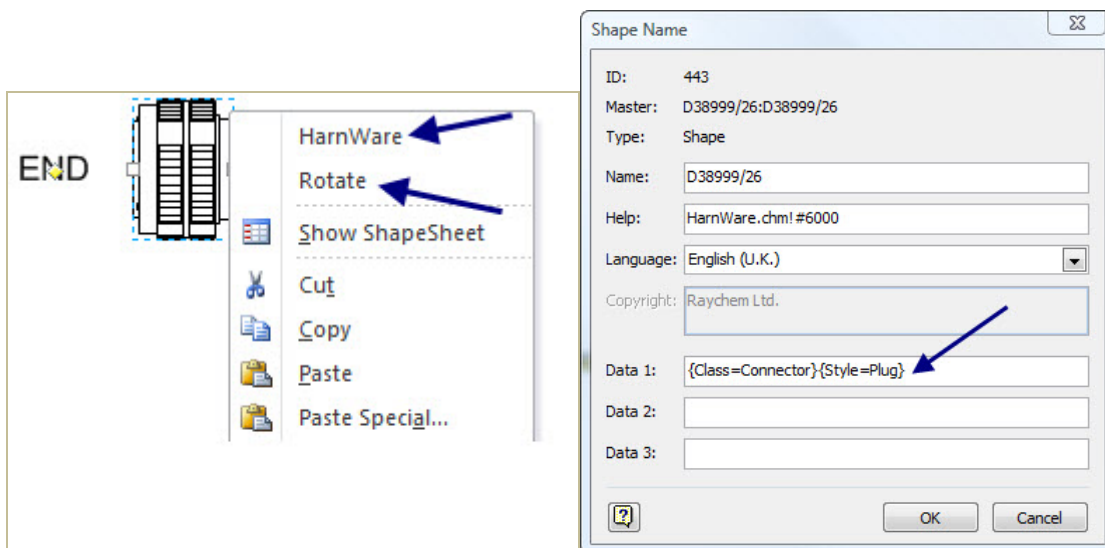
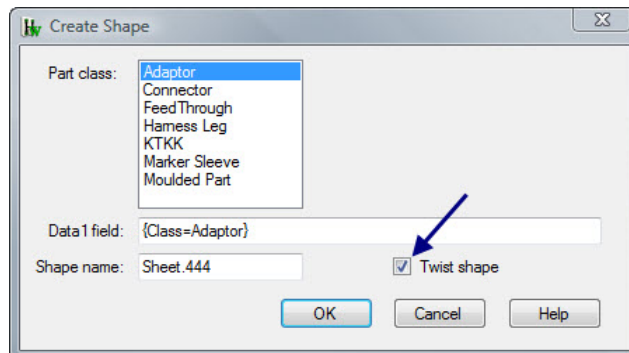
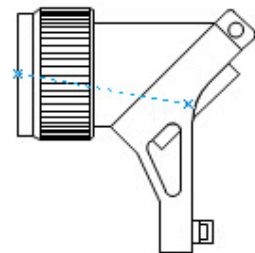


Clicking 'OK' causes:

- The shape to be converted into a One D shape
- Protection to be added to the width, height and aspect ratio
- Right-click and double-click menu options to be added for opening the shape in HarnWare and for accessing the Rotate option
- The shape data1 field to be set to the specified text
- The shape name to be set
- If the connector class is selected, a text is added to the shape along with a control handle to control its position. The text angle is also fixed. This text is used for the connector reference.



The 'Twist shape' option is typically used for angled adaptors or boots where the begin and end points of the One D shape need to be adjusted to the positions of the openings in the part. As part of the twist shape operation the shape height is set to zero so when the shape is selected or dragged a line connects the begin and end points.



