Arrisca Analyser FlexProfessional™

Software Version 4

User Guide - Project version

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Installation Guide and System Requirements

Arrisca Version 4 : FlexProfessional™ is provided on an installation CD.
If you have access to network installation, please contact your network administrator for installation instructions.

System requirements
Operating System: Microsoft Windows 7.
Microsoft Excel®: Office 2010 and 2013.
Microsoft Project 2010

FlexProfessional™ requires about 100MB of free hard disk space.
There are no other specific hardware requirements.

Installation
Insert the installation CD in your CD drive.
Run file [CD]:\Setup.exe
Follow the on screen instructions.
The Licence key code can be found in licence agreement supplied with the CD or via email.
Microsoft .Net© may need be installed to ensure full functionally
Ensure that UAC (user access control) is set to off/never notify
You must restart your PC after installation to complete the process.

The installer places an application icon onto the desktop which you will see after installation. This icon is used to start the application and load the workbook.

The software includes "factory set" terminology that relates to a ISO 15-288 organisation such as the MoD, it also has pre-set 'risk category's' for risk identification/classification, you are advised to check your organisation procedures and policy's to ensure that the terminology is appropriate.

All of the pre-settings can be 'User' adjusted to meet your requirements see section 9

: There are NO adjustments required for Arrisca to interact with MS Project.

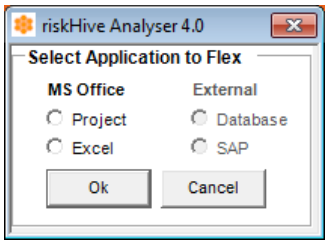
1 Launch the application & attach a Project Plan

The application is launched from an icon on the desktop, or if a .paf (**project assessment file** has been created, by double-clicking the .paf file itself.

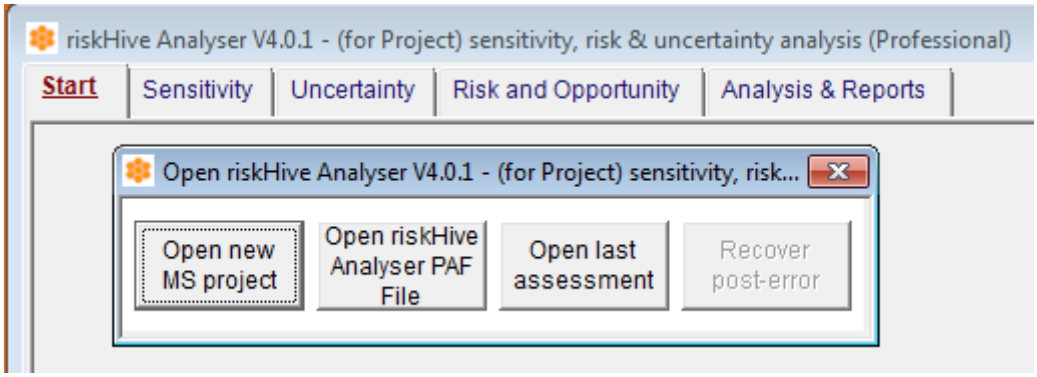
1.1 Click once on the 'Arrisca 4.0' application icon on the desktop.

1.2 The "Select Application to Flex" start screen will be displayed

- Select Project



1.3 The application start screen will be displayed.



Select the option you require:

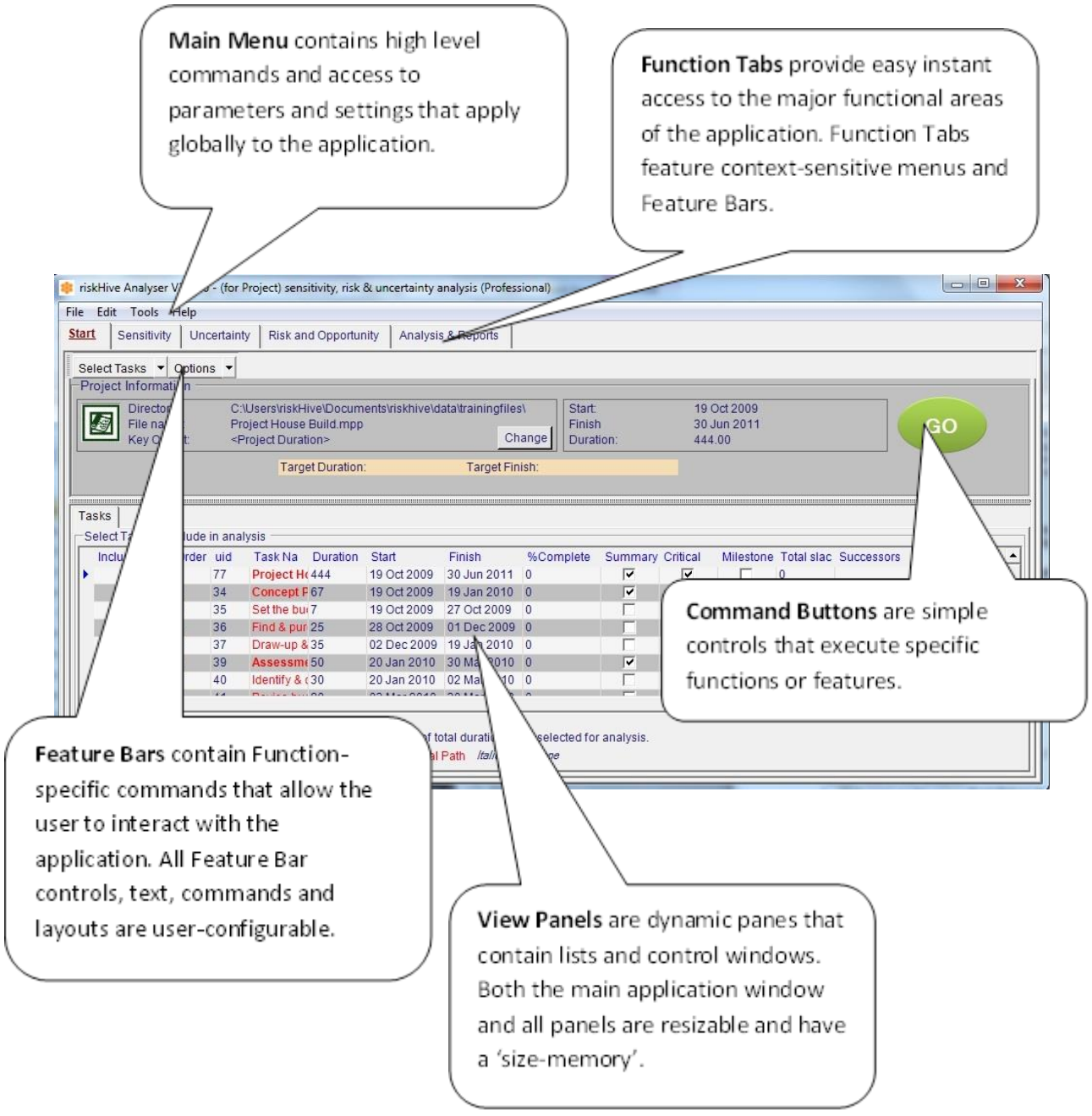
- **Open new MS Project** – Browse for a project file to perform an analysis
- **Open Arrisca PAF file** – Load a previous analysis as a complete package
- **Open last assessment** – Return to the last activity-state of the application
- Recover post-error – for use in case of an undesired application failure

Select the project file you wish to analyse and click Open.

- **The project will automatically open in its own window in addition to the Arrisca Analyser application**

2 Application Navigation

The FlexPro application is controlled using an intuitive combination of View Panes, Menus, Function Tabs, Feature Bars and Control Buttons.

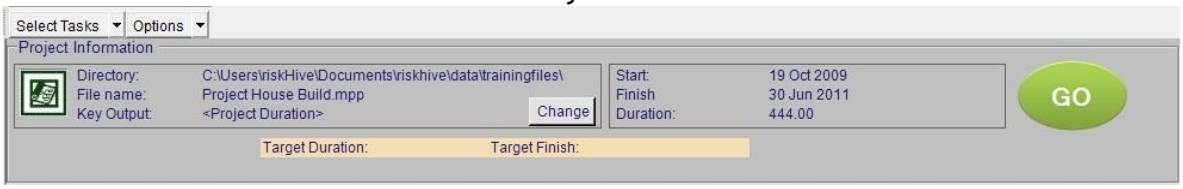


2.1 Start Control function tab

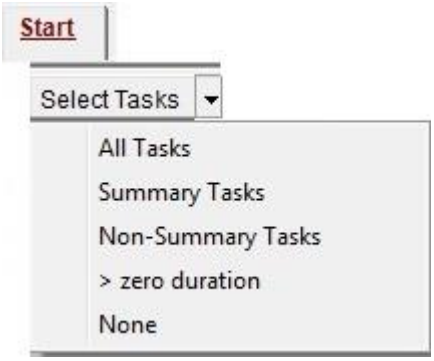
The Start Analysis Function Tab displays and manages controls related to the driver analysis itself. It can be accessed at any time from its Function Tab.

2.2 Feature Bar - Analysis Control

The Feature Bar contains function-specific controls and information pertaining to the attached workbook and Driver Analysis Control:

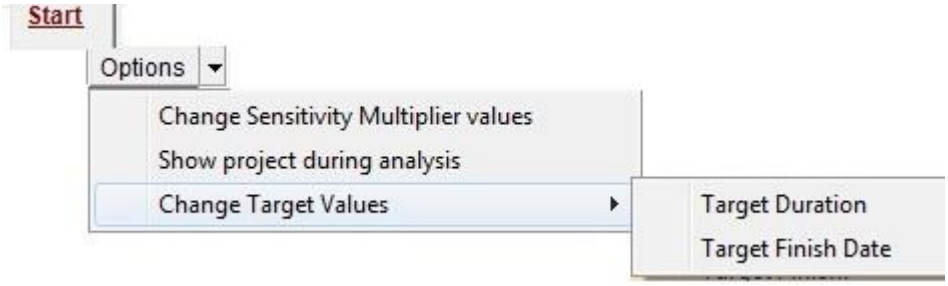


2.3 Select Task



- All Tasks- will be included in analysis
- Summary Tasks- Will only include summary tasks in analysis
- Non Summary Tasks-
- Zero duration – Use only tasks that has a duration above zero
- None- use no tasks

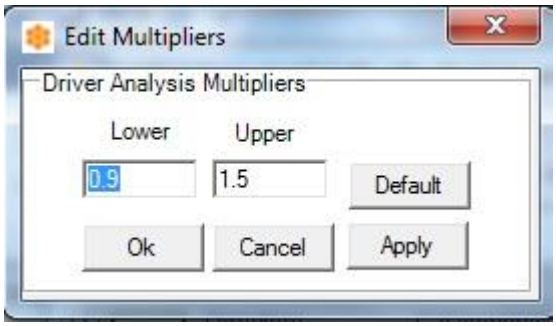
2.4 Options



2.4.1 Change Sensitivity multiplier values

This command allows you to select Driver Analysis utility options:

- Change Sensitivity Multiplier values – allows modification of the upper and lower multiplier limits that are used during the sensitivity analysis itself. This will display a pop-up window that will allow you to enter new flex limits. The default values are -10% & +50% of each task



: The actual effect of each input, or Driver, is calculated from the Cumulative Effect of both the increase and reduction in the value of the finish date during analysis, measured in days. The resulting effect may often appear to be greater than expected due to weekend time in MSP.

2.4.2 Show Project during analysis

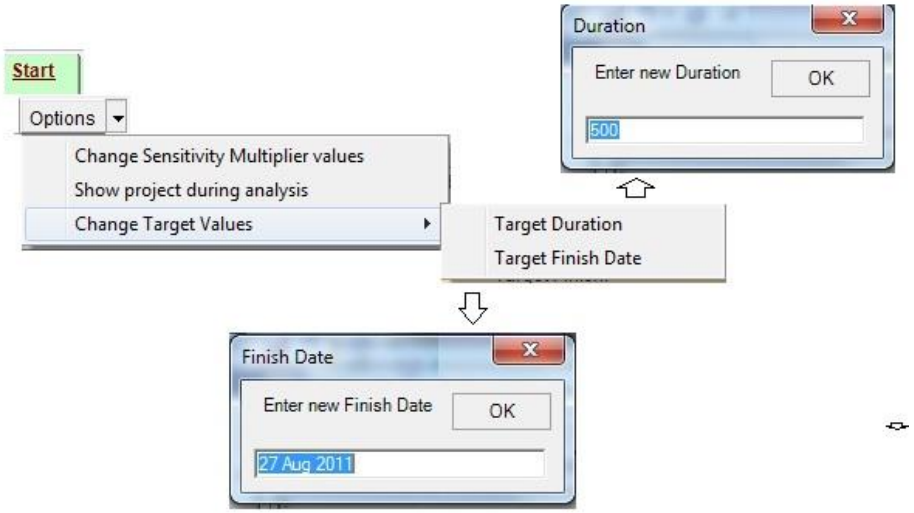
- Show Project during analysis – select this option to display the workbook during the Driver Analysis so you can see the data being flexed.

The project plan is normally hidden during the Driver Analysis - visibility of the plan slows the analysis down considerably.
This function also facilitates the ability to view the project during Monte Carlo Simulation of risks, opportunities and uncertainty if it is selected prior to running an analysis from the Analysis & Reports tab.

Change Target Values

Change Target Values – provides the facility to present additional bars on the S-curve reports to represent the desired outcome, which may be different from the deterministic or other confidence-related values.

Click on the salmon pink fields that display the data on the Driver Analysis tab.

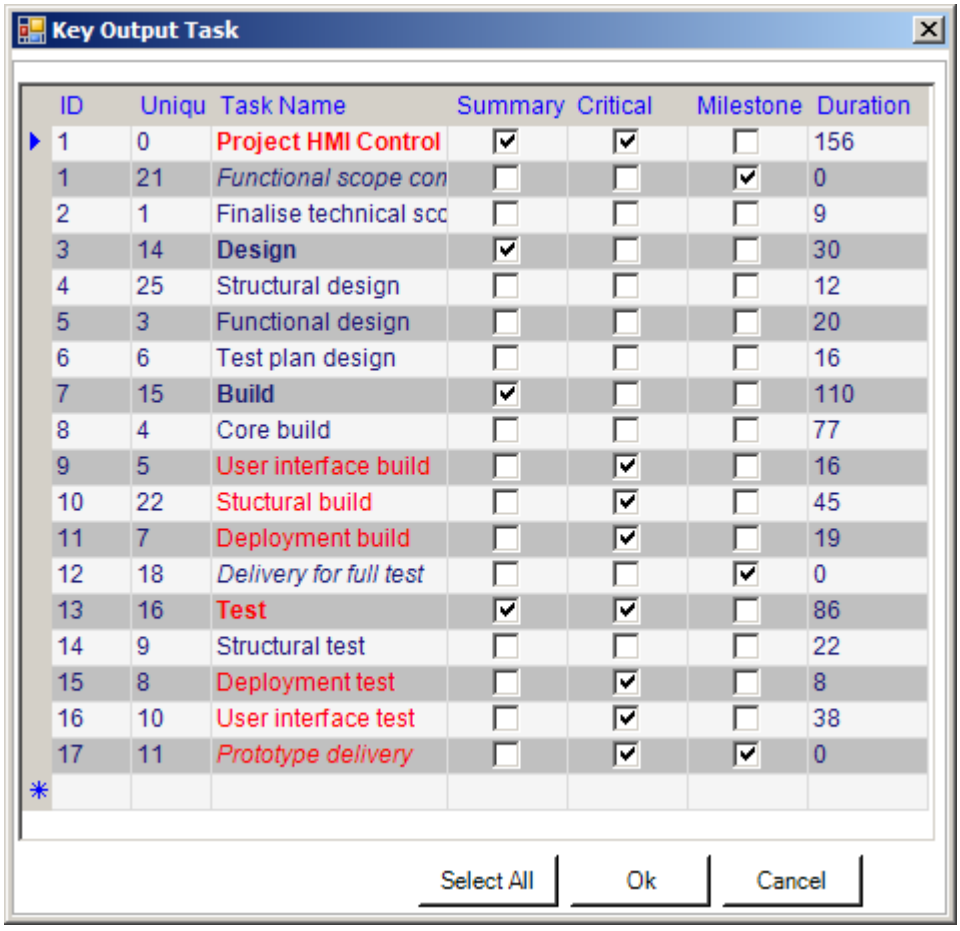


New target **Finish Date** and **duration time** can change via the popup menu results are displayed in the project information panel

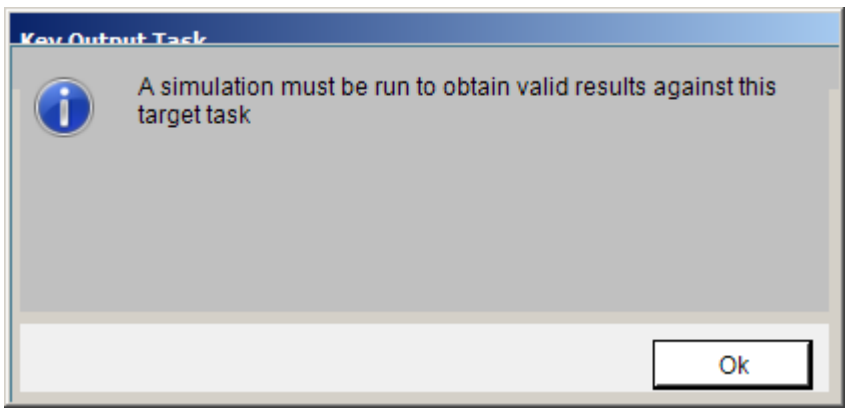
2.4.3 Select Key Outputs function

This function is embedded in project Information panel as **Change.**

If the task displayed in the Main Project Information Panel (above) is not the task you want to analyse for sensitivity or to measure risk against, click the **Change key output task** button in project information panel. A window will appear with a full list of the project's tasks which will allow you to reselect your **Key Output Task.**



Note: *If you have previously run an analysis of any sort in the Arrisca application against the original Key Output Task you will be prompted to re-run the analysis as the Key Output Task has changed and all current analysis results are invalid.*



2.4.4 This prominent green GO button in the Project Information Panel starts the Driver Analysis.

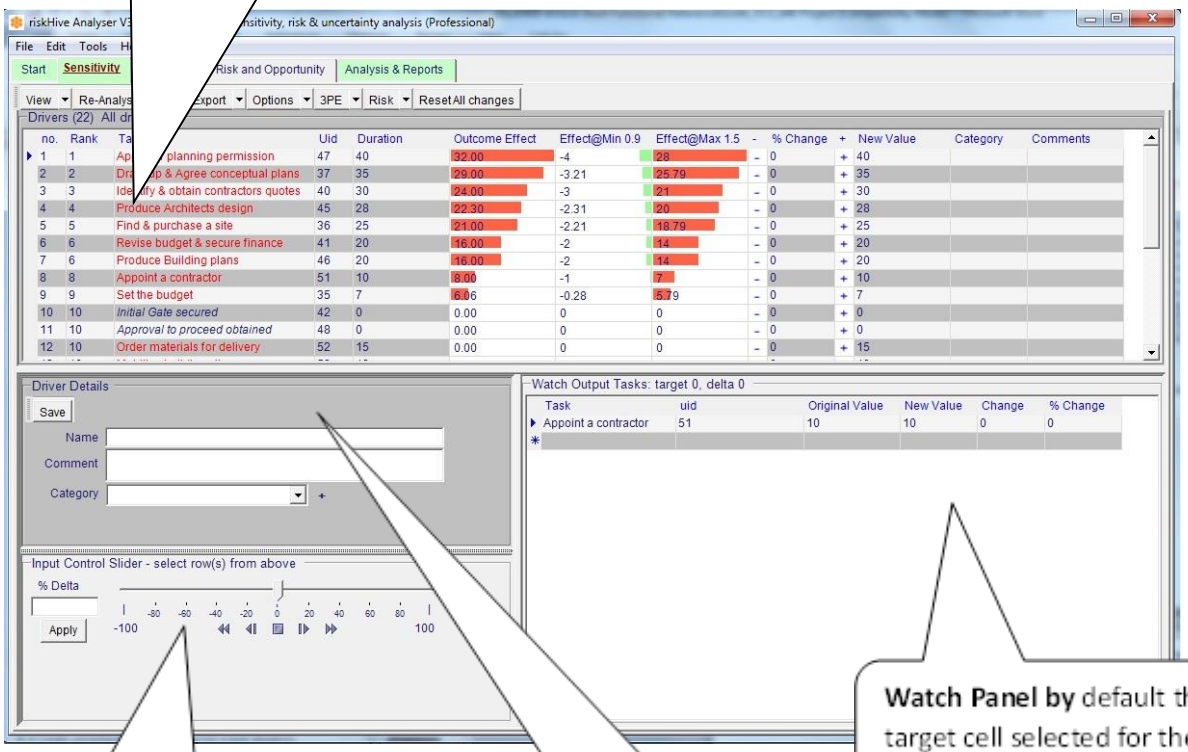
To start the Driver analysis:

1. Click once on the green **GO** button. The Project is hidden from view (unless the option to 'show project during analysis' option was selected) and a progress indicator is displayed to show the status.
2. During analysis the button changes to a red Stop button. Click this to cancel.
3. When the analysis is complete the **Sensitivity Function Tab** changes colour to green.

