BowTie Pro

The modern, fast and easy to use risk analysis tool

Customising the Bowtie diagrams in Version 4.3

Customising diagrams

BowTie Pro™ allows extensive customisation of the diagrams.   This is done via the tool menu, the menu bar and by the Diagram Options Screen.

Diagram Options Screen

Open the "Diagram Options" screen by selecting the ⬚ button on the menu bar or by selecting "Diagrams -> Customise Diagram" on the toolbar.

The Diagram Options screen has the following tabs:
- General
- Hazards
- Threats
- Consequences
- Controls
- Incidents

The standard options can be restored at any time by pressing the "Use Defaults-" button
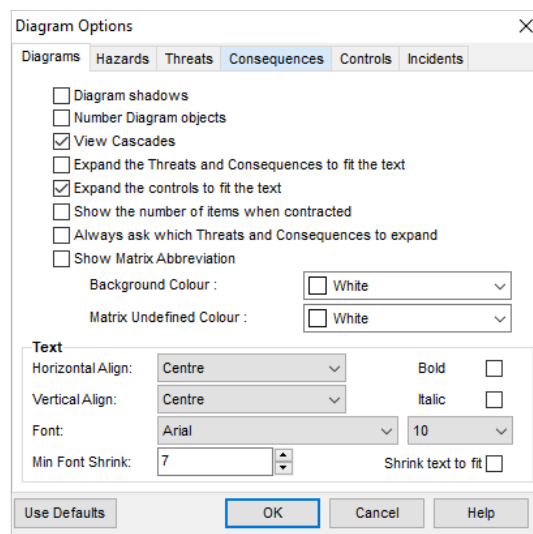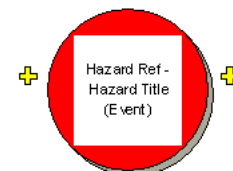
Diagrams Tab

Diagram shadows
Diagram shadows are a visual enhancement that allows a sense of perspective to be applied to the diagrams, see right.

Number Diagram Objects

The option relating to number objects becomes of use when the diagram is printed or issued in a document and provides a unique reference to be made to all objects.

The numbering on the left hand side, Threats, will be T1 – Tn and then each of its Controls are called TX.1 to TX.n.   The Threats to the Controls are also numbered. On the right hand side the objects all begin with a C for Consequence.

This is shown below with the numbers highlighted
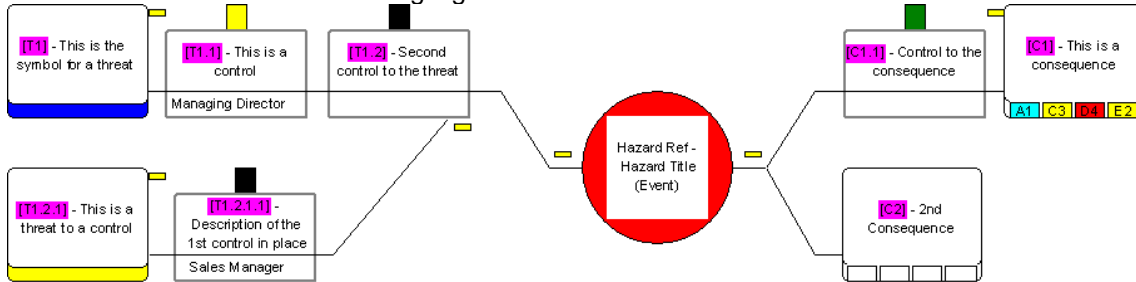
View Cascades

Cascading Hazards allow a Consequence from one bowtie to be linked as the Threat or Hazard to another bowtie

The diagrams can be displayed from the diagram options screen or from the cascades button.