## 5 Data 1 field.

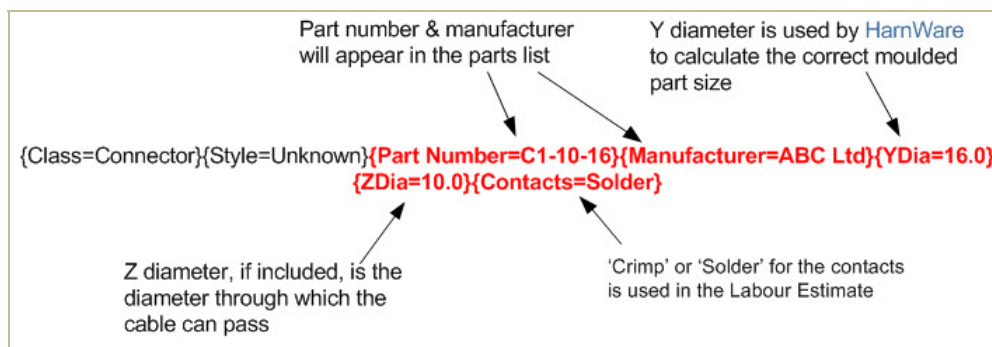
Extra information such as part numbers, dimensions and material details can be stored in the Format Special>Data 1 field (or in Visio 2010 the Shape Name option in the Developer tab), which will save re-entering the same details each time the symbol is used. Each data item in the data1 field is enclosed with '{' '}' brackets.

A useful way to establish these parameters (excepting Y and Z diameters) is to use an existing shape and with HarnWare, search and save data to the shape in the normal manner. Use the Visio 'Format Special' menu option (or in Visio 2010 the Shape Name option in the Developer tab) to inspect the shape's data1 field. If you copy and paste the data1 field into your shape, most of the HarnWare options will recognise it.

Moulded part transitions are more complicated to set up because opening names have to be related to connections. Please contact [HarnWare system support](#) for further advice.

Rules for Data 1 entry are:

- Any combination (or none) of the characteristics shown below in red may be included.
- Each item must be enclosed by curly brackets.
- No spaces or punctuation except within words or variables.



The screenshot shows the 'Shape Name' dialog box with the following fields:

- ID: 4
- Master: <no master >
- Type: Shape
- Name: My Connector
- Help: (empty)
- Language: English (U.K.)
- Copyright: (empty)
- Data 1: {rner=ABC Ltd}{YDia=16.0}{ZDia=10.0}{Contacts=Solder}
- Data 2: (empty)
- Data 3: (empty)

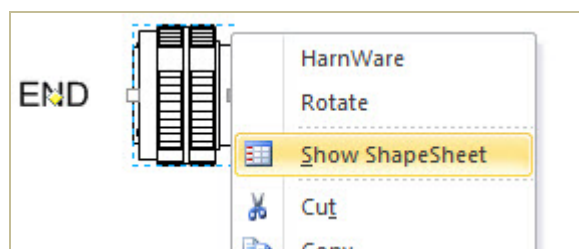
Buttons: ? (Help), OK, Cancel

## 6 Errors

Unfortunately a number of errors can occur while making these types of changes to Visio shapes. A dialog will outline the action causing the problem along with some extra information. This information should help identify the changes you will need to make to your shape. Alternatively please contact [HarnWare system support](#) for advice.

In order to prevent accidental corruption of your shape when an element within the shape is selected, usually when clicked for a second time, and moved, Group Properties>Don't Move Children in the Shape Sheet can be set to 'TRUE' from the default which is 'FALSE'.

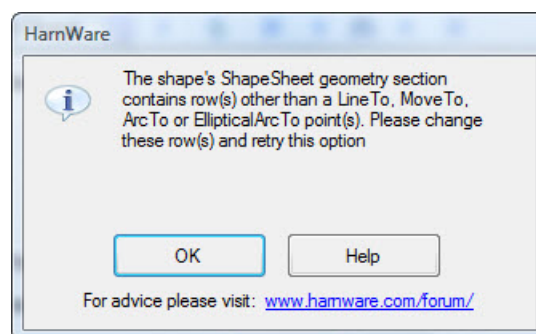
Open the Shape Sheet by right clicking the shape and selecting 'Show Shape Sheet'.