: The Driver Analysis is completely unconnected to the Monte Carlo Simulation and Analysis function of the Arrisca software. It is a much faster method of ascertaining key tasks to the project prior to any stochastic process.

3 Sensitivity Panel

View Panels are dynamic panes that contain lists and control windows. Both the main application window and all panels are resizable



Watch Panel by default the target cell selected for the analyse is displayed

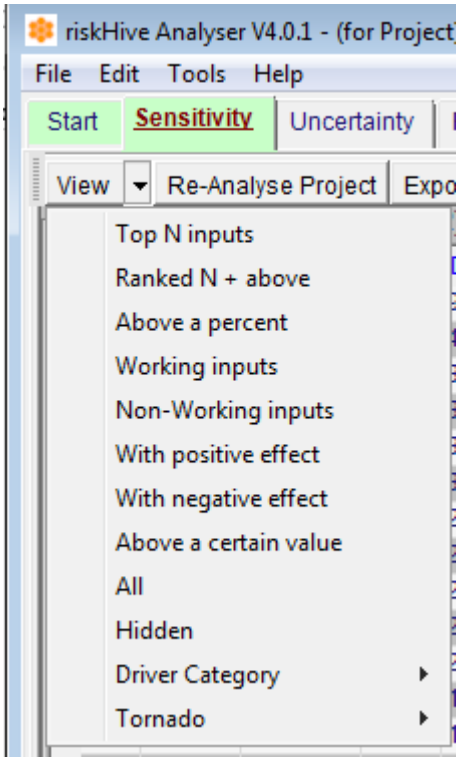
Input Control Panel enables selected drivers to be flexed

Driver Details Panels enables comments be added and classify the item with corporate terms

3.1 Sensitivity Function Tabs

3.1.1 View

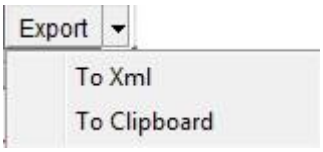
- Top ‘N’ inputs
- Ranked N + above
- Above a Percentage
- Working inputs
- Non- working inputs
- With Positive effect
- With Negative effect
- Above a certain value
- All
- Hidden
- Driver category
  - Filter
  - Remove Filter
- Tornado
  - Relative
  - Absolute



3.1.2 Re-analyse Project

This function allows to view the results of any “flexing” in MS Project

3.1.3 Export Command



This allows the sensitivity analyse to be exported to the desired MS tool

3.2 Options command

As default the watch panel contains the "target cell", additional cells can be added via the '**Add Output cell(s) to watch window** 'command.

The **Hide** command enable single or multiple driver rows to be removed from the viewing pane; their effect on the sensitivity analyse is not affected.
To bring hidden rows into view select the **View** tab, **Hidden** option, chose the rows then either select **Unhide** from the **Options** tab or right click the mouse and select "unhide" from the "Driver Actions" option

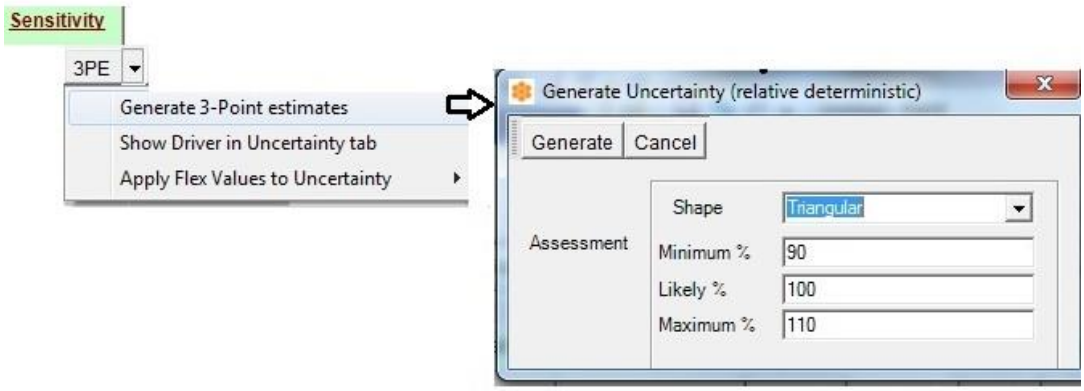
The **Apply** command allows you to decide where **comments** and or **Names** that are entered in the **Drivers Details Panel** are displayed after they are **Save**d via the Driver Details panel
Options:

- All Change every row
- Listed Change listed rows
- Select Change selected rows

3.2.1 3 PE (Point Estimating)

3.2.1.1 Generate 3 Point estimates

This command will allow you adjust the driver set by generating 3 point estimates, results can be viewed in the Uncertainty section.



. Method:

- Select rows to be adjusted, use ctrl+Click to select several rows

- Select 3PE **Generate 3 Point Estimate,** chose **distribution** shape and required values for **Min, Most Likey** & **Max,**
- press **Generate** button

3.2.2 Show drivers in Uncertainty

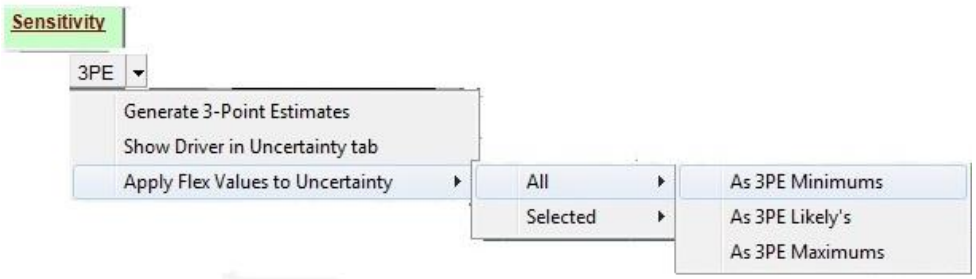
This command allows you transfer selected drivers to the **Uncertainty Register** such that they may have Uncertainty Assessments made on them.

To transfer cells to the Uncertainty Register:

- Select the Drivers you want to transfer to the Uncertainty Register
- Click on the **3 PE** tab > select **Show Drivers in Uncertainty Tab** command.
- A confirmation message is displayed. Click **OK** to finish operation.

The selected cells are displayed in the **Uncertainty Drivers List** on the **Uncertainty Function Tab**. Their shapes are highlighted in red to indicate no assessment has yet been made

3.2.3 Apply Flex Values to Uncertainty



Uncertainty may be added by recording the manipulation of the Sensitivity Drivers on the **Sensitivity 3 PE** Function Tab.
To add Uncertainty from manipulation of the Sensitivity Drivers:

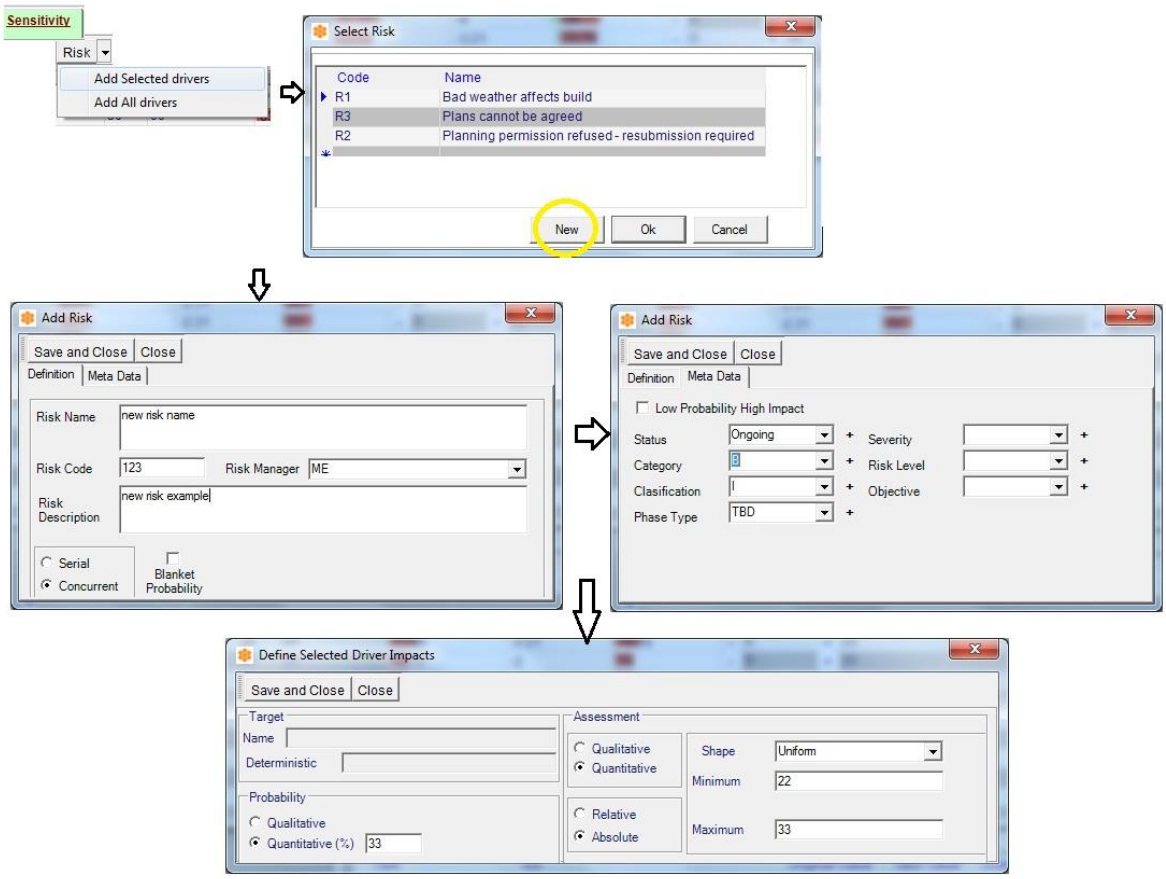
1. Select the **Drivers** (cells displayed) to be flexed and added to the Uncertainty List
2. Set **Likely** values: *This must done first*
    i. Use either **the Input Control Slider** or the **+ or - Flex Buttons** to manipulate the selected drivers to a desired state which represents a set of **Likely** Uncertainty values
    ii. **Right click** the mouse select **Apply to Cost model (**cell ref)> select **As 3PE Likely**
    iii. A progress indicator appears and a confirmation message is displayed once the task is finished. Click **OK** to complete.
    iv. The Driver cells have been added to the Uncertainty Drivers List on the Uncertainty Function Tab with a Constant shape of the value set by the flex manipulation
3. Set **Minimum** values:
    i. Use either **the Input Control Slider** or the **+ or - Flex Buttons** to manipulate the selected drivers to a desired state which represents a set of **Minimum** Uncertainty values
    ii. **Right click** the mouse select **Apply to Cost model (**cell ref)> select **As 3PE Minimum**
    iii. A progress indicator appears and a confirmation message is displayed once the task is finished. Click **OK** to complete.

iv. The Minimum values have been added to the parameters on the Uncertainty Drivers List on the Uncertainty Function Tab. The shape is now indeterminate and is highlighted in red.

4. Set **Maximum** values:
   i. Use either **the Input Flex Control Slider** or the **+ or - Flex Buttons** to manipulate the selected drivers to a desired state which represents a set of **Maximum** Uncertainty values
   ii. **Right click** the mouse select **Apply to Cost model (**cell ref)> select **As 3PE Maximum**
   iii. A progress indicator appears and a confirmation message is displayed once the task is finished. Click **OK** to complete.
   iv. The Maximum values have been added to the parameters on the Uncertainty Drivers List on the Uncertainty Function Tab. The shape is now Triangular and the assessment is complete.

3.3 Risk

This command enables either the inclusion of pre-defined risks or the ability to create new risks, both risk details and metadata can be captured, the metadata elements can be user defined allowing user selection from a dropdown menu. Once the risk detail is saved via the **save and close** button, you will be prompted to select the drivers that are affected by the risk.



Add to selected drivers method:

1. Select **Driver(s)** using **crtl** for multiple choice **select Risk>Add to selected drivers** from the sensitivity function tab.
2. A popup "**Select Risk**" menu will appear either selected a listed risk or press **New.**
3. If New was selected a Popup form appears, this is in two parts:
    a. **Definition** – You are required to **name** and **describe** the risk and state the **Risk Code** and **Risk manager**. If **Blanket Probability** is chosen you must input a **probability factor.**
    b. **Meta Data** - will require you to fill the relative metadata via dropdown menus. These dropdown menus can be update by the user to reflect your Organisations policy see 12.1 for details. Alternatively menu can be change using the "+" alongside the dropdown menu box.
4. Press **Save and Close** a new popup form will appear that requires you to **Define selected Driver Impacts**
5. The affected driver is displayed in "target" area of the popup form.

6. Set **Probability**:
    a. Select either of the **Qualitative** or **Quantitative** options in probability sub panel.
        i. **Qualitative:** Select the desired **Probability** Level from the drop-down list that appears to the right of the option;
        ii. **Quantitative:** Type in the desired **Probability** value (an integer between 0 and 100) in the field that appears to the right of the option.

7. Set **Impact (***the impact of the risk not to be confused with the uncertainty estimate***)**:
    a. Select either of the **Qualitative** or **Quantitative** options in the Assessment sun panel.
        i. **Qualitative:**
            1. Select either **Relative** or **Absolute** levels;
            2. the desired **Impact Level** from the drop-down list that appears to the right of the option;
        ii. **Quantitative:**
            1. Select the desired **Shape** from the drop-down list that appears to the right of the option;
        iii. Type in the desired Impact Values (min, likely, max, etc) in the fields that appear underneath the shape drop-down.
8. Click **Save** a popup message will appear to give progress press **OK.**

Add to All

1. Select **Risk>Add to ALL** from the sensitivity function tab.
2. A popup "**Select Risk**" menu will appear either selected a **listed risk** or press **New.**
3. If New was selected a Popup form appears, this is in two parts:
    a. **Definition** – You are required to **name** and **describe** the risk and state the **Risk Code** and **Risk manager**. If **Blanket Probability** is chosen you must input a **probability factor.**
    b. **Meta Data** - will require you to fill the relative metadata via dropdown menus. These dropdown menus can be update by the user to reflect your Organisations policy see 9.1.2.8 for details.
4. Press **Save and Close** a new popup form will appear that requires you to Define **selected Driver Impacts**
5. The affected driver is displayed as **blank as all drivers are affected** in the "target" area of the popup form.
6. Set **Probability**:
    a. Select either of the **Qualitative** or **Quantitative** options in probability sub panel.
        i. **Qualitative:** Select the desired **Probability** Level from the drop-down list that appears to the right of the option;
        ii. **Quantitative:** Type in the desired **Probability** value (an integer between 0 and 100) in the field that appears to the right of the option.
7. Set **Impact (***the impact of the risk not to be confused with the uncertainty estimate***)**:
    a. Select either of the **Qualitative** or **Quantitative** options in the Assessment sun panel.
        i. **Qualitative:**

1. Select either **Relative** or **Absolute** levels;
2. the desired **Impact Level** from the drop-down list that appears to the right of the option;

ii. **Quantitative:**

1. Select the desired **Shape** from the drop-down list that appears to the right of the option;

iii. Type in the desired Impact Values (min, likely, max, etc) in the fields that appear underneath the shape drop-down.

8. Click **Save** a popup message will appear to give progress press **OK.**

Blanket Probability *will take presentence over individual risk settings if two or more risks have an impact on a selected cell*

- ***Relative*** *will produce values for min. most likely and max (3PE) based on the deterministic value used in the model.*
- ***Absolute*** *option will add the deterministic value to the pre-determined 3 PE defined by "User". This option is best suited to "Design to cost" modelling when detailed risk impact information is limited.*

.

3.3.1 Reset all drivers command

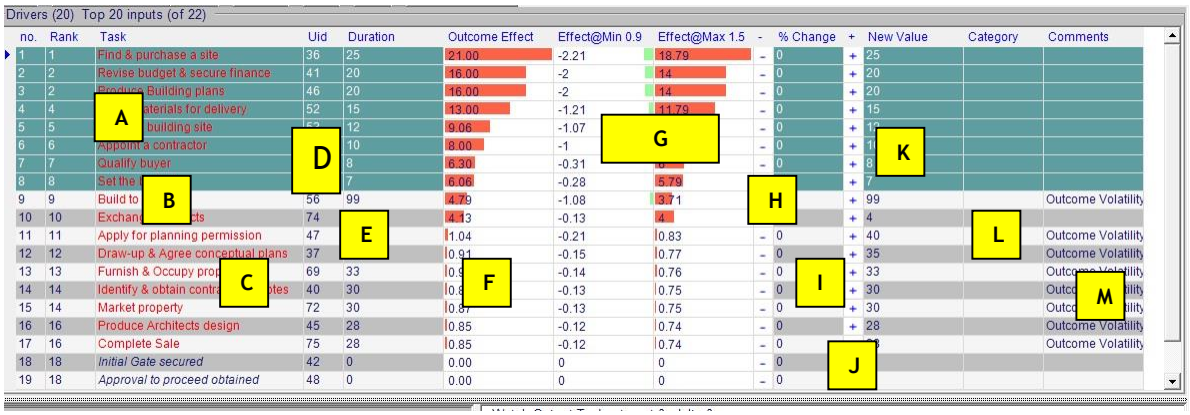
This command allows you reset any changes that have been made to Driver cells.

To reset Driver cells to their original (deterministic Excel) values:

1. Click once on the **Reset all drivers** command.
2. All Drivers will be returned to their original values.

Comments *and* ***Names*** *cannot be reset*

3.4 Sensitivity drivers panel



The columns are used to summarise the analysis results and subsequent flexing. To sort the data by a column in descending order click on the column title bar text. A second click on the column title bar text will sort in ascending order.

3.4.1 Analysis Results columns

These columns are used to display deterministic (original) workbook input data and the results of the sensitivity analysis once completed.

A No.

Displays the unique line number of the driver list.

B Rank
Displays the Driver ranking sorted by decreasing effect. The most influential Driver is ranked number 1. All drivers below this have less effect for a given amount of flex than this driver.

C Task Description
Information taken from Project workbook Format
D UDI

Task unique identification

E Duration

Task duration

F Outcome Effect

Displays the amount the Key Output Cell is affected by the sensitivity analysis at the settings defined in the Analysis Multipliers control. The column heading displays the cumulative sensitivity value used in analysis.
Note: If the analysis was executed at the default of +10% then the column

heading will read ‘Effect @ 10%’.

G Effect at 90 and 110% / Tornado Bars

Displays the effect of the cell at the given flex value as a percentage of the Key Output Cell value. i.e. If the KOC value is 1000 and the ‘Sensitivity @ 10%’ is 100 (from the previous column) then the Effect% will be 10.
The background displays a graphical representation of the effect of the Drivers list on the Key Output Cell. The tornado bar is colourised to indicate polarity of effect:

Red = Direct: KOC value increases as Driver cell value increases.

Green = Inverse: KOC value decreases as Driver cell value increases.

The scale view of the Tornado bars can be changed from Relative to Absolute by using the Tornado command on the Feature Bar.

3.4.2 Flex Control columns

These columns are used to dynamically flex and manipulate the workbook input data and display the flexed data values. During manipulation the Project workbook is manipulated and is updated with the flexed input values so you can see the effects of the manipulation on the workbook. These changes are not automatically saved but this can be done by using the **Save** as menu item in MS Project.

H- (minus character) increment control
This control is used to reduce the Driver input value by 1% increments
Click on the minus character to reduce the input cell value by 1% per click. The control is colourised to indicate the polarity of the resulting effect on the Key Output Cell as follows:
Red = KOC value increased as a result of the input cell decrease (denoting an inverse relationship).
Green = The KOC value decreased as a result of the input cell decrease (denoting a direct relationship).
I Delta
displays the percentage delta value in percentage terms of the Driver input cell if manipulated. If the cell has not been manipulated the field displays zero value.
J + (plus character) increment control
This control is used to increase the Driver input value by 1% increments
Click on the minus character to increase the input cell value by 1% per click. The control is colourised to indicate the polarity of the resulting effect on the Key Output Cell as follows:
Red = KOC value decreased as a result of the input cell increase (denoting an inverse relationship).
Green = The KOC value increased as a result of the input cell increase (denoting a direct relationship).

K Flexed value
Displays the new (flexed) value of the Driver input cell if manipulated. If the cell has not been manipulated the field displays the original cell value.