When displayed, the cascades have a grey background. Right-clicking on the cascade will allow the user to navigate to the linked diagram.
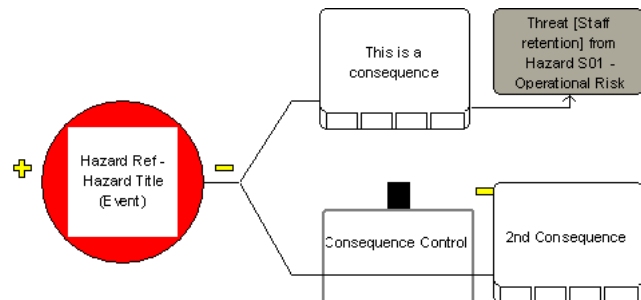
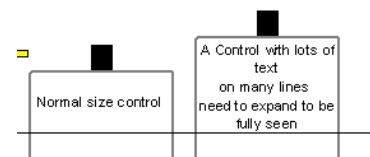## Expand the Threats and Consequence or Controls to fit the text

Sometimes the text of the Threats, Consequences or Control will not fit into the box. If this is the case then there are options in BowTie Pro™ to allow the boxes to grow to try to fit all the text on the diagrams.

This can be done from the menu bar by pressing the ↕↕ button and will allow the Threats, Consequences and Controls to grow to fit the text.

In the Diagrams Options Screen there are two checkbox that will:

- Allow the Threats and Consequences to grow.
- Allow the Controls to expand to the desired height as shown

The boxes will stop growing once it is three times its normal size. There is an option to reduce the font to allow the text to fit further.   If the text still does not fit the size of the font should be reduced or the text should be reviewed.

Show the Number of items when contracted

This option shows the number of children on any particular object in the example shown the Hazard, but it will be applied to any object on a diagram


Always ask which Threats and Consequences to Expand

This option will ask which Threat or Consequence should be opened so that each branch on the diagram can be analysed in turn. This is particularly useful in large diagrams.
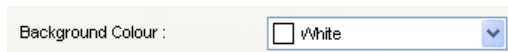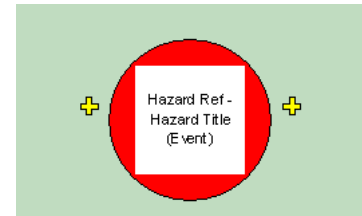
Show Matrix Abbreviation

The Show matrix Abbreviation will display the single character assigned in the matrix setup as a prefix to the Matrix results
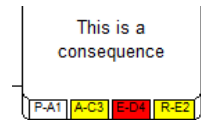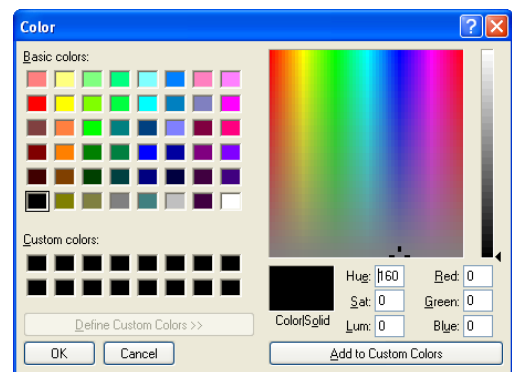
Background Colour

The background colour is a purely visual option that allows an alternative colour to replace the standard white background. This is done via the "Background Colour" drop down.
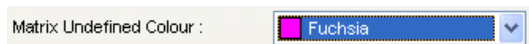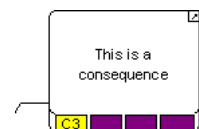
Selecting "Custom…" from the list will allow a colour to be selected from the windows colour palette.

Matrix Undefined colour

The matrix undefined colour is used when you wish to identify unassigned items in the diagram so that they standout. This is performed using the "Matrix Undefined Colour" drop down.

By default the undefined colour is white.

Diagram Font

The font used in the diagrams can be customised.

▪ Any font installed on the PC can be selected
▪ Size of the font needs to be considered as the smaller the font the more that can be displayed in the boxes
▪ The alignment of the text within the boxes in the diagram ie Left, Centre or Right and Top, Middle or Bottom
▪ The Font of the text that is displayed in the boxes on the diagram

The Min Font Shrink box sets the size that the text will shrink to on diagrams. To turn on auto shrink check the box "Shrink text to fit" on the general tab.