Scroll down to find Group Properties and Edit 'FALSE' to 'TRUE'.

Group Properties			
SelectMode	1	IsTextEditTarget	TRUE
DisplayMode	2	IsSnapTarget	TRUE
		IsDropTarget	FALSE
		DontMoveChildren	TRUE

In certain circumstances you will get an error message as shown below which indicates a line type that is incompatible with the Create Shape tool. The shape may also be corrupted after running 'Create Shape'. The line type must be changed as indicated in the shape's ShapeSheet Geometry section before repeating the Create Shape process (see below).





Geometry 1				
	Geometry1.NoFill	FALSE	Geometry1.NoLine	FALSE
	Name	X	Y	A
1	MoveTo	-2.8448 mm	4.4124 mm	
2	LineTo	16.0655 mm	16.6046 mm	
3	LineTo	25.5483 mm	1.8966 mm	
4	LineTo	19.2449 mm	-2.1675 mm	
5	PolyLineTo	Width*0.6667	Height*0.2183	No Formula
6	PolyLineTo	Width*0.4898	Height*0.4286	No Formula
7	LineTo	2.5739 mm	-3.9922 mm	
8	LineTo	-2.8448 mm	4.4124 mm	

The image shows two overlapping windows from the Visio software. On the left is a table with columns 'Name', 'X', and 'Y'. Row 5 is highlighted, and a context menu is open over it, with 'Change Row Type' selected. On the right is the 'Change Row Type' dialog box, which has radio buttons for different row types: MoveTo, LineTo, ArcTo, EllipticalArcTo, PolyLineTo (which is selected), NURBSTo, SplineStart, SplineKnot, InfiniteLine, and Ellipse. A speech bubble points to the 'PolyLineTo' option with the text: 'Change to 'MoveTo', LineTo, ArcTo, EllipticalArcTo'.

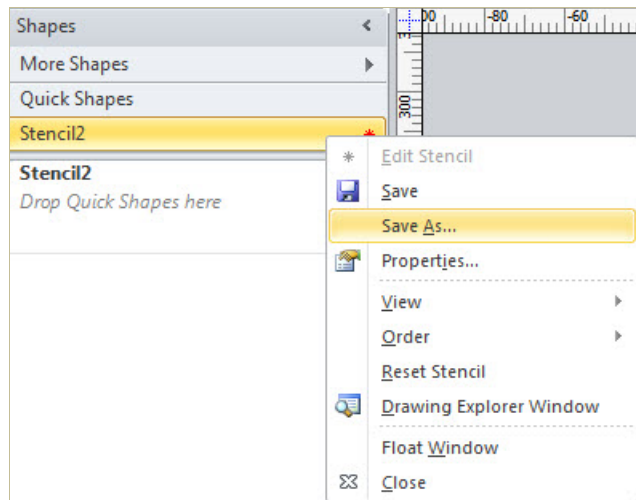
## 7 Stencils

Open a new stencil by clicking More Shapes and selecting New Stencil found at the bottom of the list.

The image shows the Visio Shapes task pane. The 'More Shapes' dropdown menu is open, showing options like 'Blank Page', 'Picture', 'Clip Art', 'Chart', 'CAD Drawing', and 'Cont...'. Below these, there are options for 'Shapes' and 'Where are the shapes?'. The 'More Shapes' dropdown is highlighted, and a blue arrow points to it. In the background, the 'Visio Extras' task pane is visible, with the 'New Stencil (Metric)' option highlighted by another blue arrow.

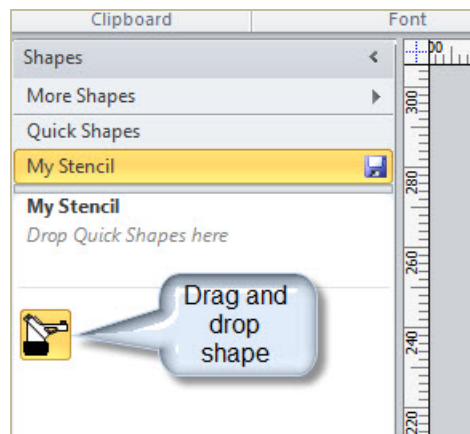
Right click on the heading of the stencil and select 'Save As', rename as 'My Stencil', for example, and save. The stencil remains open for editing until it has been closed for the first time. After this, to edit, right click on the heading and select 'Edit Stencil' from the drop down list.