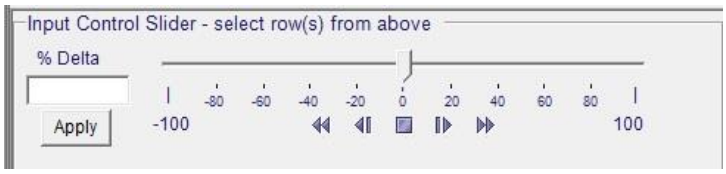
: If you want to set the Driver input value to a specific value rather than use the plus / minus incremental controls you can select this field and type in the desired value. Press the Enter key on your keyboard to update the value.

3.4.3 Information Columns

L Category
Displays the assigned identification; this should align with your organisations process or policy on identifying risk and uncertainty.

M Comments
Displays the user input comments

3.5 Input Control Slider Panel



This panel allows you to flex multiple rows so that the change the "Key Output Cell" (**KOC**) can be calculated.
Use the 'shift' or 'Ctrl' keys to select multiple Drivers on the Sensitivity Drivers panel and then drag the Flex Control Slider to manipulate the inputs as a group. The inputs will be manipulated by the same percentage of their original values. The resulting effect on the **KOC** is displayed in the **Watch Output Cells** panel. Subsequent groups of inputs may then be selected and flexed to build-up a scenario.

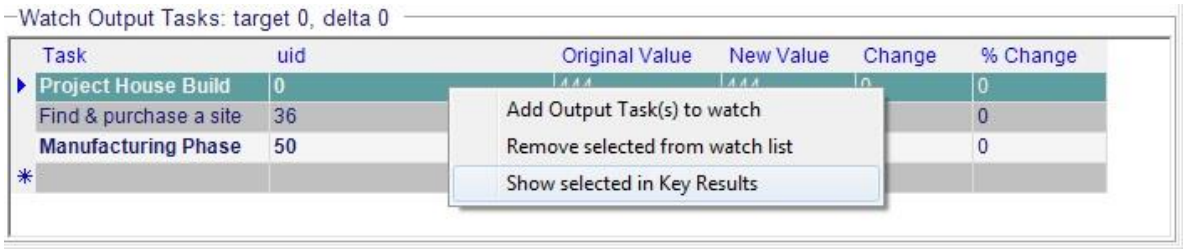
For example, a group of durations may be selected and manipulated using the slider to simulate an overall increase in the time required to perform tasks. Once this effect has been applied, a group of rates or overheads may be adjusted downward to reflect the changes possible as a result of more hours and the overall effect will be displayed in the **Watch Output Cells** panel.

: The Project workbook will be dynamically updated with the flexed input data. You can save your scenarios either by saving the workbook as a different filename or by over-writing the original workbook.

: The application has already made a backup of the original workbook in the source folder with a time and date extension that can be kept or deleted on close.
The slider control allows the flexure of multiple Driver inputs simultaneously.

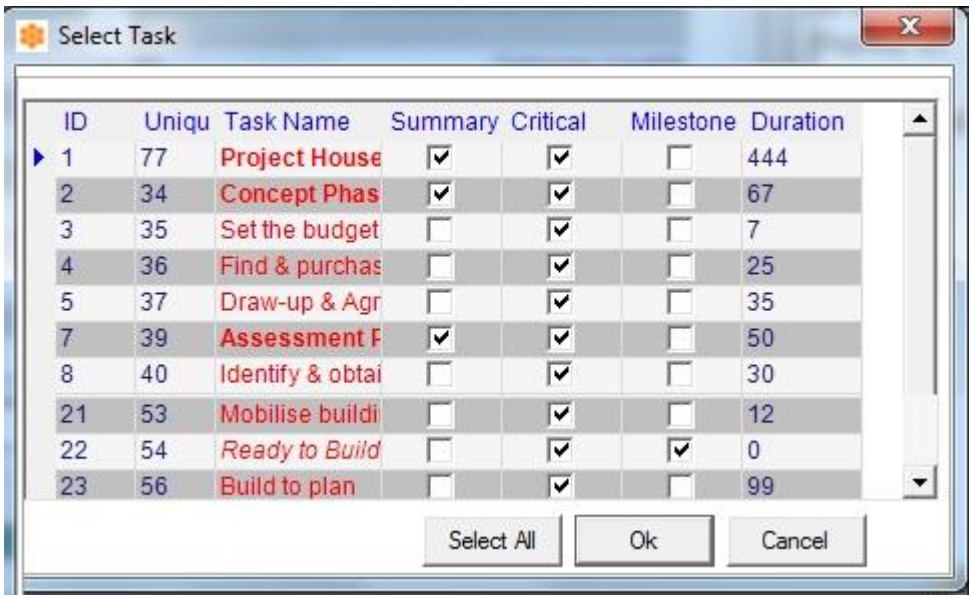
3.6 Watch Output Cells

The Watch Output Cells panel allows the monitoring of multiple workbook outputs simultaneously as the Driver Inputs are manipulated. Initially, only the **Key Output Cell** is loaded as the first entry to this control and can be identified by the title of the output response window (for example [key output cell = 'abc']). As the inputs are manipulated and the KOC is affected the background colour will change to Red or Green as the KOC increases or decreases in value respectively.

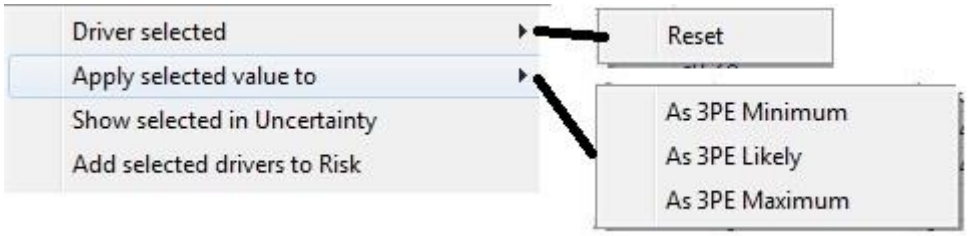


3.6.1 Add Output to watch list

Selecting the "Add" option will display a popup menu listing all the task from the Project, either select a single task by clicking the row multiple additions can be selected by **crtl+click** to select rows



3.7 Sensitivity Driver panel contextual menu (right-click)



3.7.1 Driver selected

Reset – returns this cell to its original ***Project*** values comments and names added ***are not affected***.

3.7.2 Apply selected value to

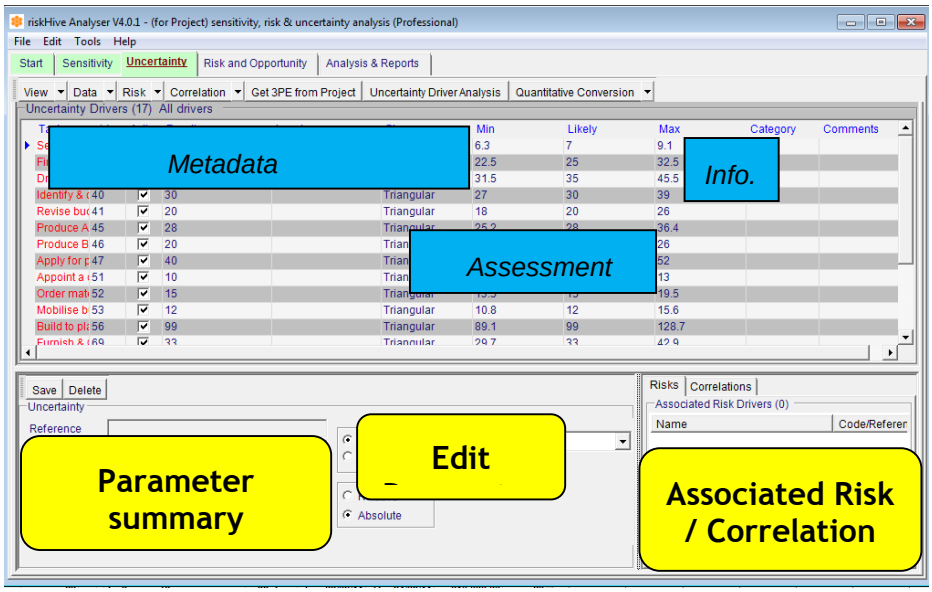
This command transfers the current cell value to the Uncertainty assessment, full flex instruction are detailed in 5.1.5.1; options are available:

- Minimum – applies current flex value to Uncertainty minimum value
- Likely – applies current flex value to Uncertainty likely value
- Maximum – applies current flex value to Uncertainty maximum value

3.7.3 Show selected in uncertainty

This command provides a shortcut method that bypasses the Risk feature covered in 5.1.6 that is it enables you to transfers the current cell to the Uncertainty Drivers list Add selected drivers to Risk

4 Uncertainty Tab



The main window on the Uncertainty tab displays a summary of the Uncertainty parameters beneath the Features Bar with its Uncertainty-related controls. Each row in the list of Uncertainty Drivers pertains to one input cell in the attached Excel workbook and summarises the applied Uncertainty assessment.

Each column contains a parameter pertaining specifically to the cell selected. The Uncertainty Drivers list may be sorted by any column alphanumerically ascending or descending by clicking on the column header description title.

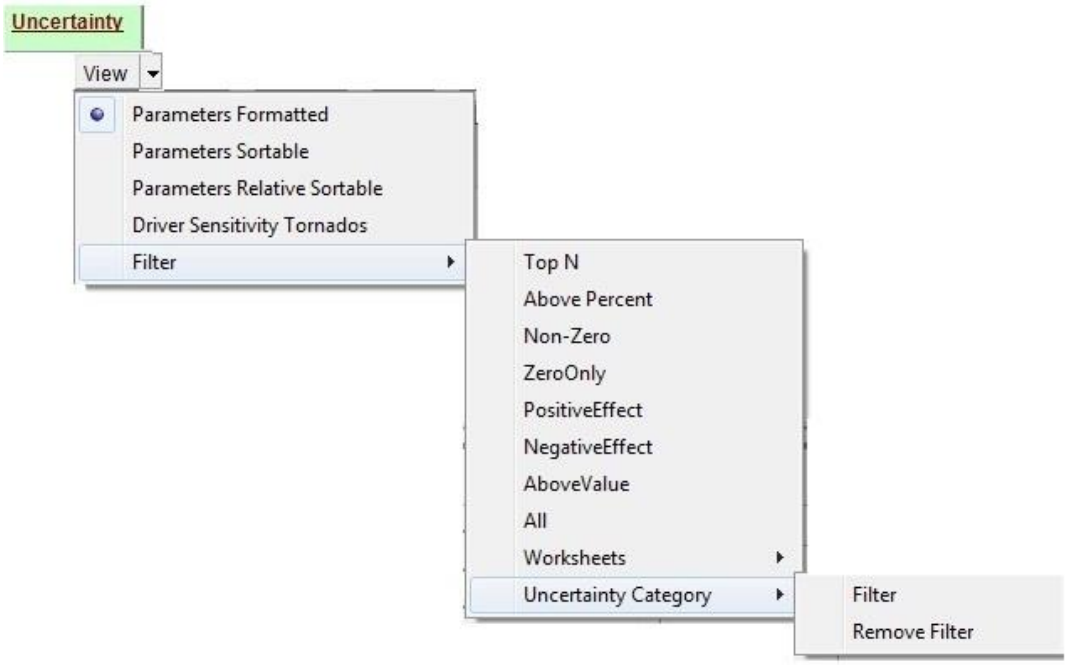
Column headings are:

- Metadata:
  - Name of Input Task: If there is a Task name in MS Project
  - Worksheet: Location of the Task in the Project Workbook
  - Task: Location of the Task in the project Worksheet
  - Input Task Value: Single-point (constant) value from MS Project
- Assessment Parameters:
  - Level: Qualitative level assessment (H, M, L, etc.)
  - Shape: Quantitative distribution type (Uniform, Triangular, etc)
  - Min: Quantitative lowest possible value for 3PE
  - Likely: Quantitative most likely value for 3PE
  - Max: Quantitative highest possible value for 3PE
- Comments: Text field for capturing notes and assumptions re. Task

Uncertainty may be added in one of three ways:

- *Add by manual entry*
- *Import from Tasks in the attached Project workbook*
- *Import from a separate Uncertainty Register*
- *Generate Uncertainty by Sensitivity Driver manipulation*

4.1 View Function



4.2 Add Uncertainty by manual entry

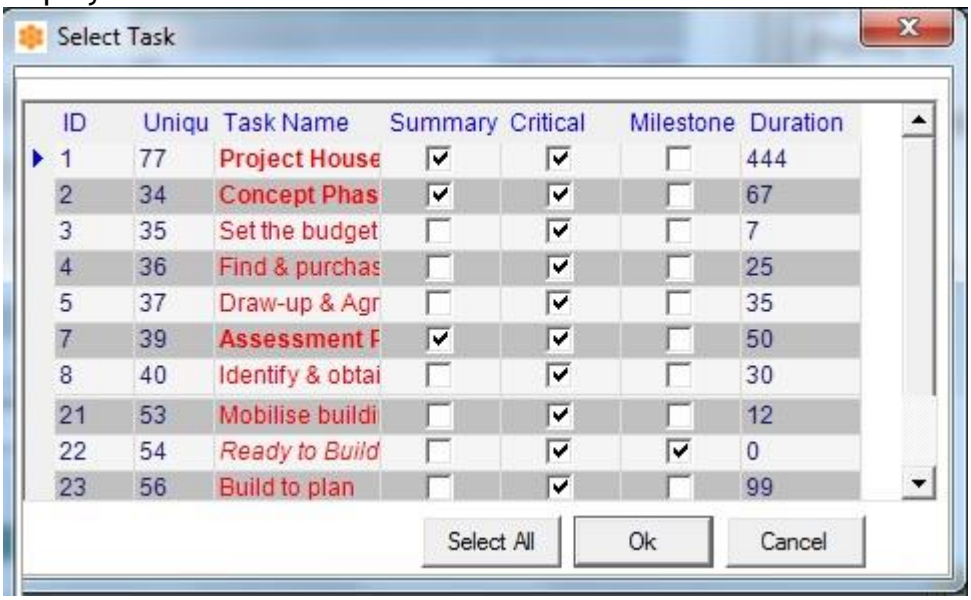
To add uncertainty by manually selecting cells from the attached Project workbook:

1. Add cells to be assessed to the Uncertainty Drivers List
2. Edit Uncertainty assessment parameters

4.2.1 Add cells to be assessed to Uncertainty Drivers List

To add uncertainty by manually selecting cells from the attached workbook:

- Click once on the **Data** tab on the **Uncertainty Feature Bar**
- Select **Add Tasks** from the drop-down list. The Task-selector will be displayed:



- Select the tasks to which you want to add uncertainty parameters. Use the Ctrl or Shift keys to select multiple tasks at the same time.

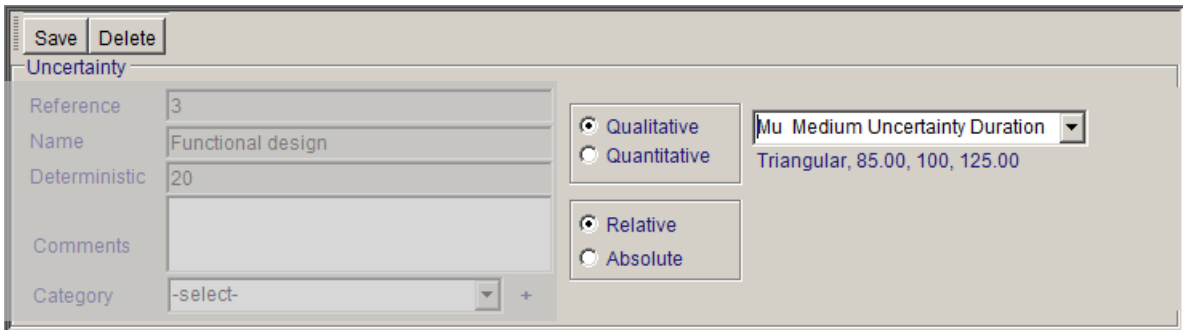
- Click **OK**. A progress indicator appears and a confirmation message is displayed once the task is finished. Click **OK** to complete the operation.
- The tasks are now displayed in the main Uncertainty Drivers pane with their names, deterministic values. Note that the shape column is highlighted in red denoting that although the cell is available for uncertainty assessment it currently has no parameters assigned to it. The tasks are now ready for parameterisation and assessment as described later in this section.

4.3 Apply or edit QUALitative Assessment Parameters

The application provides a unique ability to assign Uncertainty by applying a qualitative level to the task. Qualitative assessment parameters are described in detail in **Section 7**. When the qualitative level is applied to a task the quantitative parameters, such as a three-point estimate, are automatically and dynamically calculated relative to the cell's deterministic duration.

To apply a qualitative Uncertainty assessment to a single task:

- Select the task row to which you wish to apply the assessment level
- In the Uncertainty parameter pane, select the **Qualitative** button
- In the type selector box, select either **Relative** or **Absolute** levels
- Select the level you wish to apply from the **level** drop-down box
- Click **Save**. The assessment is applied and the Level is displayed in the main Uncertainty Drivers list.



To apply a qualitative level to **multiple tasks** at the same time:

- Hold down the Ctrl key and click once on each row you want to select
- Repeat the qualitative level selection process above and click **Save**.

The assessment level is applied to each of the selected cells and the Level is displayed for each selected cell in the main Uncertainty Drivers list.

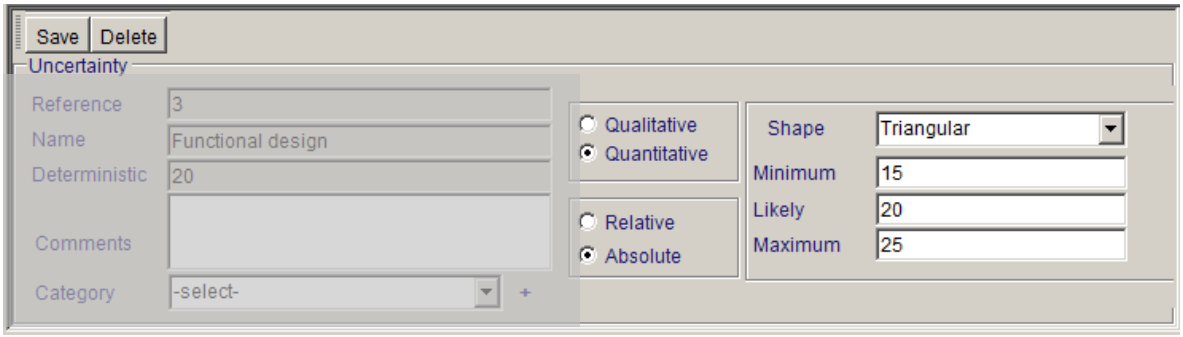
4.4 Apply or edit QUANTitative Assessment Parameters

Quantitative Uncertainty assessments may be made using several standard input distributions that are listed and described fully in **Section 8**.

To apply a quantitative Uncertainty assessment to a single task:

- Select the task row to which you wish to apply the assessment level
- In the Uncertainty parameter pane, select the **Quantitative** button
- Select the distribution **Shape** you wish to apply from the **Shape** drop-down
- Type in the Minimum, Likely and Maximum values you wish to apply (the

- Click **Save**. The assessment is applied and the parameters are displayed in the main Uncertainty Drivers list.

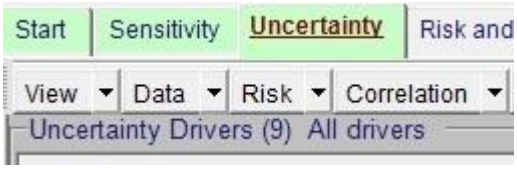


To apply quantitative parameters to **multiple tasks** at the same time:

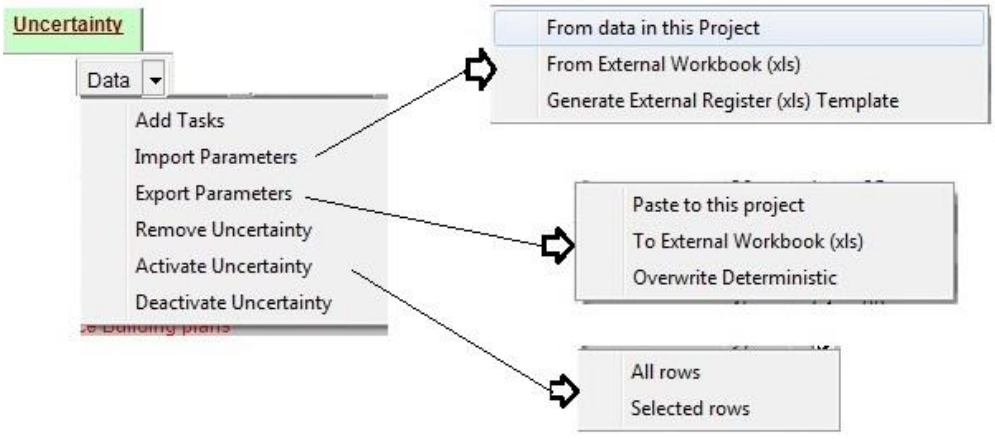
- Hold down the Ctrl key and click once on each row you want to select
- Repeat the qualitative level selection process above and click **Save**.