Hazards Tab
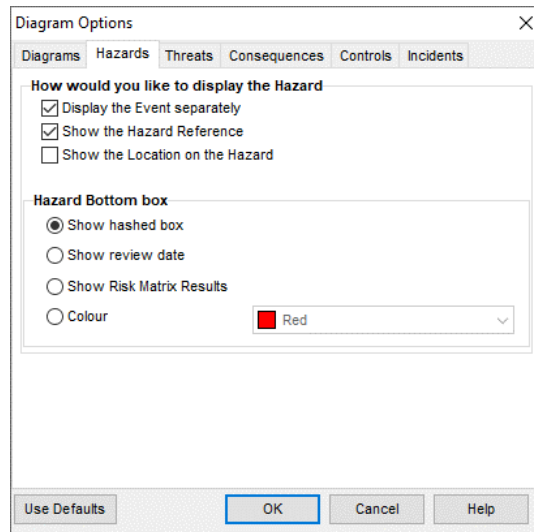
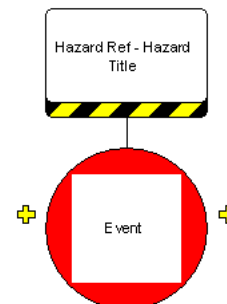### Display the Event Separately

The Hazard/Event is located in the centre of the bowtie and can be shown as a red ball with all its data contained within it, or split out with the Hazard above the Event.   This is done using the "**Display the Event separately**" option.

The advantage of having the Hazard split out is that more text can be seen easily on the diagram

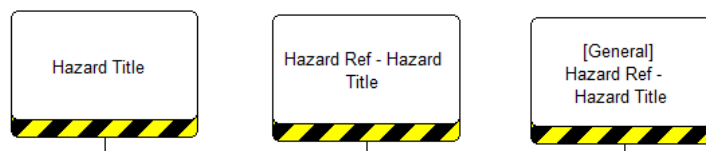| **Un-Ticked** | **Ticked** |
| Event and Hazard displayed together | The Event displayed below the Hazard |

Show the Hazard Reference / Show the Location on the Hazard

Both the Hazard Reference and the Location can be turned on and off to reduce the text displayed in the hazard box.
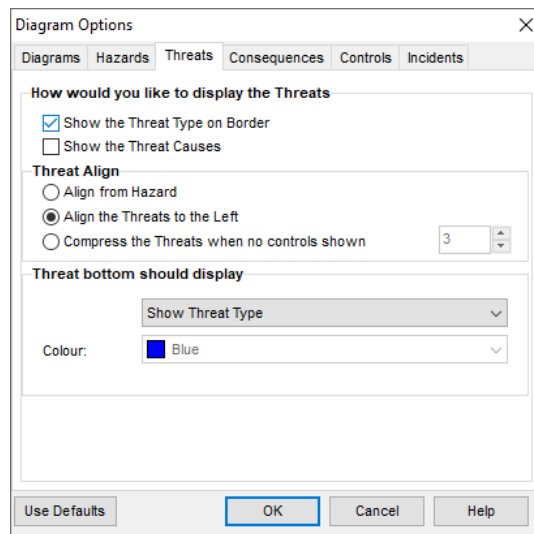

Hazard bottom display

If the Hazard and Event are shown separately the bar beneath the Hazard boxes can be customised.
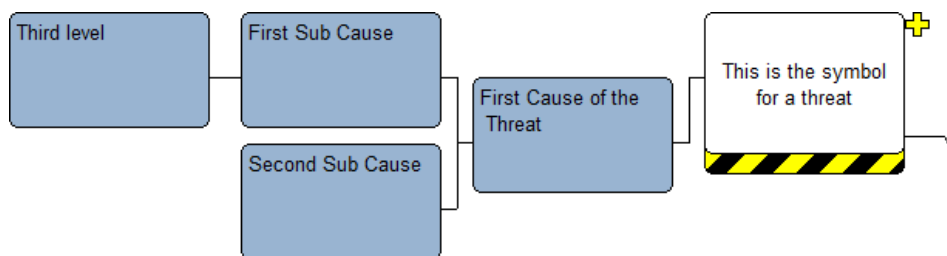
- Yellow and black hashed bar (as shown above),
- Risk results (if risks are turned on for the Hazard in the Setup box of the risk matrix)
- Next Review Date
- A colour of choice

Threats Tab

Show the Threat Causes

The Threat causes can be displayed to the left of the Threat to provide an indication of why the Threat was released. This setting can also be turned on using the ▶□ button. When shown on the diagrams the Threat Causes can be edited through the diagram's popup menus. The Threat Cause can be 3 levels deep.