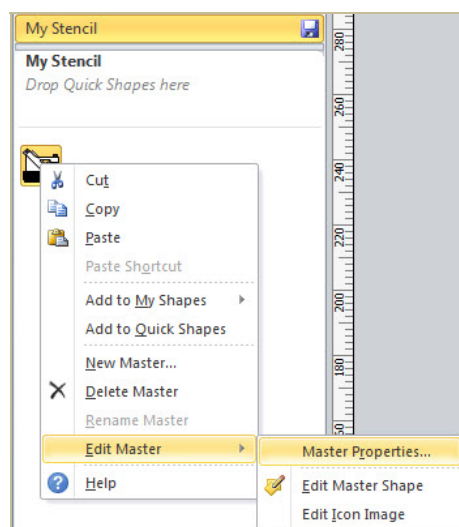


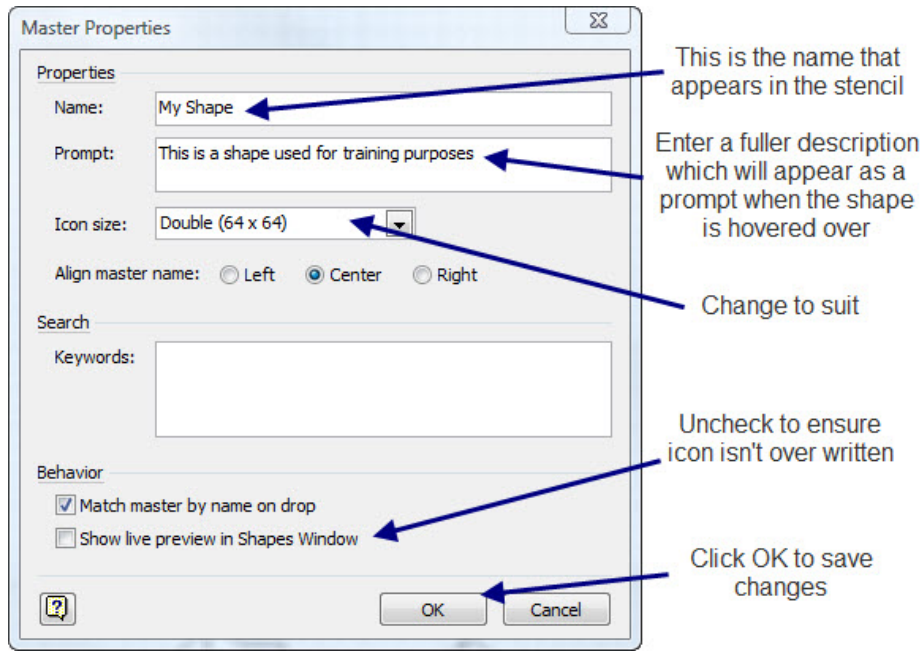
## 8 Adding shapes to a stencil

The easiest way to add a shape to a stencil is simply to drag it on to the stencil which must be open for editing. At that time, an icon is automatically created from the shape.



Right click on the shape and click on 'Edit Master>Master Properties'.