The assessment parameters are applied to each of the selected tasks and are displayed for each selected task in the main Uncertainty Drivers list.

: The total number of Uncertainty Driver cells is displayed above the summary pane underneath the Feature Bar:



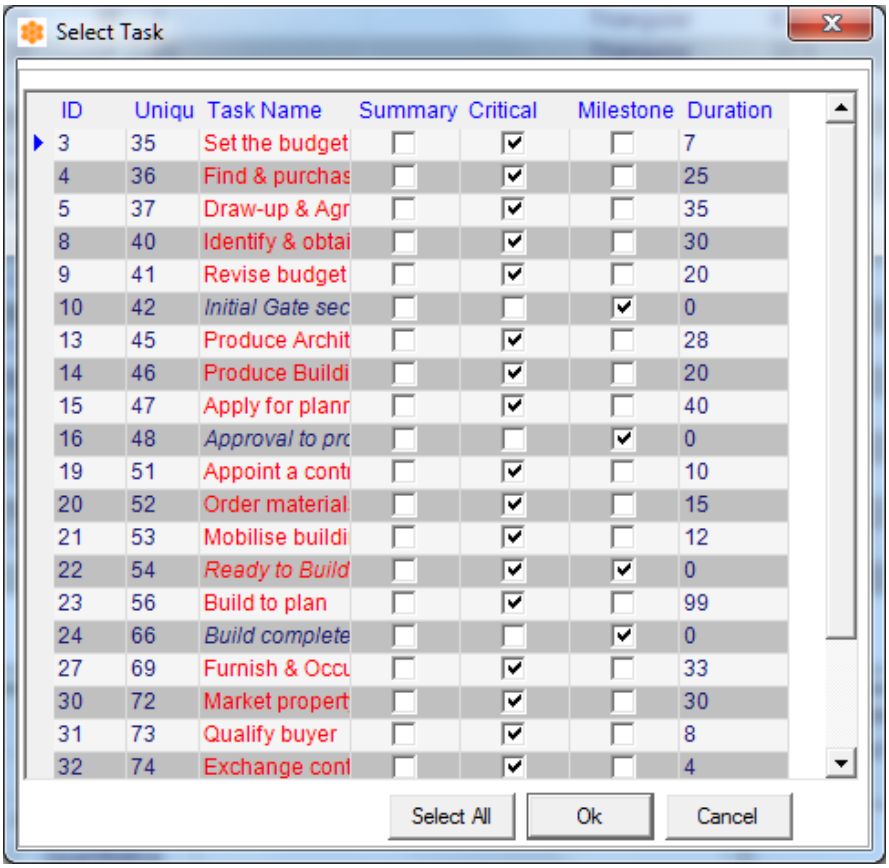
4.5 Data



4.5.1 Add Tasks

To add uncertainty by manually selecting cells from the attached workbook:

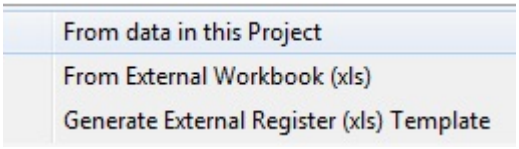
- Click once on the **Data** tab on the **Uncertainty Feature Bar**
- Select **Add Tasks** from the displayed cell-selector.:



- Select the cells to which you want to add uncertainty parameters. The cell locations or ranges will be displayed in the cell-selector window. Click **OK**.

- A progress indicator appears and a confirmation message is displayed once the task is finished. Click **OK** to complete the operation.
- The cells are now displayed in the main Uncertainty Drivers pane with their names, locations and deterministic values. Note that the shape column is highlighted in red denoting that although the cell is available for uncertainty assessment it currently has no parameters assigned to it.

4.6 Import parameters

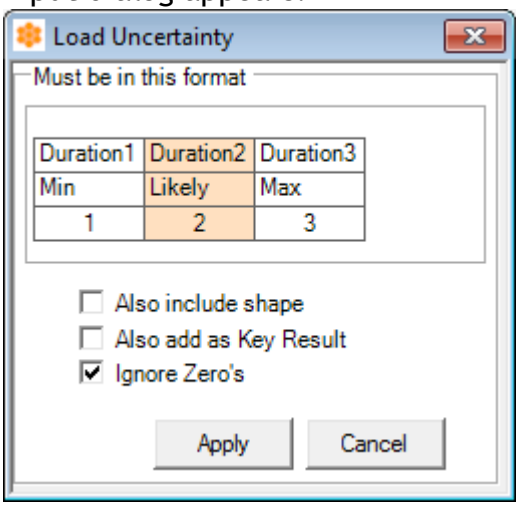


4.6.1 From data in this project

: First ensure that the Project workbook has 4 columns headed Duration 1,2 & 3 with Duration 1 = Minimum estimate, Duration 2 = Most Likely, Duration 3= Max estimate and Text 30= Shape in accordance with APM guidance.

To grab 3-point estimate uncertainty input data from the attached workbook:

- Click once on the **Data** control on the **Uncertainty Tab > Feature Bar**
- Select the **Import parameters** > **From data in this Project** option. The input dialog appears:



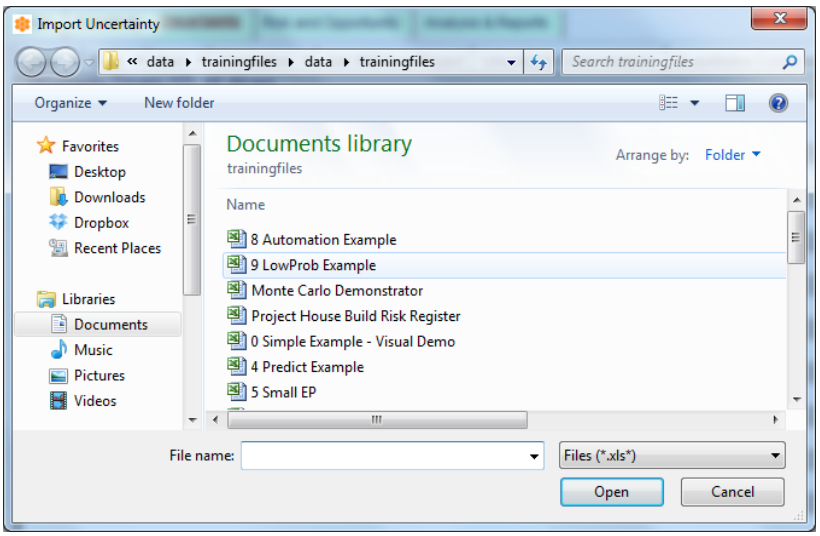
- Only one format for the **Columns.**. If you have defined the distribution shape by typing its initial to the left of the max value select the **Include Shape** box.
- Once you have selected your options click **Apply**.
- A progress indicator appears and a confirmation message is displayed once the task is finished. Click **OK** to complete the operation. The selected cells are added to the Uncertainty list, the 3PE parameters are applied and the new selections are displayed in the main Uncertainty Drivers list.

4.6.2 From external workbook (.xls)

: Excel workbook must be in the template format, please check before proceeding.

To grab 3-point estimate uncertainty input data from an Excel *workbook:*

- *Click once on the **Data** control on the **Uncertainty*** **Tab > Feature Bar**
- Select **Import Parameters**>**From external workbook** option. The file manager will appear



The application expects the min and max values to be adjacent to the task ID so you don't have to select them all, as shown in the graphic below.

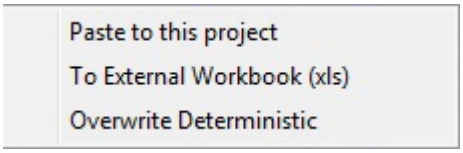
4.6.3 Generate an Uncertainty Register import template

The application contains a function to generate for the user a new workbook with a pre-configured risk register import template for easy population.

To generate the risk register import template in new workbook:

- Click once on the **Data** control on the **Uncertainty Tab Feature Bar**
- Select **Import Parameters** then **Generate external register (.xls) template** option.
- A new Excel workbook will be created which contains the pre-configured template layout. Populate the template with your data and be sure to save the file.

4.6.4 Export parameters

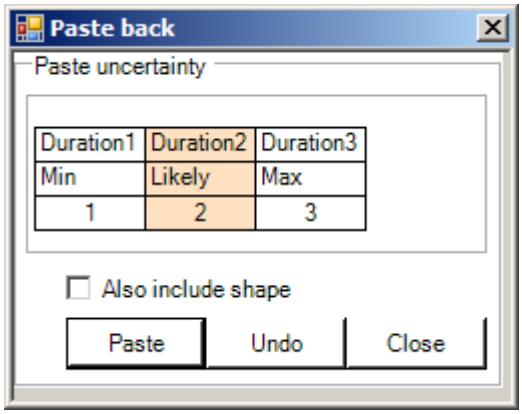


4.6.4.1 Paste to this Project

The ability to export the uncertainty parameters to the attached project using a paste function provides the ability to populate the project file with data values with minimal effort. To export Uncertainty to the attached project:

- Click once on **Uncertainty** > **Export Parameters** > **Paste to this Project**

The **Paste back** control box is presented, as below:



- If required select **Also include shape** (will paste back the distribution shape into Text30)
- Click **Paste** to complete the operation.

using the Duration 1,2 & 3 columns with Duration 1 = Minimum estimate, Duration 2 = Most Likely, Duration 3= Max estimate and Text 30= Shape

4.6.4.2 Export To External Workbook as an uncertainty register

To export Uncertainty to an external register in a new Excel workbook:

- Click once on the **Data** control on the **Uncertainty Tab Feature Bar**
- Select **Export Parameters** then **To external register (.xls)** option.
- Select the file name and location in the displayed file-browser window
- Click **Save**.
- A progress indicator appears and a confirmation message is displayed once the task is finished. Click **OK** to complete the operation.

The Uncertainty parameters are exported in the following format:

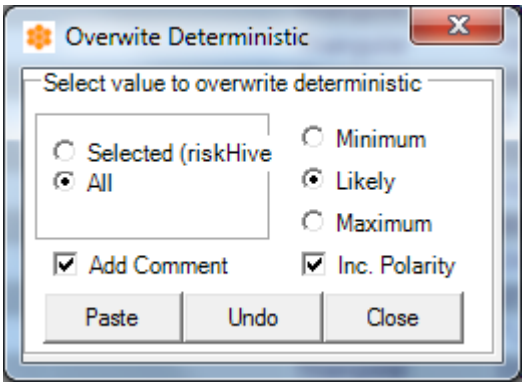
	A	B	C	D	E	F	G	H	I
1	Unique ID	Task Name	Level	Minimum	Likely	Maximum	Shape	Whole	Active
2	35	Set the budget		6.3	7	10.33	Triangular	FALSE	TRUE
3	36	Find & purchase a site		22.5	25	32.5	Triangular	FALSE	TRUE
4	37	Draw-up & Agree conceptual plans		31.5	35	45.5	Triangular	FALSE	TRUE
5	40	Identify & obtain contractors quotes		27	30	39	Triangular	FALSE	TRUE
6	41	Revise budget & secure finance		18	20	26	Triangular	FALSE	TRUE
7	45	Produce Architects design		25.2	28	36.4	Triangular	FALSE	TRUE
8	46	Produce Building plans		18	20	26	Triangular	FALSE	TRUE
9	47	Apply for planning permission		36	40	52	Triangular	FALSE	TRUE
10	51	Appoint a contractor		9	10	13	Triangular	FALSE	TRUE
11	52	Order materials for delivery		13.5	15	19.5	Triangular	FALSE	TRUE
12	53	Mobilise building site		10.8	12	15.6	Triangular	FALSE	TRUE
13	56	Build to plan		89.1	99	128.7	Triangular	FALSE	TRUE

The parameters may be edited, extended or reduced as required in Excel and then re-imported into the application using the **Uncertainty Tab Feature Bar Data > Import Parameters > From external register (.xls)** control described in Section **6.5.3**

4.6.4.3 Over write Deterministic

This will allow you to over write existing values with adjusted values. There are two main options that is **All** or **Selected**

- If you have decided to use Selected it necessary to slect those item first using the **ctrl key** and **left click**.
- Click once on the **Data** control on the **Uncertainty Tab Feature Bar**
- Select **Export Parameters** then **Overwrite deterministic** option.
- Using the popup Overwrite deterministic options, select the values you wish replace.
- Chose to include comments by ticking **Add Comment** tick box
- Chose to include **Polarity** (the impact of the uncertainty) by ticking the tick box.
- Press **Paste** to complete
- Popup message box will inform of progress.



4.6.4.4 Remove Uncertainty

Uncertainty may be removed by one of two methods:

- All
- Selected rows only

To remove **All** uncertainty assessments and clear the Uncertainty Driver list:

- Click once on the **Data** on the Uncertainty Tab Feature Bar then select **Remove uncertainty**
- Select the **All** option
- A progress indicator appears and a confirmation message is displayed once the task is finished.

To remove **selected** uncertainty assessments and remove them from the Uncertainty Driver list:

- Select the rows representing the cells you want to remove from the Uncertainty Drivers list
- Click once on the **Data** on the Uncertainty Tab Feature Bar
- Select the **Remove uncertainty** then **Selected rows** option
- A progress indicator appears and a confirmation message is displayed once the task is finished.

4.6.5 Activate Uncertainty

To deactivate uncertainty assessments and clear the Uncertainty Driver list:

- Click once on the **Data** on the Uncertainty Tab Feature Bar then select **Activate uncertainty**
- Select the **All** option
- A progress indicator appears and a confirmation message is displayed once the task is finished. View "**Active**" column to confirm operation.

To remove **selected** uncertainty assessments and remove them from the Uncertainty Driver list:

- Select the rows representing the cells you want to remove from the Uncertainty Drivers list
- Click once on the **Data** on the Uncertainty Tab Feature Bar
- Select the **Activate uncertainty** then **Selected rows** option
- A progress indicator appears and a confirmation message is displayed once the task is finished. View "**Active**" column to confirm operation.

4.6.6 Deactivate Uncertainty

To deactivate uncertainty assessments and clear the Uncertainty Driver list:

- Click once on the **Data** on the Uncertainty Tab Feature Bar then select **Deactivate uncertainty**
- Select the **All** option
- A progress indicator appears and a confirmation message is displayed once the task is finished. View "**Active**" column to confirm operation.

To remove **selected** uncertainty assessments and remove them from the Uncertainty Driver list:

- Select the rows representing the cells you want to remove from the Uncertainty Drivers list
- Click once on the **Data** on the Uncertainty Tab Feature Bar
- Select the **Deactivate uncertainty** then **Selected rows** option
- A progress indicator appears and a confirmation message is displayed once the task is finished. View "**Active**" column to confirm operation.

5 Correlation

Correlation between any uncertainty inputs can easily be applied from the Uncertainty Drivers List and managed from the Associated Correlations box.

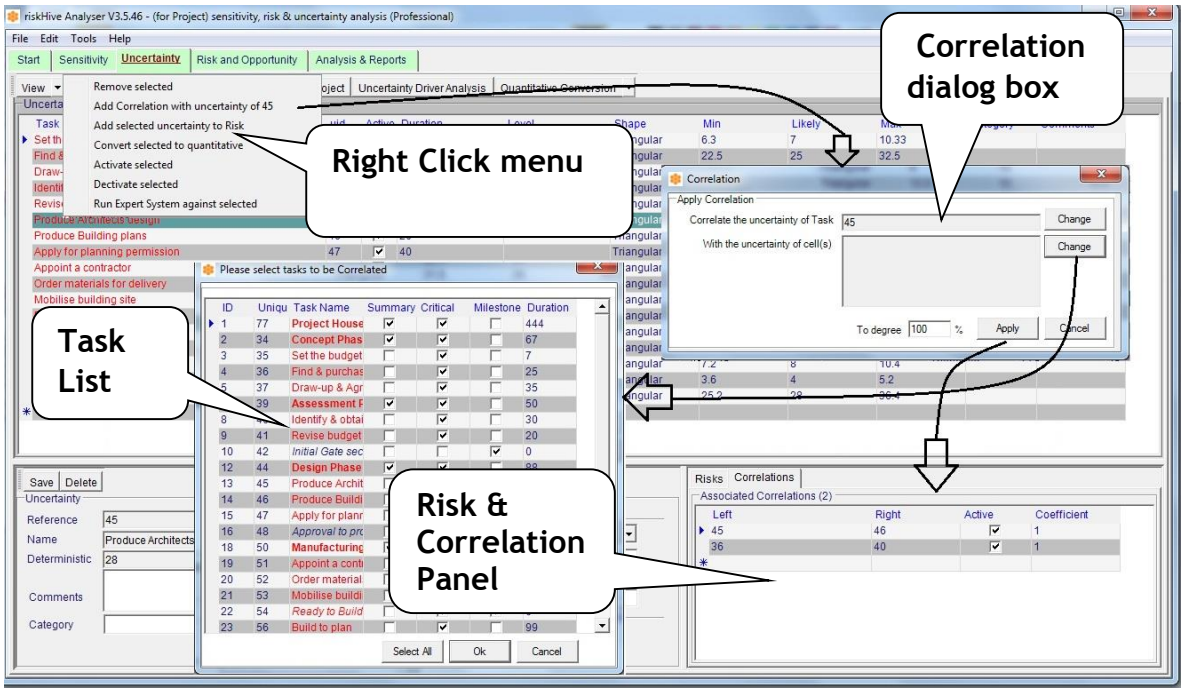
Correlation is the expression of interaction between variables.

- Correlation is used to describe the derivative effect of the variation of nominated 'lead' elements on 'dependent' elements during analysis.
- Correlation can be used to make variables 'follow' or 'repel' each other to a degree specified by what is called the Coefficient of Correlation.
- The relationship between the variables may be described as either Direct or Inverse depending on the nature of effect.

5.1 Add correlation to Uncertainty Driver cells

In the Uncertainty Drivers list on the Uncertainty Function Tab:

- Select the Uncertainty Driver rows you wish to correlate using the Ctrl key
- Right-click once on one of the selected cells and a menu appears
- Select the **Add Correlation with uncertainty of 'Cell x'** option



- The Correlation dialog box will appear. From here you can change either the cells to be correlated or the degree of correlation to be applied.

- Using the **Change button** select the desired cells and degree of correlation selected, click once on the **Apply** button to commit the correlation to the simulation.

5.2 Alternative method (short cut)

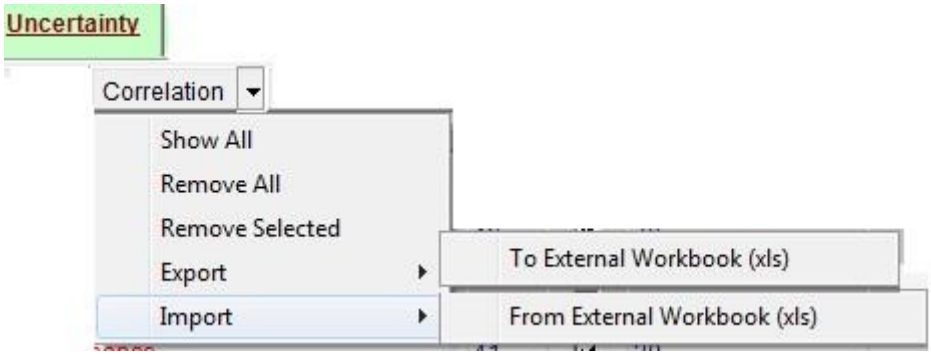
- In the viewing panel select the rows you which to correlate using **crtl+click**.
- Right and select Correlation option this will take you to the dialog box where the correlation value can applied.
-

The Associated **Correlations panel** will be populated.

Parameter Inputs:

- Lead variable
- Tracking variable (s)
- Correlation coefficient (value = -100% through 100%)
- Any degree of Direct or Inverse correlation can be specified, with the greatest effects at the +100%/-100% limits.

5.3 Correlation Tab



5.3.1 Show All

This function control what is displayed in Risk/Correlation panel (btm. right hand of screen)

- Select **Correlation** from **Uncertainty** function tab
- Select **Show All** to display all the items that are correlated.

5.3.2 Remove All

This function control what is displayed in Risk/Correlation panel (btm. right hand of screen).

- Select **Correlation** from **Uncertainty** function tab
- Select **Remove All** to remove correlated items from display.

5.3.3 Remove Selected

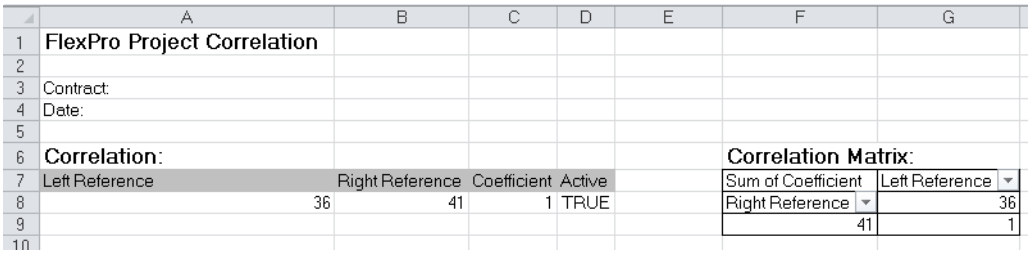
This function removes selected items from view.