Threat Alignment

The Threats can be aligned so that they are displayed:

- At the end of the Threat Controls
- All to the left
- Compressed when no controls are shown

Threat bottom display

The bar beneath the Threats boxes can be customised.

- Yellow and black hashed bar,
- The risk results (if risks are turned on for the Threat in the Setup box of the risk matrix)
- The Threat Frequency
- Consequence Links (Which consequences are applicable to this threat)
- The Overall Threat Effect
- Threat Type Description
- Next Review Date
- A colour of choice (as shown here in blue).
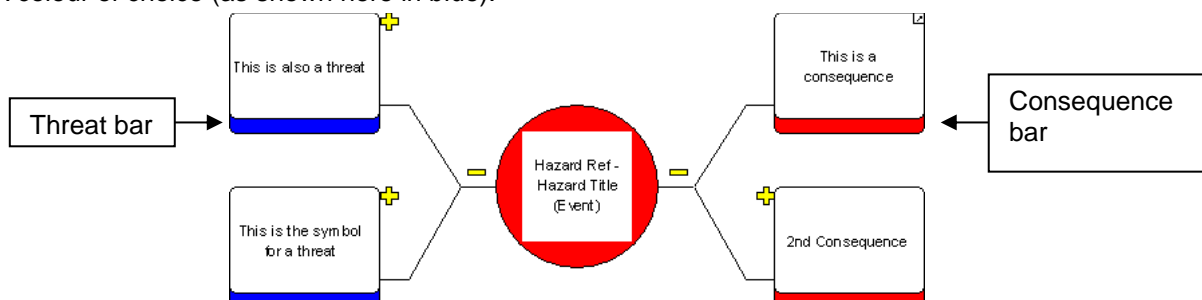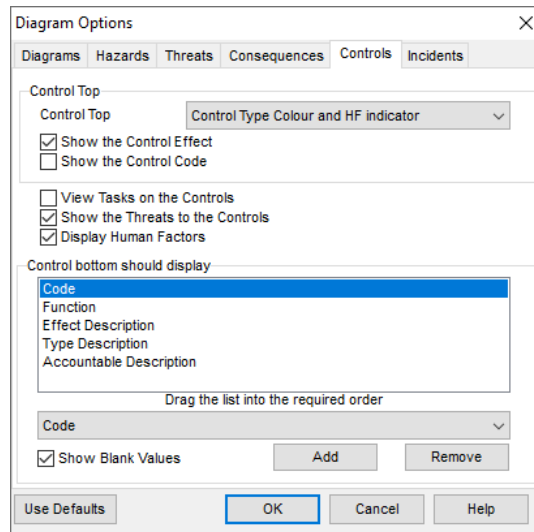
Consequences Tab
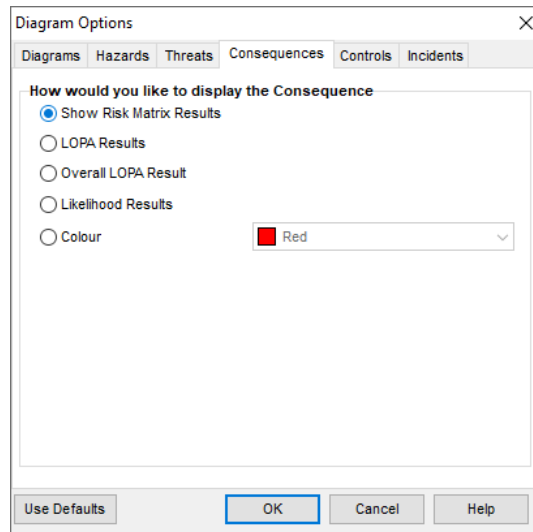
The bar beneath the Consequences boxes can have either:

- The risk matrix Results
- The LOPA Results (List of the individual branch results)
- Overall LOPA Result (The composite result of all the branches)
- Likelihood Results
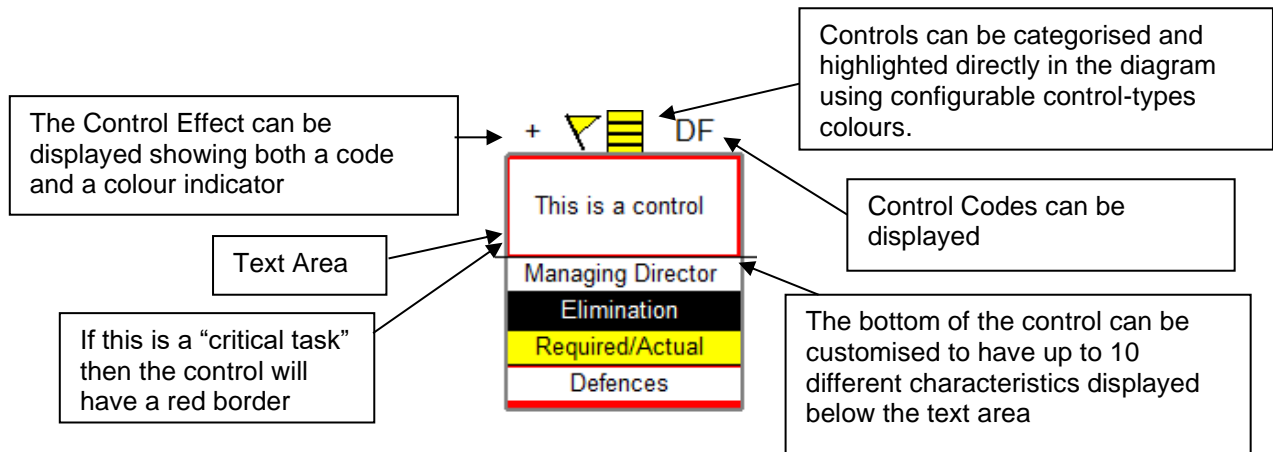- A colour of choice (as shown above in red).

If the Risk Matrix on the Consequence is setup to have a before and after result the after results will be displayed below the before results
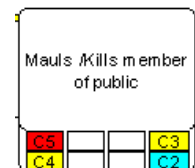
Controls Tab

The Controls tell the story of how the Threats and Consequences are managed.

The Control Effect can be displayed showing both a code and a colour indicator

Text Area

If this is a "critical task" then the control will have a red border

Controls can be categorised and highlighted directly in the diagram using configurable control-types colours.

Control Codes can be displayed

The bottom of the control can be customised to have up to 10 different characteristics displayed below the text area

- The Control Types can be displayed as a coloured box at the top of the Control
- To show the Control Effects at the top left of the Control press the ⛳ button on the menubar.
- To show the Control code at the top right of the Control press the ?+ button on the menubar.
- To show the Human Factors on the controls press the 👤 button on the menubar

View the Tasks on the Controls
The task can be shown in the text area of the Control box by checking this box. The task will be appended to the Control and shown in brackets.