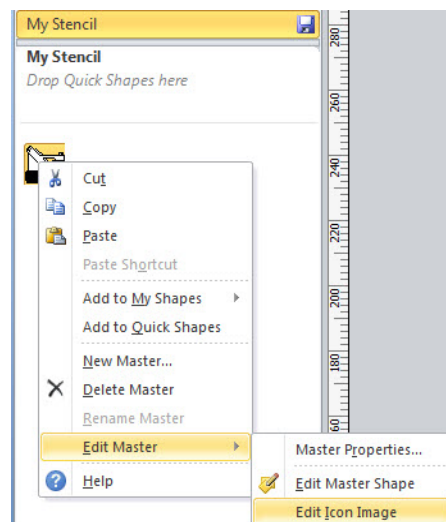
The shape stored in the stencil has three components:

1. The master which appears on the drawing when dragged from the stencil.
2. The icon which is what you see on the stencil.
3. A 'ShapeSheet' which may be modified to provide an automatic link to HarnWare.

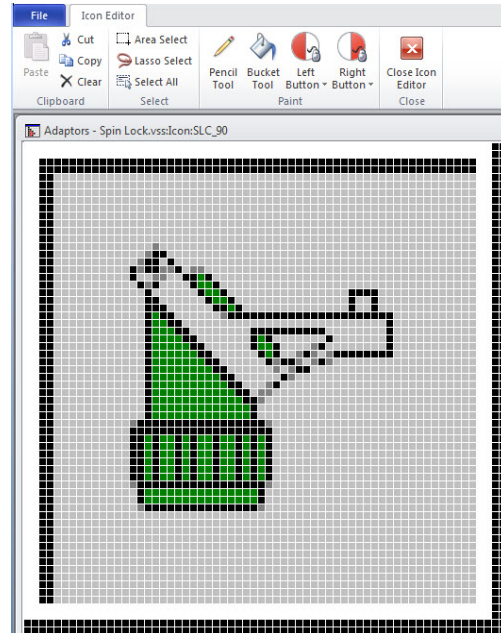
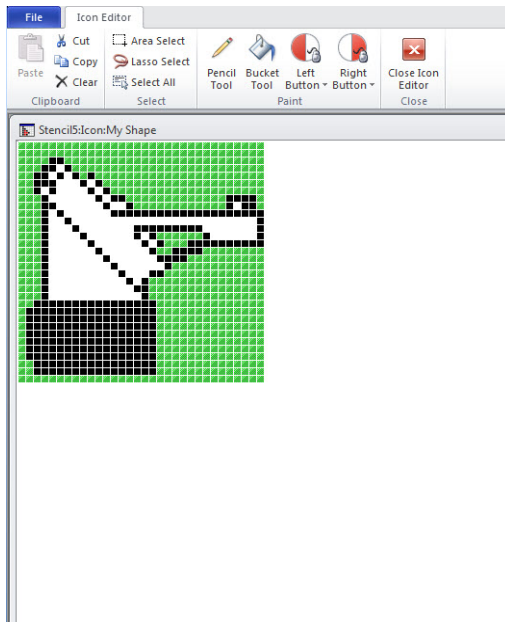
Once on the stencil the shape can be modified by right clicking on the shape and select 'Edit Master>Edit Master Shape' to open it. Alternatively drag the shape back on to the drawing and make the edits, then reopen the master shape, delete the existing shape and copy and paste the revised shape in its place.

## 9 Editing the shape icon

To edit the icon, right click on the shape and select 'Edit Master>Edit Icon Image' and this will open the Visio Icon Editor. The icon size is specified in 'master Properties'.



By using the colour palette, pencil and bucket tool the icon can be edited.



Tips for creating a reasonable icon:

1. Uncheck the 'Show live preview in Shapes Window' dialogue to prevent the icon being over written.
2. An icon's format can be copied from an existing icon i.e. background design and colour combinations.
3. Use the left and right mouse buttons to speed up editing.
4. Ensure that the stencil is visible whilst editing the icon so the effect of changes can be observed.
5. Shape details can be moved around in the icon by Lasso Select or Area Select and dragging.
6. A quick way to create the shape detail in the icon is to copy and paste from Visio. Some experimentation with size, line weight and colours will be required but the final representation of the shape is usually more accurate.
7. Add text to the icon by copy and paste from Visio.
8. When drawing lines with the pencil tool, release the mouse regularly so that mouse control errors that have to be undone do not remove the whole line.