- Using **Ctrl** key and **left click** select items to be removed.
- Select **Correlation** from **Uncertainty** function tab
- Select **Remove Selected** to remove correlated items from display.

5.3.4 Export

Will export the correlation data to an Excel workbook

- Select **Correlation** from **Uncertainty** function tab
- Select **Export,** you be asked to **Name** the file then press **Save,** this will create a new workbook in the format shown below. Remember to fill in Excel with metadata and **Save.**



	A	B	C	D	E	F	G
1	FlexPro Project Correlation						
2							
3	Contract:						
4	Date:						
5							
6	Correlation:					Correlation Matrix:	
7	Left Reference	Right Reference	Coefficient	Active		Sum of Coefficient	Left Reference
8	36	41	1	TRUE		Right Reference	36
9						41	1
10							

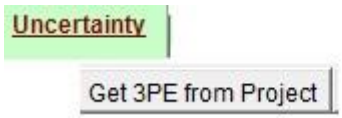
5.3.5 Import

Will Import Correlation data from an Excel workbook

- Select **Correlation** from **Uncertainty** function tab
- Select **Import**> select **file** from Import manager.

: file must be in the format shown above.

5.4 Get 3PE from data in the project

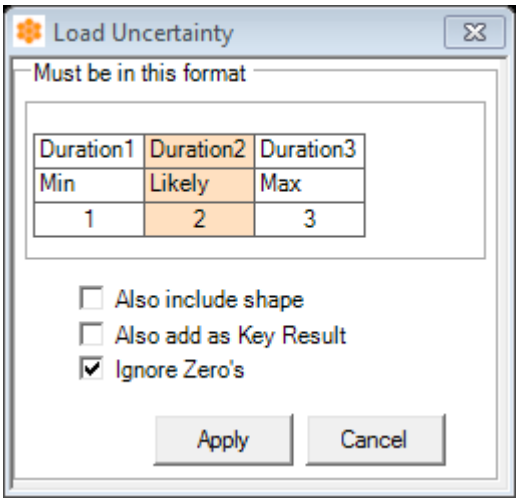


3-Point Estimates can be held in the MS Project file in accordance with APM guidelines. The data is held in the following fields:

- **Duration 1:** Minimum (Optimistic) value
- **Duration 2:** Most Likely (Expected) value
- **Duration 3:** Maximum (Pessimistic) value

To import 3-point estimate uncertainty input data from the attached project:

- From the **Uncertainty** control click **Get 3PE from project**. The input dialog appears:

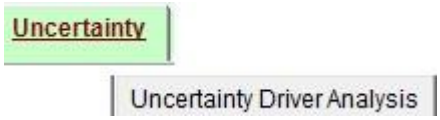


  a. Select the **Also Include Shape** option if the distribution shape has been defined. This is held in the MSP field **Text 30**.
  b. Select the **Also add as Key Result** option if you want to automatically add the task to the list of Key Results available for statistical reporting.
  c. Select the **Ignore Zeros** option if you want to automatically reject all tasks which have zero duration – this keeps the Uncertainty list cleaner.

- Click **Apply**. The application imports the min, expected and max values from the MSP file with no further user intervention. A progress indicator appears and a confirmation message is displayed once the task is finished.

Click **OK** to complete the operation. The selected Tasks are added to the Uncertainty list and the 3PE parameters are displayed.

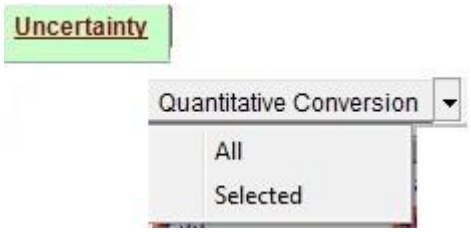
5.5 Uncertainty Driver Analysis



Click once on the **Uncertainty Driver Analysis** Feature Bar control. The attached project will be minimised and the application will apply the Uncertainty 3PE assessments into the project and record the effects on the Key Output Task.

Prerequisite: *please ensure there is at least one Uncertainty assessment in the Uncertainty Drivers list or the application will have no data to analyse.*

5.6 Quantitative Conversion



If you have used any form of **Qualitative** assessment it will necessary to covert **Qualitative** to a **Quantitative** value

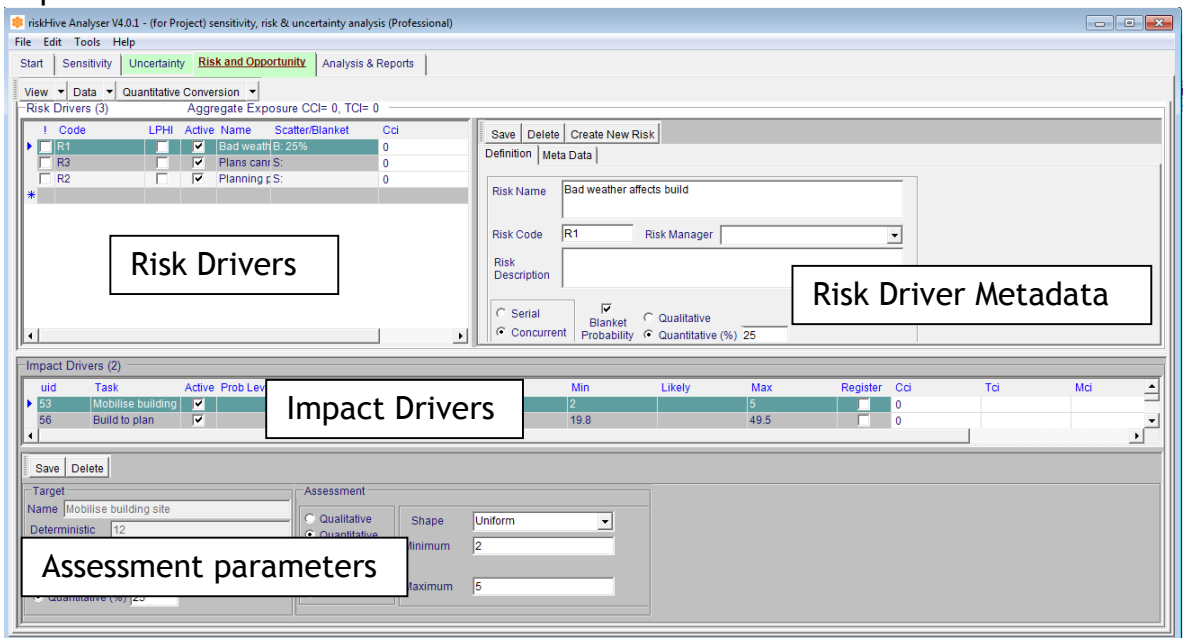
- Select Quantitative Conversion from the Uncertainty function
- Select All or pre select a row(s) from the viewing panel, use Ctrl+Click to select more than one row.

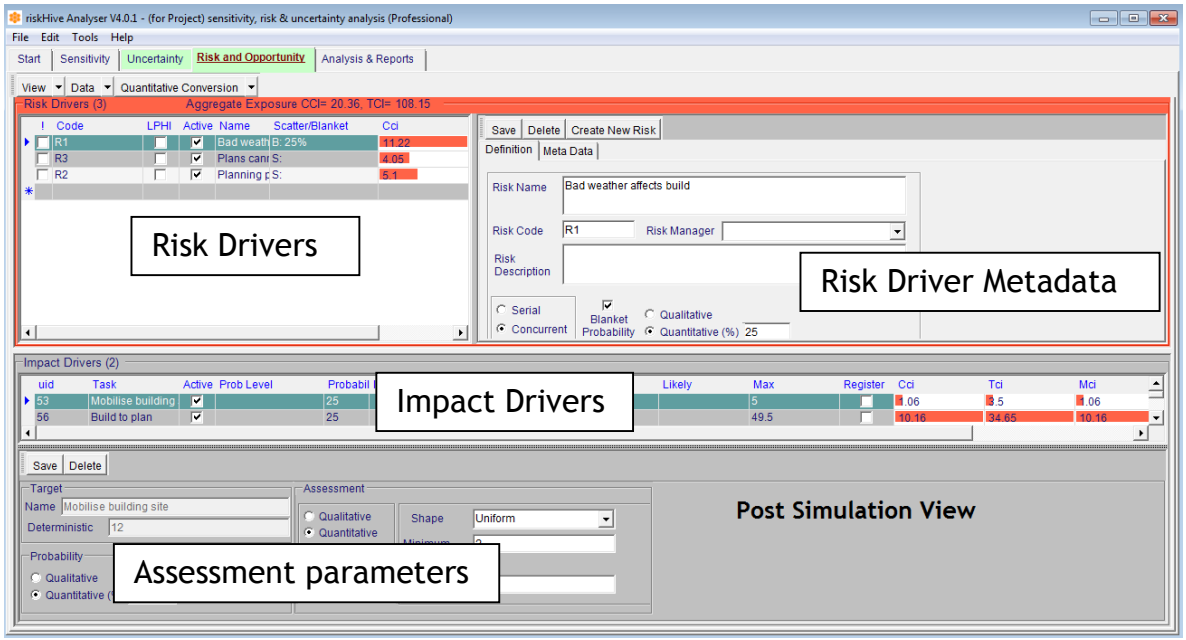
6 Risk and Opportunity

As far as the term Risk is used you may consider the word Opportunity to be exchangeable where the effect of the impact is of the opposite polarity.

The differentiator between Risk (and Opportunity) and Uncertainty is the Probabilistic element – also known as Likelihood.

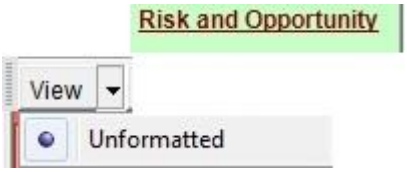
In risk, for there to be a Likelihood of occurrence, recorded as Probability on a scale of 0% - 100%, there must be an associated event or root-cause for the impact to manifest





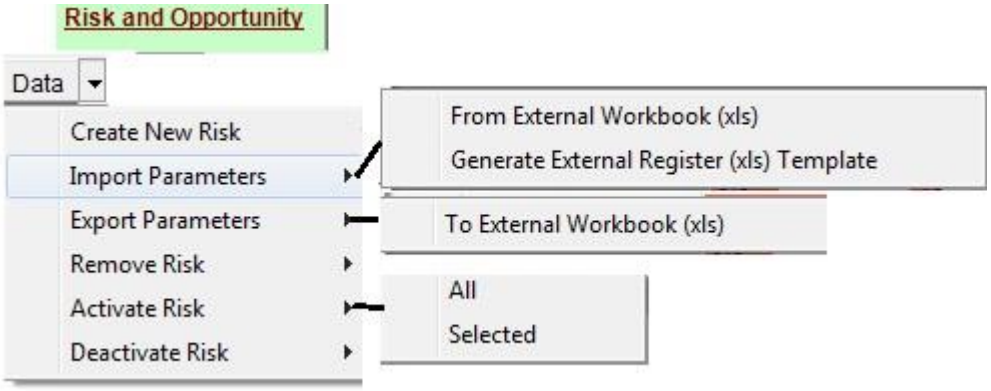
Change pics

6.1 View



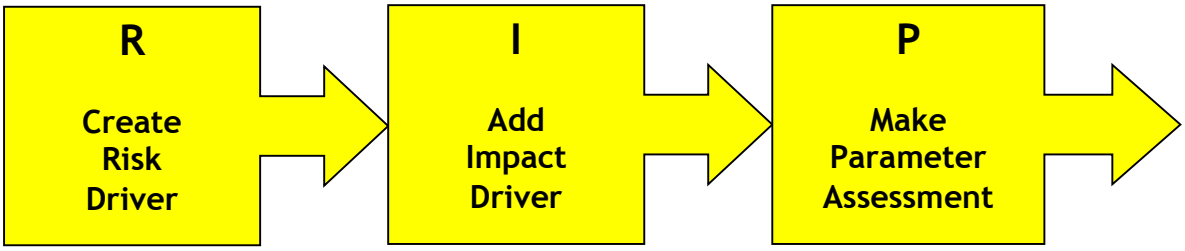
Tool is Factory set at **Unformatted** view only

6.2 Data



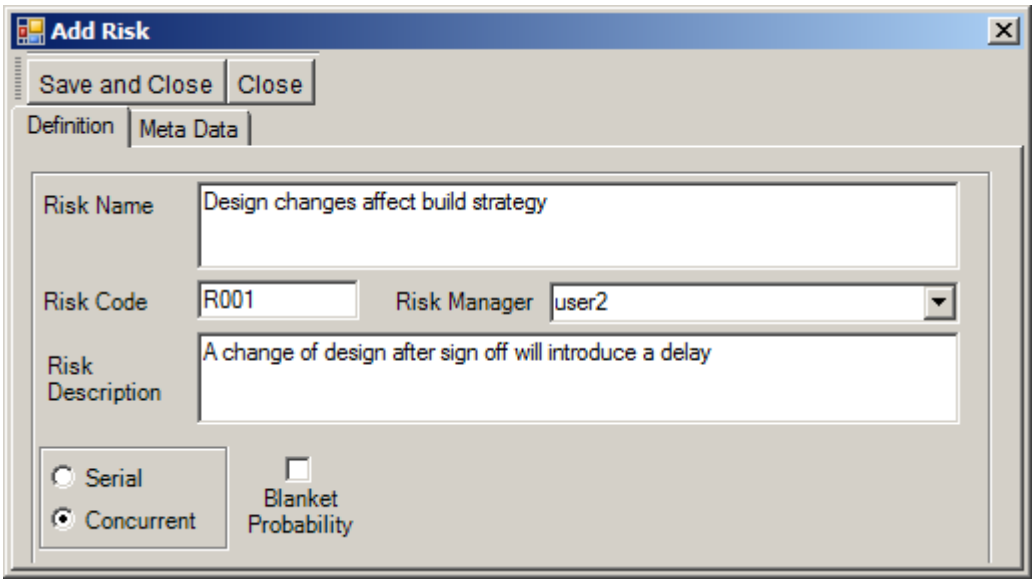
6.2.1 Create a new risk

To add a **Risk Driver** by manual entry, follow the following 3-point procedure:



6.3 Create Risk Driver

1. Click once on the **Risk > Create New Risk** control on the **Risk and Opportunity Tab > Feature Bar.** The Add Risk pop-up appears:



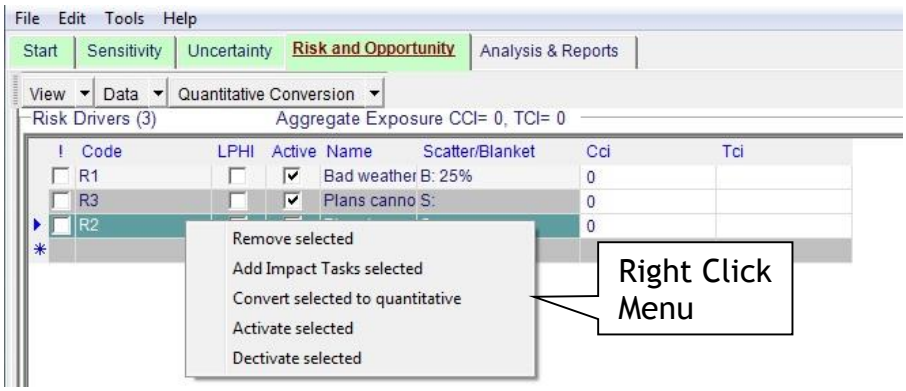
a. Type the **Risk Name** (mandatory),
b. Enter the **Risk Code**, if applicable (optional)
c. Select the **Risk Manager** (optional)
d. Enter a high-level **Description** of the risk (Optional)

Click **Save and Close**. The Risk Driver is displayed in Risk Drivers List.

6.3.1 Add an Impact to a Risk Driver

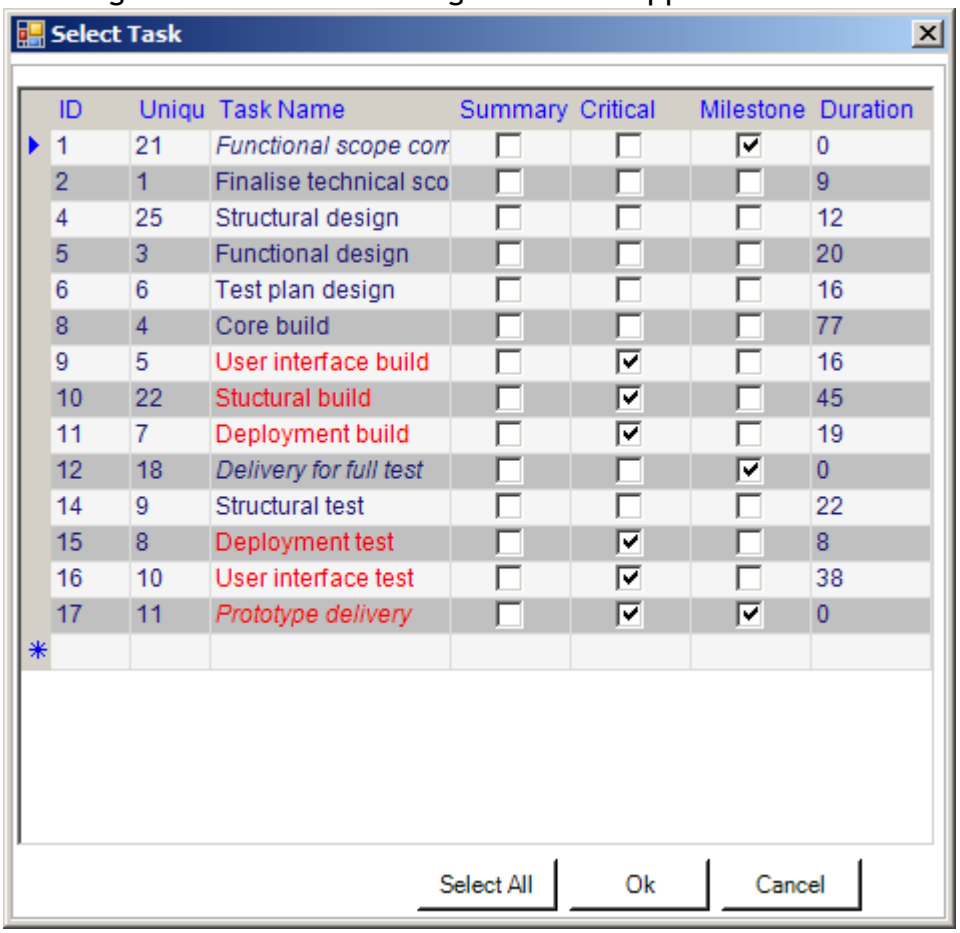
On its own a Risk Driver has no effect on the analysis. It requires the application of at least one **Impact Driver** to describe its effect on the project model. Each Risk Driver may have an unlimited amount of Impact Drivers, each affecting a different task in the attached project. In this way it is possible to build-up complex effects of risk and opportunity and then measure their aggregate effect.

To add an **Impact Driver** by manual entry:



- In the Risk Drivers list pane select the **Risk Driver** row to which the Impact Driver is to be added by clicking once on the desired row.
- Right-click once on the selected row and click on the **Add Impact TASK selected** control on the context menu that appears.

- The target Task selection dialogue box will appear:



- If you want to add a named range, select that option, click Select and then choose the named range that contains the cells to add as impacts.
    a. Select the task (or tasks) to which you want to add an impact.

A confirmation message is displayed once the Impact is added is finished. Click **OK** to complete the operation. The impact is displayed in the **Impact Drivers List** pane. The Shape column is coloured red denoting an incomplete or incorrect parameter set.

6.4 Make a Parameter Assessment on an Impact Driver

To have an effect on the project during analysis an **Impact Driver** needs a Parameter Assessment to describe its effect on the project model. Each Impact Driver has one impact assessment that pertains to an individual project task.

To add an assessment to an **Impact Driver** by manual entry:

- In the **Impact Drivers** list pane select the **Impact Driver** row to which the Impact Assessment is to be added by clicking once on the desired row.
- The Impact Assessment Parameters pane at the base of the Risk & Opportunity Function Tab now relates to the selected Impact Driver.
- Set **Probability**:
- Select either of the **Qualitative** or **Quantitative** options.
- Select the desired **Probability** Level from the drop-down list that appears to the right of the option;
- **Quantitative:** Type in the desired **Probability** value (an integer between 0 and 100) in the field that appears to the right of the option.

- Set **Impact**:
- Select either of the **Qualitative** or **Quantitative** options.
- **Qualitative:**
- Select either **Relative** or **Absolute** levels;
- the desired **Impact Level** from the drop-down list that appears to the right of the option;
- **Quantitative:**
- Select the desired **Shape** from the drop-down list that appears to the right of the option;
- Type in the desired Impact Values (min, likely, max, etc) in the fields that appear underneath the shape drop-down.
- Click **Save**. The Impact Driver Assessment parameters are displayed in the Impact Drivers List pane in their respective fields.