Display the Human Factor Controls on the Control Type
There is a check box on the Control edit screen to indicate if the Control is under the influence of Human Factors. The Human Factors flag is displayed as a hashed bar on the control type. The Human Factor details are shown in a similar way to the "Threats to the Controls or Escalation Factors" and can be edited or deleted directly from the diagram screen
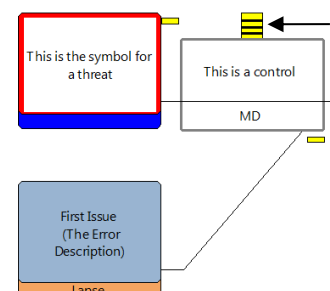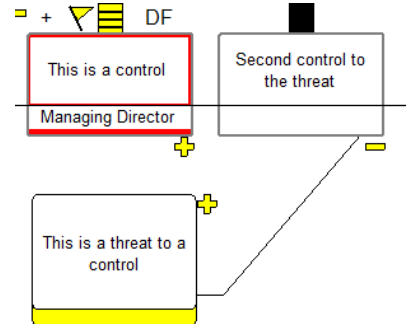
Show the Control Effects
When "Show the Control Effects" is used to give an indication of perceived strength at the top left hand corner.
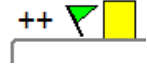
Show the Threats to the Control
The Threats to the control will display the details of the Threats to the control at the bottom of the control and these items can be selectively expanded and contracted by clicking the ➕ ➖ buttons.
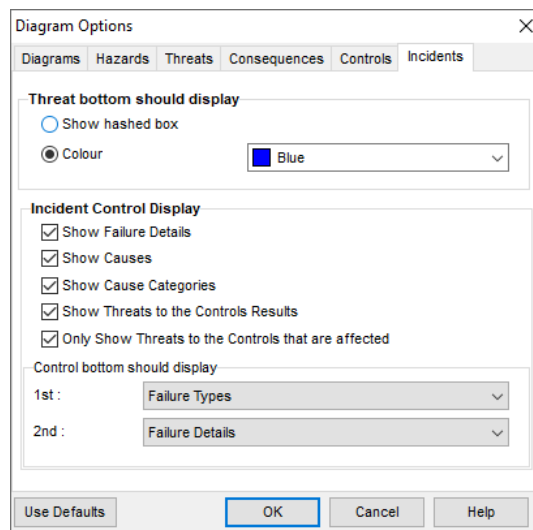
The Threats to the Control have a yellow bar at the bottom with their text above.

The bottom of the Control
The bottom of the Control has the ability to show up to four different characteristics including:
✓ Post
✓ Post Description
✓ Start Dates
✓ Target Dates / Complete
✓ Costs
✓ Documents
✓ Risk Matrix results for the Control
✓ Criticality and Level
✓ Function
✓ Type Description
✓ Code Description
✓ Effect Description and Value
✓ Efficiency
✓ System
✓ Status
✓ Human Factor Matrix Result
✓ Task
✓ Accountable
✓ Accountable Description
✓ Next Review Date

Incidents Tab

There are other types of diagram included in BowTie Pro™ such as LOPA diagrams and Incident Diagrams that are not covered in this document.

As the Incident diagrams have very different characteristics there is a tab that allows the customisation of these setting

Other Options

Not all the options are set in the Diagram Options Screen. Other options can be set using the menu bars and toolbars

Menu bar
The menu bar allows some of the options in the Diagram Options screen to be switched on/ off quickly. The options available are:
- ✓ Number Diagram Objects
- ✓ Expand the items to fit the text
- ✓ Reduce the Font size to fit the text
- ✓ View the Threats to the Controls
- ✓ View Control Codes
- ✓ View tasks on the controls
- ✓ View Cascades

Drawings Toolbar

	Name	Description
	Diagram Options	Change the look of the diagrams
	Threats to the Controls	Show/Hide the Threats to the Controls on the Diagrams
	Floating Details	Show/Hide Details of Objects
	Control Effect	Show/Hide Control Effect in the top left on the controls
	Control Codes	Show/Hide Control Codes on the top right on the controls
	Expand boxes fit	Show/Hide all the text for a control
	Threat Causes	Show/Hide the Threat Causes to the left of the Threat
	Cascading bowties	Show/Hide the cascading bowties
	Human Factors	Display the Human Factors on the diagrams
	Diagram Excel	
	Diagram Filter	Allow only the controls that meet a specific criteria

Second Language

There is the ability to switch between language 1 and Language 2 quickly. This is done on the diagram menu

Summary

BowTie Pro™ diagrams can be extensively customised and we plan to continue making our solution as flexible as possible.