: Any blank, inappropriate or illegal field values are highlighted in red.

- ***Relative** will produce values for min. most likely and max (3PE) based on the deterministic value used in the model.*
- ***Absolute** option will add the deterministic value to the pre-determined 3 PE defined by "User". This option is best suited to "Design to cost" modelling when detailed risk impact information is limited.*

6.5 Import risks from an external risk register

To import risk data from an external risk register in an Excel workbook:

- Ensure the external register is prepared and saved in the format shown on the following page. The red box denotes the mandatory name range RISKS:
- Click once on the **Risk and Opportunity Tab > Data > Import Parameters**
- Select the **From external register (.xls)** option.
- Select the file name and location from the displayed file-browser window
- Click **Open**.
- A progress indicator appears and a confirmation message is displayed once the task is finished. Click **OK** to complete the operation. The imported information is added to the **Risk Drivers** list and displayed in the main list.

Notes: the task name is optional

- **Scatter or Blanket** – scatter means all impacts of a risk instance are probabilistically independent – blanket means they are probabilistically linked.
- Use either **Probability Level** (Qualitative) OR **Probability** (Quantitative)– not both.
- Use either **Impact Level** (Qualitative) OR **Min, Likely, Max** (Quantitative)– not both.
- **Serial or concurrent** defines risk interaction in modelling.
- **Include_Risk** and **Include_Impact** can be used to switch-off whole risks or individual impacts during Monte Carlo simulation and analysis.

LPHI has the same effect as Include_Risk but tags the risk so it can be treated separately in Monte Carlo Simulation, reporting and MIS.

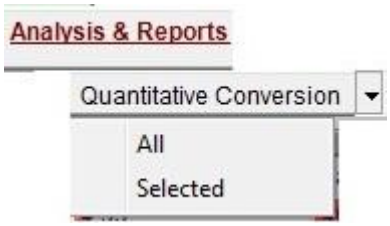
6.6 Export risks to an external risk register

To export Risk data to an external register to a new Excel project:

- Click once on the **Risk and Opportunity Tab > Data > Export Parameters**
- Select the **To external register (.xls)** option.
- Select the file name and location in the displayed file-browser window
- Click **Save**.
- A progress indicator appears and a confirmation message is displayed once the task is finished. Click **OK** to complete the operation.

The Risk data parameters are exported in the format described in **Section 6.3**: The parameters may be edited, extended or reduced as required in Excel and then re-imported into the application using the control:
Risk and Opportunity Tab > Risk > Import Parameters > From external register (.xls) control.

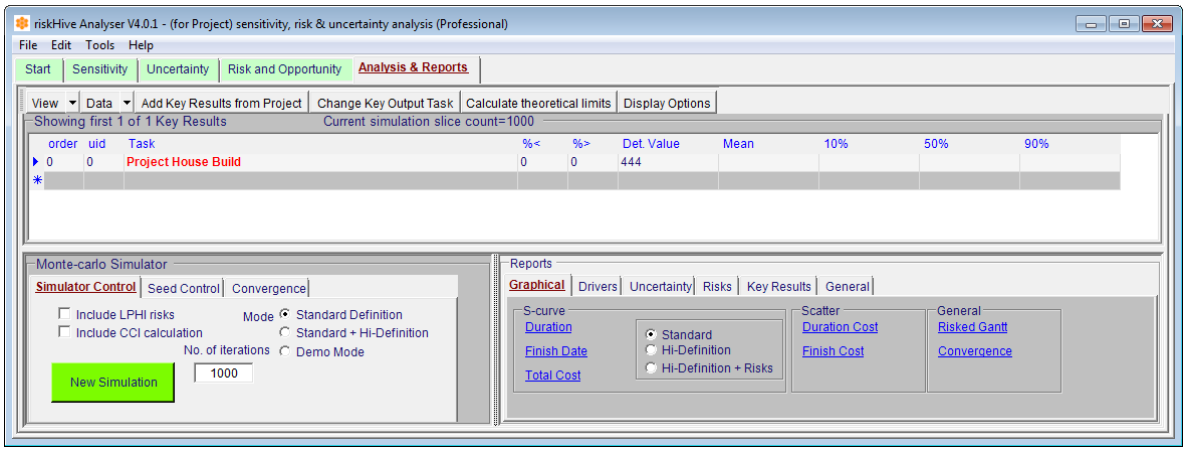
6.7 Quantitative Conversion



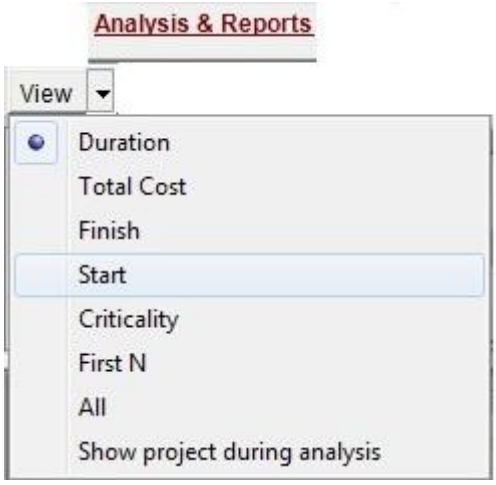
If you have used any form of **Qualitative** assessment it will necessary to covert **Qualitative** to a **Quantitative** value

- Select Quantitative Conversion from the Uncertainty function
- Select All or pre select a row(s) from the viewing panel, use Ctrl+Click to select more than one row.

7 Analyse and Reports



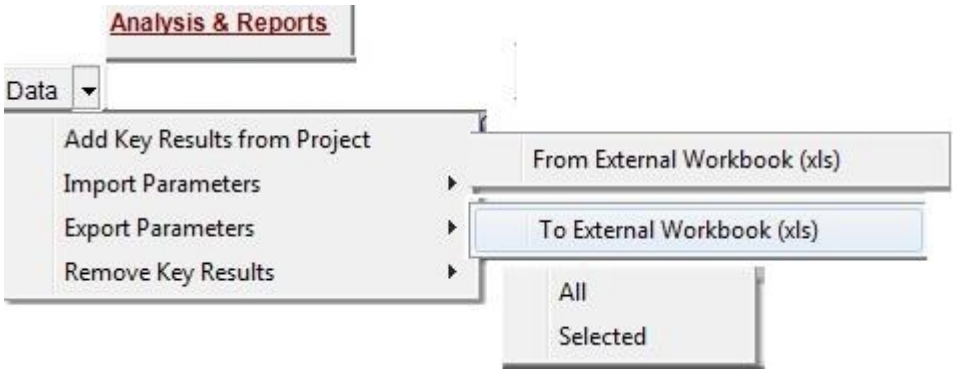
7.1 View



The view function allows you select what is displayed in the key results viewing panel.

- **Duration** **Det. Value** column will display Duration days
- **Total Cost** **Det. Value** column will display **Total Cost.**
- **Finish** **Det. Value** column will display **Finish date**
- **Start** **Det. Value** column will display **Start Date**.
- **Criticality** **Det. Value** column will display **Criticality Index number**
- **First N** A popup will ask you how many of the key results you would like to be displayed.
- **All** Will display All key results
- **Show project during Analysis** will update MS Project will changes. This will increase the time taken for each simulation.

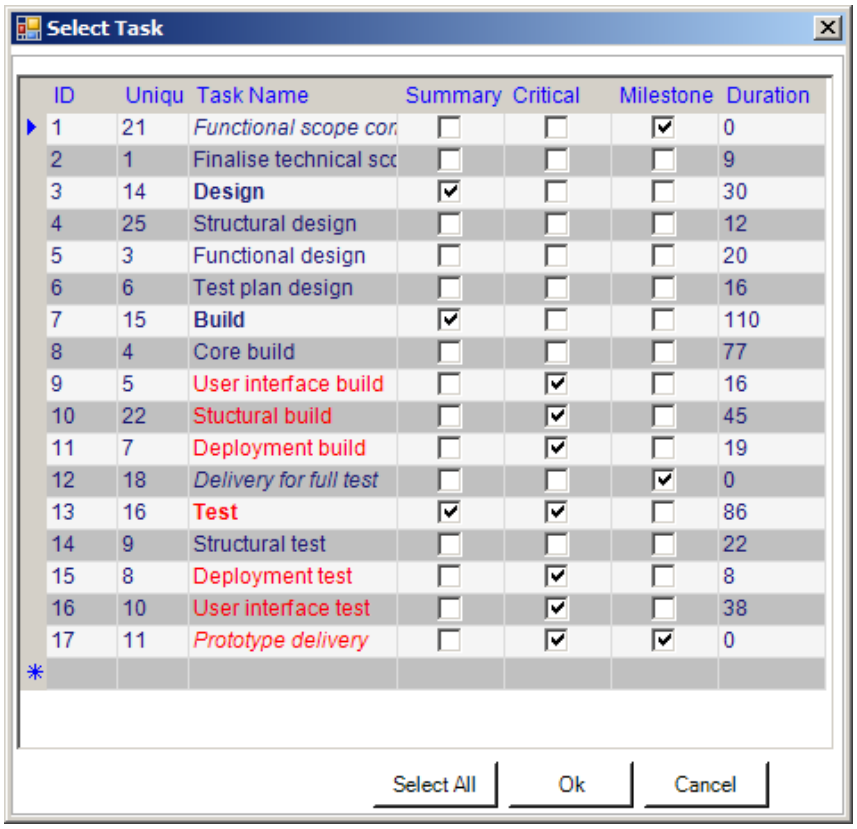
7.2 Data



7.2.1 Add key results from Project

Adding Key Results to the task list is done by selecting tasks from the attached project.

- On the **Feature Bar** click once on the **Data** button.
- Select **Add key results from project** the **'Select Task'** dialog box will open and presents selection list



- Select the tasks you want to add to the Key Results list.
- Click **OK**. Tasks that are selected will be added to the list of Key Results.
- A progress indicator appears and a confirmation message is displayed once the task is finished.
- Click **OK** to complete the operation.

***Tip**: You may select an individual cell, multiple cells, contiguous groups of cells or non-contiguous cells (using the Ctrl key).*

: You may reduce the number of nugatory cells added to the Key Results list by checking this option before adding the selected cells. This can help make the subsequent simulation faster and the reports cleaner and less cluttered.

7.3 Import Key Results to list

The ability to import a list of **Task** references from an external excel workbook provides the ability to add desired Key Results negating the need to repeat the selection process where a list of Key Result cell references is known and saved.
To import a list of Key Result cell references to Excel:

- On the **Feature Bar** click once on the **Data** control
- Select **Import Parameters**
- Select **From External Workbook (.xls)**
- Select **file** from popup dialog screen then **Open**
- A progress indicator appears and a confirmation message is displayed once the task is finished.
- Click **OK** to complete the operation.

7.3.1 Export Key Results

The ability to export the list of cell references to an external excel workbook provides the ability to edit, maintain and subsequently import the whole list of selected Key Results, thus negating the need to repeat the selection process.
To export the list of Key Result cell references to Excel:

- On the Feature Bar click once on the **Data** control
- Select **Export Parameters** then **To External Workbook (xls)**
- Name the **file** from popup dialog screen then **press Save**
- A progress indicator appears and a confirmation message is displayed once the task is finished.
- Click **OK** to complete the operation.
- File format:

	A	B	C
1	FlexPro Project KeyResult		
2			
3	Contract:		
4	Date:		
5			
6	KeyResult:		
7	Unique ID	Task Name	Active
8	0	Project House Build	TRUE
9			

7.3.2 Remove tasks from the key results list

There are two options for removing Key Results directly from the list:

- All
- Selected

7.3.2.1 To remove all Key Results from the list

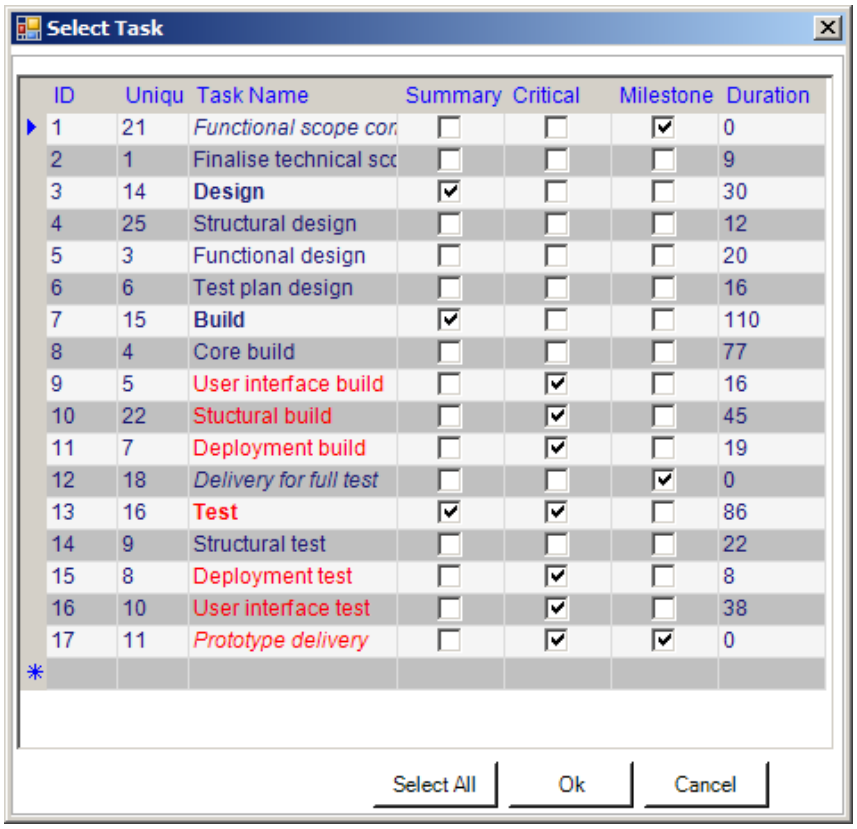
- On the Analysis and Reports Feature Bar, click once on the **Remove** control and select the **All** option from the drop-down list.
- A progress indicator appears and a confirmation message is displayed once the task is finished.
- Click **OK** to complete the operation.

7.3.2.2 To remove selected Key Results from the list

- In the **Key Results** pane, first select the Key Result rows you want to remove from the list by clicking on each one.
- You can use the shift or Ctrl keys to select ranges or non-contiguous rows.
- On the Analysis and Reports Feature Bar, click once on the **Remove** control and select the **Selected** option from the drop-down list.
- A progress indicator appears and a confirmation message is displayed once the task is finished.
- Click **OK** to complete the operation.

7.3.3 Add Key Results from Project

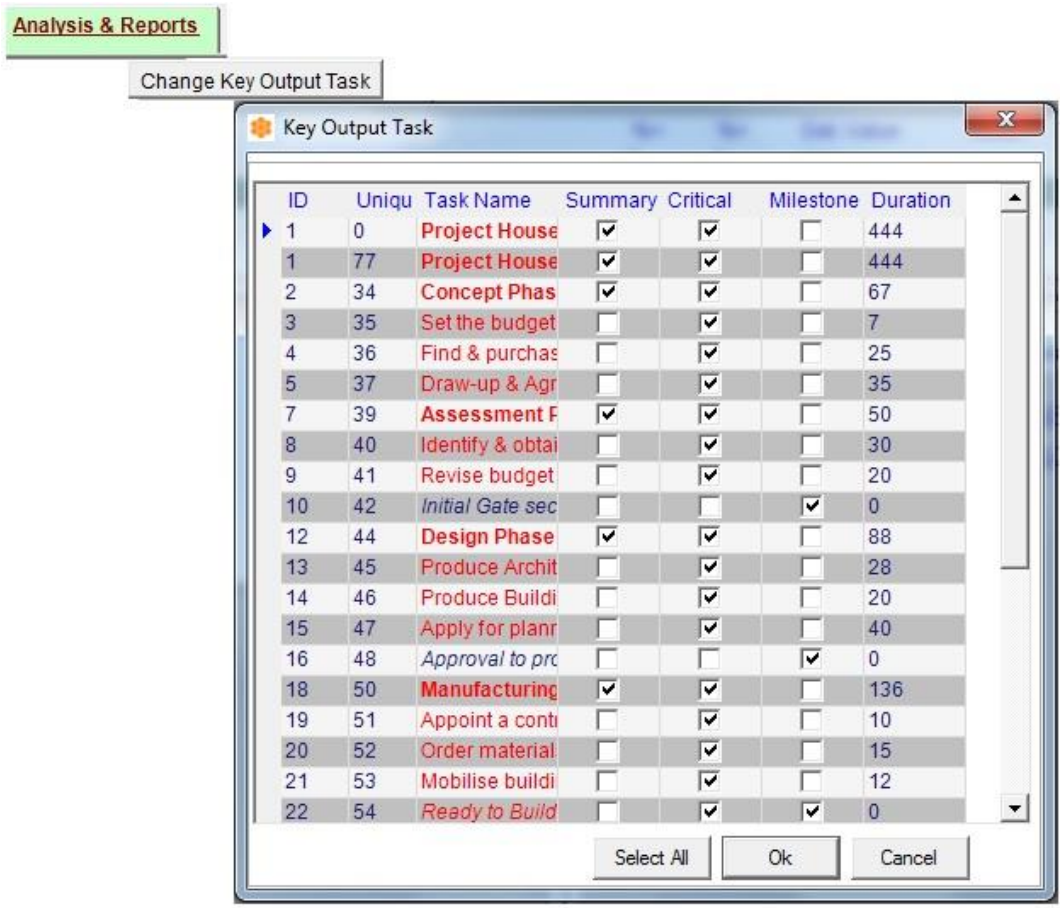
- Although part the **Data** options this function tab has been added to improve your effectiveness by saving key stokes. On the **Feature Bar** click once on the **Add key results from project** tab, the '**Select Task**' dialog box will open and presents selection list



- Select the tasks you want to add to the Key Results list.
- Click **OK**. Tasks that are selected will be added to the list of Key Results.
- A progress indicator appears and a confirmation message is displayed once the task is finished.
- Click **OK** to complete the operation.

: *You may select an individual cell, multiple cells, contiguous groups of cells or non-contiguous cells (using the Ctrl key).*

7.3.4 Change key Output task



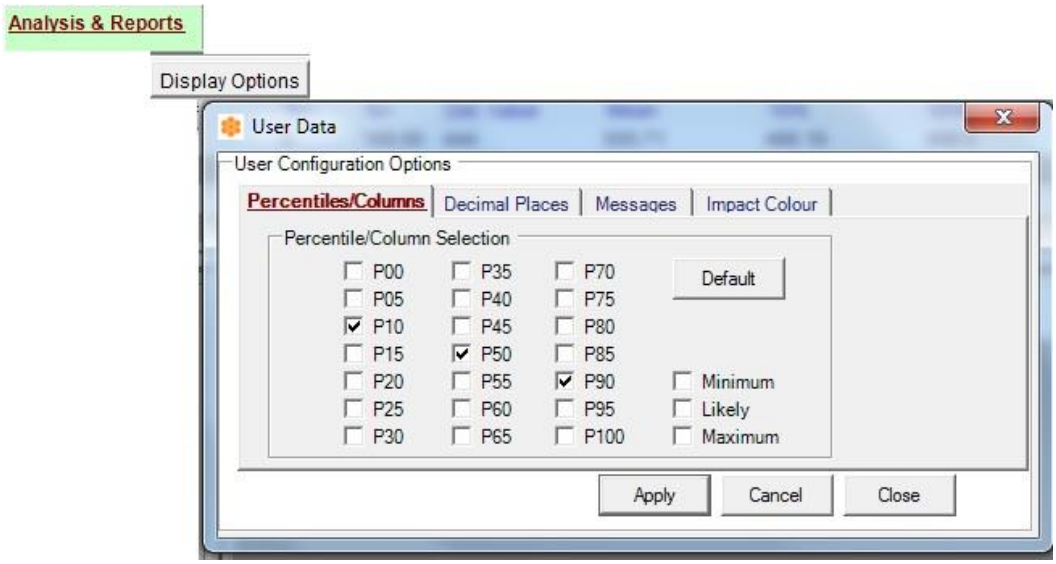
- From analysis and reports section select the Change key Output Task tab.
- Select the tasks from popup list you want to add to the Key Results list.
- Click **OK**. Tasks that are selected will be added to the list of Key Results.
- A progress indicator appears and a confirmation message is displayed once the task is finished.
- Click **OK** to complete the operation

7.3.5 Calculate theoretical limits

The MS Project workbook is constructed using deterministic estimates, this function replaces the deterministic values with the 3 point estimates that fed the Hullograms with data so that the extreme values can be displayed on the graph.

: ***It is important that this run before hullograms are prepared.***

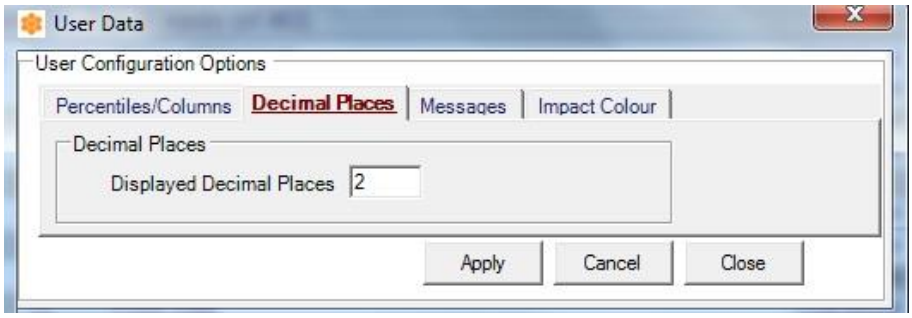
7.3.6 Display Options



- The Analysis results display can be changed to suit your requirements
- Select the required percentage values and press **Apply** then **Close.**
- By selecting **Default** you can reset to “Factory settings”

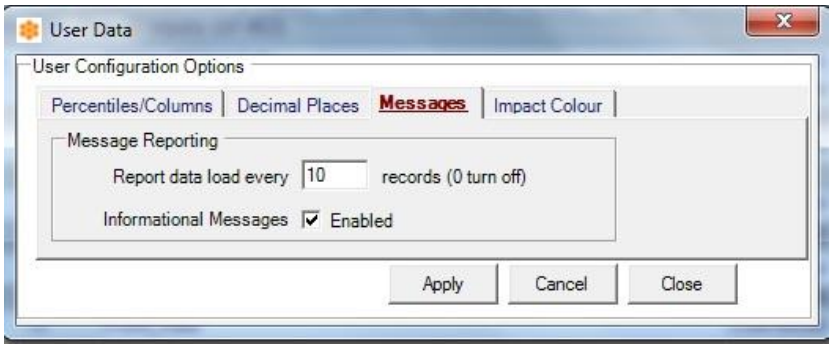
:

7.3.7 Decimal Places



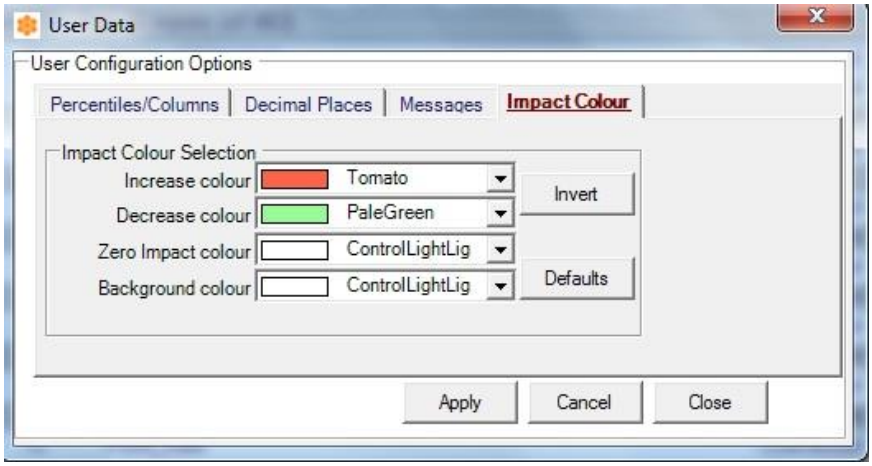
- The decimal places shown in the result displayed can be adjusted to level you require, this is useful when working in £k.
- Input required value and press **Apply** then **Close**.

7.3.8 Messages



- Messages are useful to track progress or warn you of error, but they do slightly increase process time, this options allow you to change the frequency or turn then off completely.
- Input record refresh rate
- Un-**tick box** to switch off information messages then press **Apply** and **Close.**

7.3.9 Impact Colour



- This options allows you to change the 'Impact colour' used .
- Select required colour setting and press **Apply** then **Close**
- The **invert** button will swop the "increase" and "decrease" selections press **Apply** then **Close**
- **Def**ault resets to "factory Settings"

7.4 Analysis & Reports contextual menu

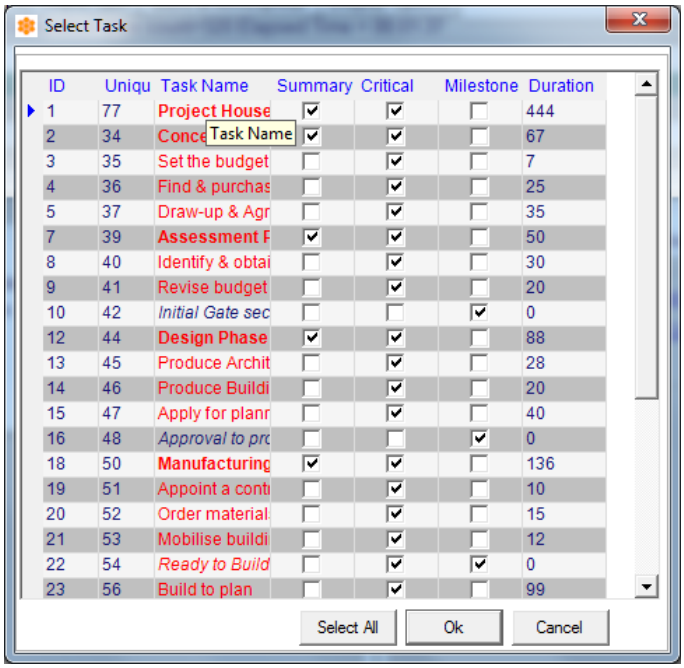
(Right Click menu)

This menu is assessed from the Key results viewing panel, from anywhere within the panel right click and the options menu will appear.

7.4.1 Add Task

This function is allows you to add a task via the "Select Task" menu**.**

- From the popup menu select **Add Task.**
- This will open the **Select Task** menu
- Select task then press OK; for multiply choice use **clrt key+ click** then **OK**



7.4.2 Remove selected from key Results

- Select the row you wish to remove.
- Right click and Select **Remove selected from key results**

7.4.3 Show Hullogram for selected

- Select the Key results you wish to create a Hullogram.
- Right click and select show Hullogram

7.4.4 Create DDC (Custom Distribution)

Create DDC (Custom Distribution): Will create a .ddc file describing a custom distribution based on the 0%-100% statistical output of the task's duration. This may be used as an input distribution to other tasks or in the Excel version of the Arrisca application as a 'Custom Distribution' input.

- Select **Key result** row.
- Right click and select **create DDC.**
- **Name file** and press **OK.**

7.5 Simulation

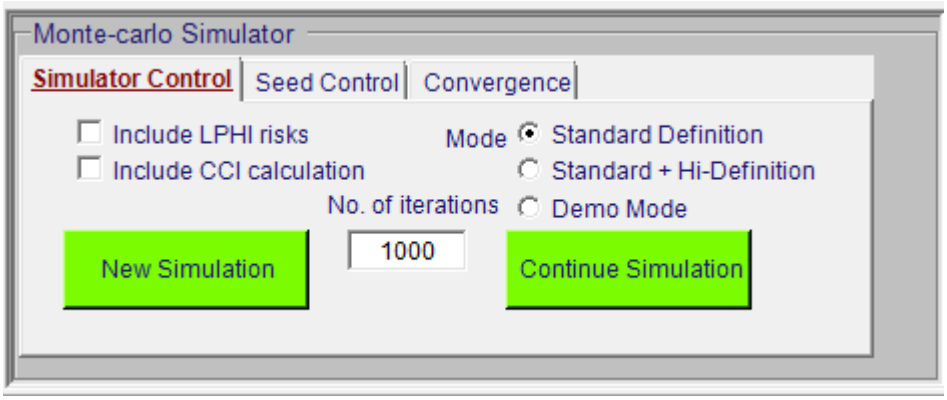
The application enables the user to run a meta modelling technique to simulate the effects of the stochastic variables, risk and uncertainty, on the workbook. The modelling technique used is called Monte Carlo simulation. The results of this simulation can be analysed to generate statistical information regarding the ranges of outturn of the workbook to inform the decision-making process.

Whilst the simulation itself is a complex computing exercise the controls presented to the user are simple and straightforward. They are located in the bottom left of the Analysis & Reports Function Tab.

: To be able to run a Monte Carlo simulation the model must contain at least one element of either uncertainty or risk or there will be nothing to analyse.

7.5.1 Run a new simulation set

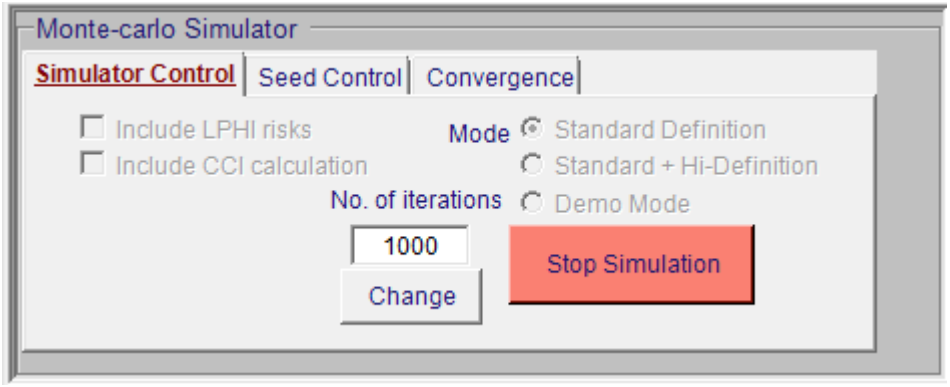
If the system has not yet run a simulation there is only one option available, the **New Simulation** button.



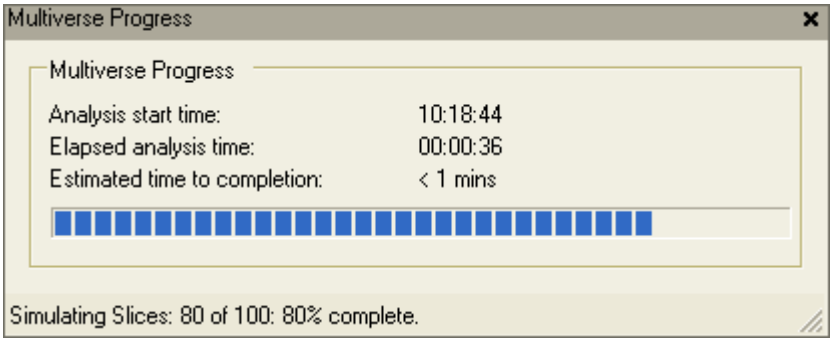
To initiate a Monte Carlo simulation:

- Type in the number of simulation iterations required in the **No. of iterations** data entry field to the right of the button.
- Chose if you require to include or exclude low probability high impact (**LPHI**) risks
- Chose **Mode** - **Standard** will produce data suitable for good quality graphical and output data. Whereas **Standard+ Hi Definition** will provide data that will enable high quality graphs to be produced also the data for each simulation is available that records which risk are active and any given point.
- Chose to include exclude **CCI calculations**.
- Click once on the green **New Simulation** button.
- The workbook will be hidden and the simulation will begin.
-

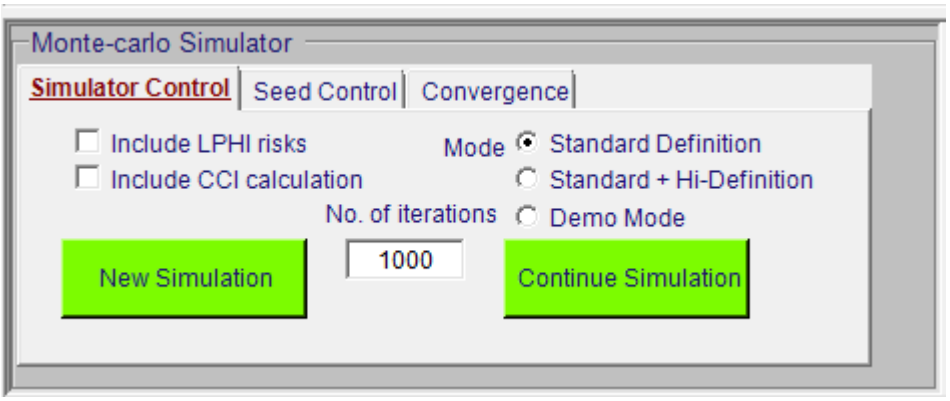
The **Stop Simulation** button is displayed- this will abort the process.



- During simulation a progress indicator is displayed to track the simulation iterations as they are completed. An estimated time to complete is also displayed along with the current elapsed simulation time.



- The workbook is redisplayed once the simulation is finished and the statistical outcome values are displayed in the Key Results pane. The simulator controls now display the green **New Simulation** and **Continue Simulation** buttons.



7.5.2 Continue a simulation set

If the system has run a simulation you may want to continue the simulation from where it ended to generate more iteration data and improve the quality of the results. To continue a simulation set:

- Type in the new number of simulation iterations required in the **No. of iterations** data entry field to the right of the button.
- Click once on the green **Continue Simulation** button.
- The workbook will be hidden and the simulation will continue.
- The simulation will run until either the **Stop Simulation** button is clicked or the new **No. of iterations** limit is reached.

7.5.3 Stop a simulation set

If the system has run a simulation you may want to continue the simulation from

- Click once on the green **Stop Simulation** button.
- At the end of the next set of slices the simulation will end.
- The workbook is redisplayed once the simulation is finished and the statistical outcome values are displayed in the Key Results pane. The

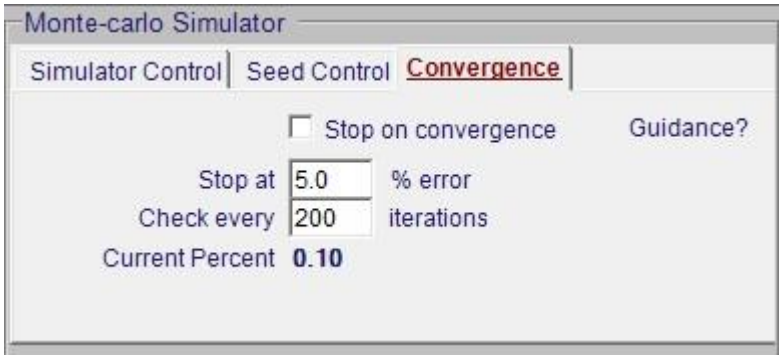
simulator controls will now display the green **New Simulation** and **Continue Simulation** buttons again.

7.5.4 SEED option

The seed option allows you to use either a **Random** number or a **Fix** Seed.

:Use fixed if wish to repeat a simulation that will give identical results each time it is run.

7.5.5 Convergence



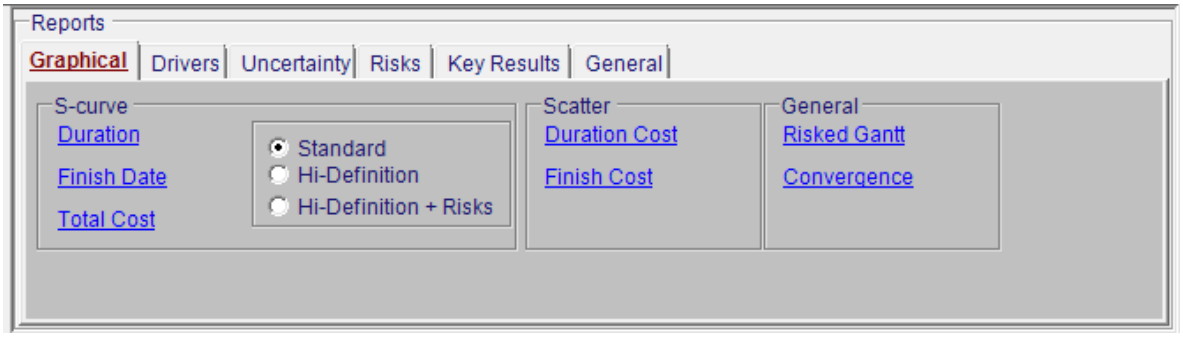
With any statistical simulation technique you reach a point when more simulations runs will not improve the output results, this option allows you set the point at which you consider the simulation should stop.

7.5.6 Stop a simulation set

If the system has run a simulation you may want to continue the simulation from

- Click once on the red **Stop Simulation** button.
- At the end of the next set of slices the simulation will end.
- The workbook is redisplayed once the simulation is finished and the statistical outcome values are displayed in the Key Results pane. The simulator controls will now display the green **New Simulation** and **Continue Simulation** buttons again.

8 Reports

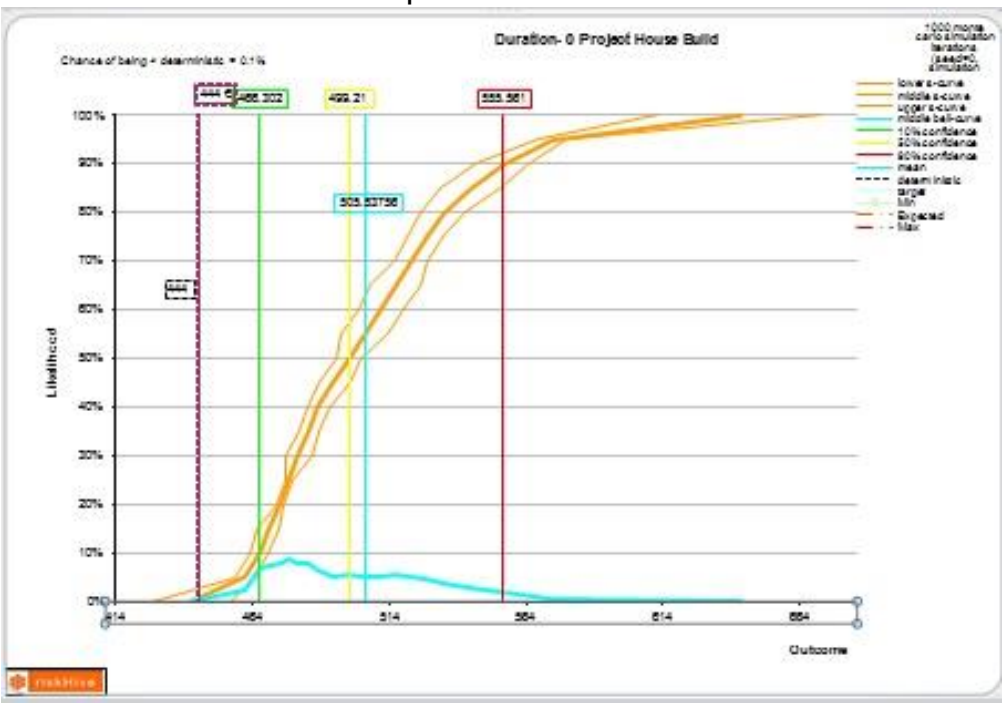


8.1 Graphical

8.1.1 Hullogram

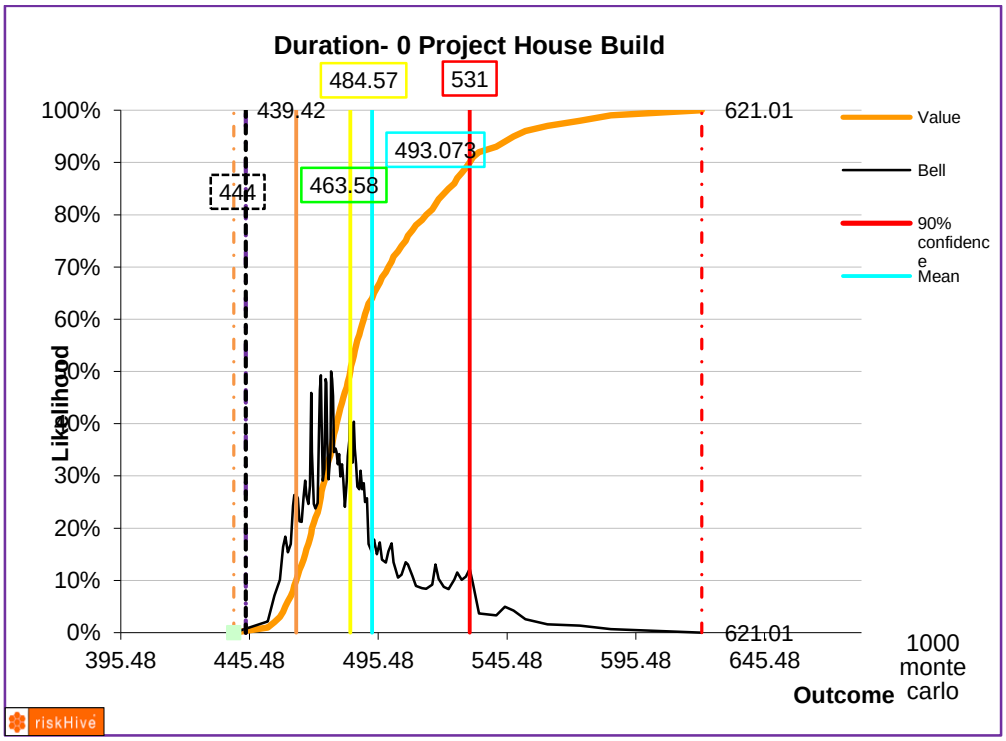
Hullogram will produce an s-curve graph in Excel based on either: duration, finish date or Total Cost

- Select graph option
- A process message box will indicate when task is complete
- Use Excel to view output.



8.1.2 Hi Definition

Press Hi Definition S-curve with risk occurrences for very detail graphical output, with data points for each simulation that also records the impact value of each risk at that point

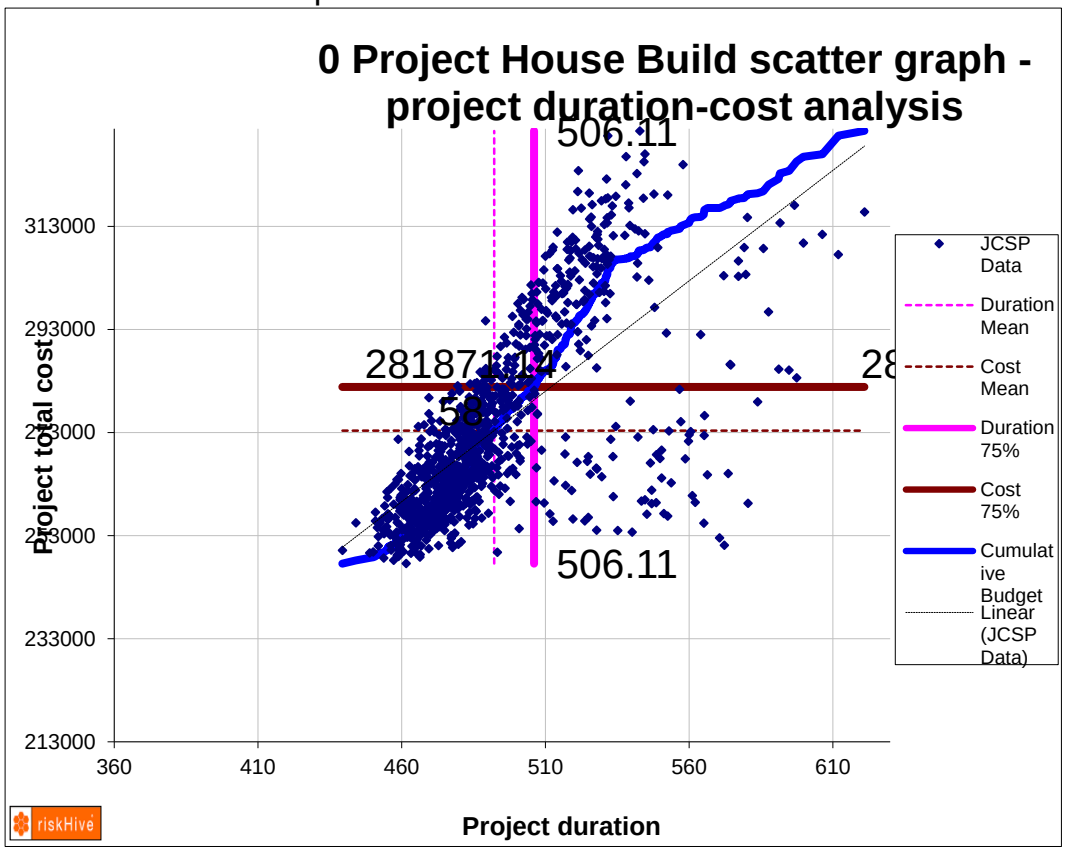


8.1.3 Scatter

Will produce a plot of Duration vs Cost or Finish Date vs Cost

- In the Scatter section select graph option
- A process message box will indicate when task is complete

- Use Excel to view output.



8.1.4 General

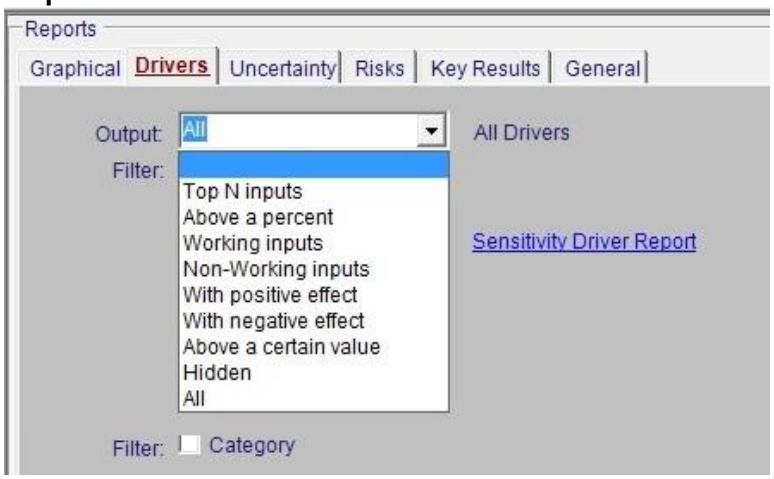
A risk-adjusted view of the project plan may be easily produced (post simulation) for the Key Output Task, by selecting the Risked Gantt report:

- Risked-Gantt of the original project plan
- Convergence: Will produce a convergence graph at the 10%, 50% & 90%

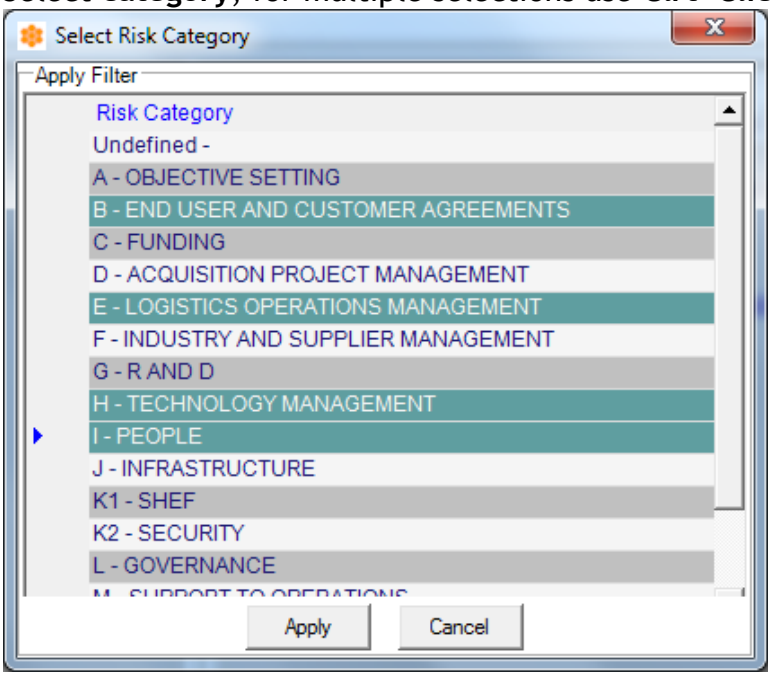
8.2 Drivers

A sensitivity report in Excel can be produced from the Drivers section of the reports.

- From the **Drivers** section select the report content from the dropdown **output menu**



- Tick **filter box** if you wish to report by Risk **Category**
- Select **category**, for multiple selections use **Clrt+Click** and press Apply

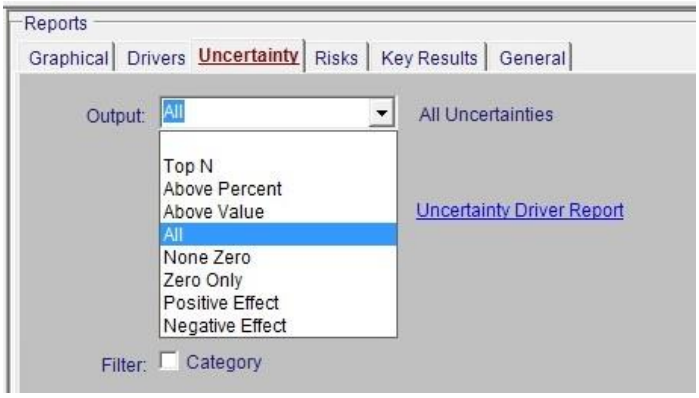


- Press **Sensitivity Driver Report** link.
- A message box will inform you when complete.

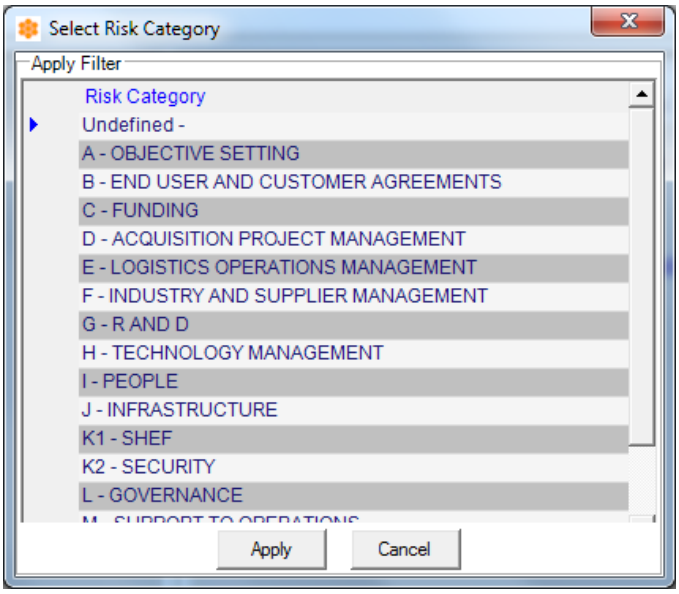
8.3 Uncertainty

A Uncertainty report in Excel can be produced from the Uncertainty section of the reports.

- From the Uncertainty section select the report content from the dropdown **output menu.**



- Tick **filter box** if you wish to report by Risk **Category**
- Select **category**, for multiple selections use **Clrt+Click** and press Apply. These will be displayed next to category box.

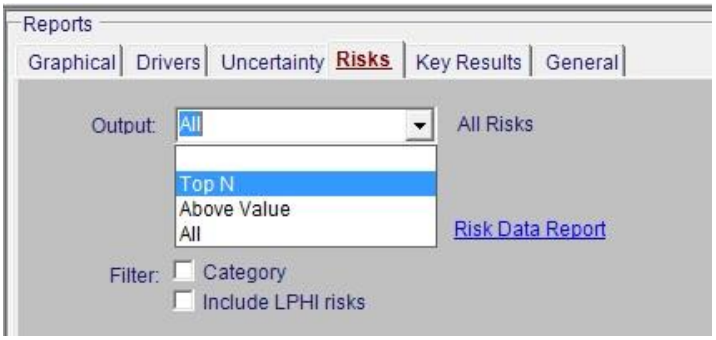


- Press **Uncertainty Driver Report** link.
- A message box will inform you when complete.

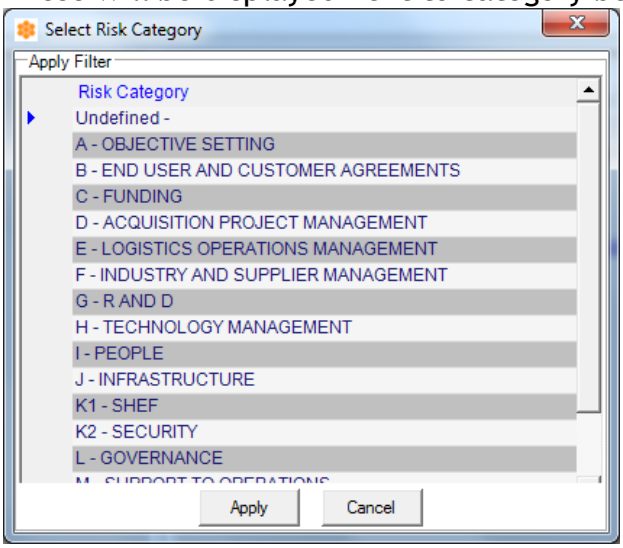
8.4 Risks

A Risks report in Excel can be produced from the Risk section of the reports.

- From the **Risks** section select the report content from the dropdown **output menu.**

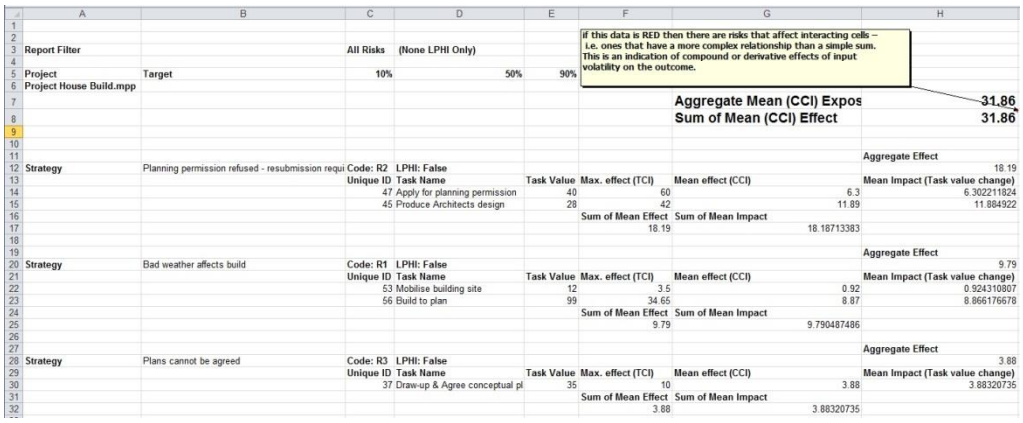


- Tick **Include LPHI risks** if required.
- Tick **filter box** if you wish to report by Risk **Category**
- Select **category**, for multiple selections use **Clrt+Click** and press Apply These will be displayed next to category box.



- Press Uncertainty Driver Report link.
- A message box will inform you when complete.

View of Risk output report, that also contains Tornado graphs.



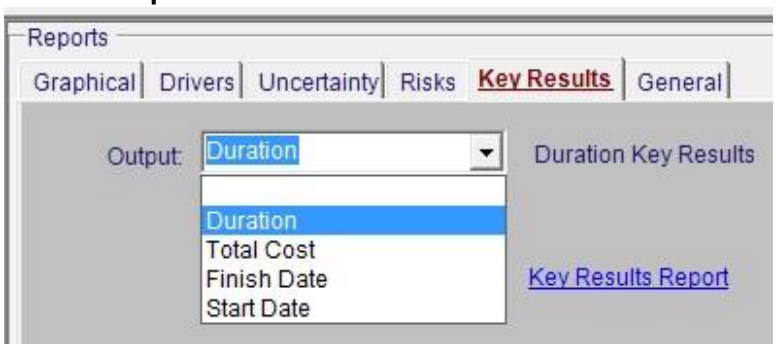
	A	B	C	D	E	F	G	H
3	Report Filter		All Risks	(None LPHI Only)				
5	Project	Target	10%	50%	90%			
6	Project House Build.mpp							
7							Aggregate Mean (CCI) Expos	31.86
8							Sum of Mean (CCI) Effect	31.86
11								Aggregate Effect
12	Strategy	Planning permission refused - resubmission requi	Code: R2	LPHI: False				18.19
13			Unique ID	Task Name	Task Value	Max. effect (TCI)	Mean effect (CCI)	Mean Impact (Task value change)
14			47	Apply for planning permission	40	60	6.3	6.302211824
15			45	Produce Architects design	28	42	11.89	11.884922
16						Sum of Mean Effect	Sum of Mean Impact	
17						18.19	18.18713383	
19								Aggregate Effect
20	Strategy	Bad weather affects build	Code: R1	LPHI: False				9.79
21			Unique ID	Task Name	Task Value	Max. effect (TCI)	Mean effect (CCI)	Mean Impact (Task value change)
22			53	Mobilise building site	12	3.5	0.92	0.924310807
23			56	Build to plan	99	34.65	8.87	8.866176678
24						Sum of Mean Effect	Sum of Mean Impact	
25						9.79	9.790487486	
27								Aggregate Effect
28	Strategy	Plans cannot be agreed	Code: R3	LPHI: False				3.88
29			Unique ID	Task Name	Task Value	Max. effect (TCI)	Mean effect (CCI)	Mean Impact (Task value change)
30			37	Draw-up & Agree conceptual pl	35	10	3.88	3.88320735
31						Sum of Mean Effect	Sum of Mean Impact	
32						3.88	3.88320735	

if this data is RED then there are risks that affect interacting cells – i.e. ones that have a more complex relationship than a simple sum. This is an indication of compound or derivative effects of input volatility on the outcome.

8.5 Key results

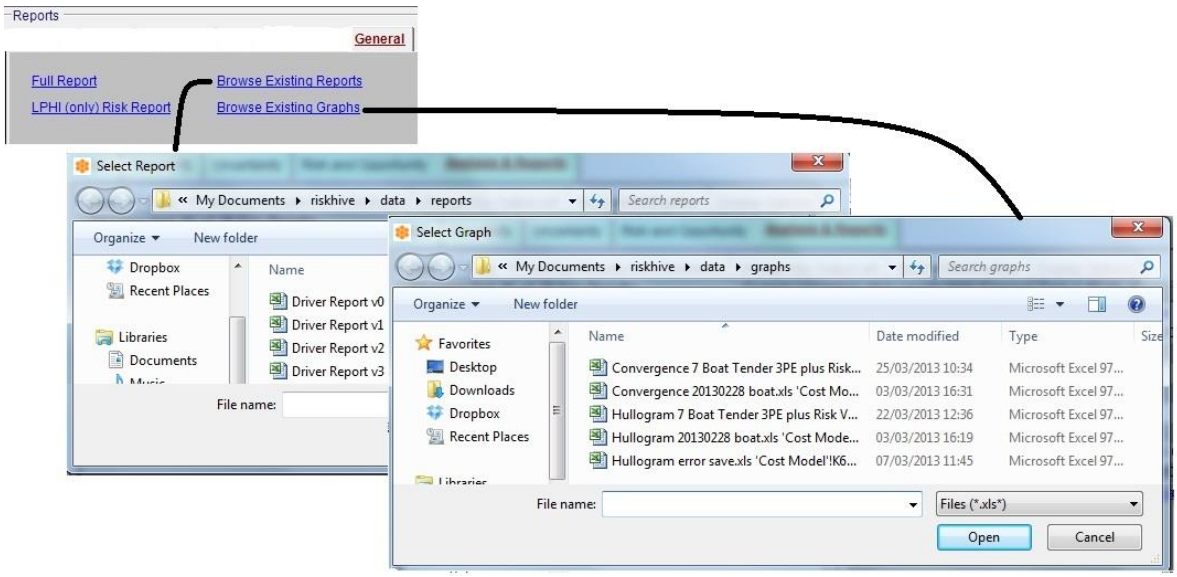
A key report in Excel can be produced from the **Key results** section of the reports.

- From the **Key results** section select the report content from the dropdown **output menu.**



- Press Key results Report link
- A message box will inform you when complete.

8.6 General reports



There are 4 options in the general section:

Full Report

This feature can be used to package and export the primary assessment data and output results to an Excel workbook. The workbook contains:

- The description of the Project workbook and its primary attributes
- The complete range of outcomes of the analysis as described by an S-curve in 5% confidence level increments
- The complete graphical outputs
- The complete collection of:
  - sensitivities,
  - uncertainty,
  - risks, opportunities

- associated Input Parameters and resulting Impact data
- associated categorisation and classification information
- Risk ownership information

LPHI

This will produce an Excel workbook that lists all the elements that you have selected as low probability High Impact risks.

Browse Existing Reports

Will open an existing Excel report

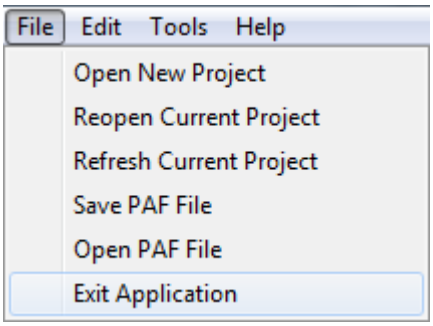
Browse Existing Graphs

Will open an existing Excel workbook with graphical outputs

The browse functions have been included to save you leaving the Arrisca program to establish what report names have been used.

9 Main Menu

9.1 File



9.1.1 Open New spreadsheet

This option will take you to the specified folder and allow you to open a new spreadsheet.

9.1.2 Reopen Current Spreadsheet

If the workbook that is being analysed gets closed for some reason either intentionally (because the user wants to discard all changes) or by accident this command will automatically reopen the current spreadsheet for you.

9.1.3 Refresh Current Spreadsheet

This command is used to update the Arrisca software with any changes that may have been made to the structure, formulas or constants in the spreadsheet. If the spreadsheet has been modified by the user whilst it has been open with Arrisca the spreadsheet must be first saved and then this command to update **Arrisca with the changes.**

9.1.4 Save PAF file

This allows you to save both Arrisca inputs/outputs and the Project sheet in one file.

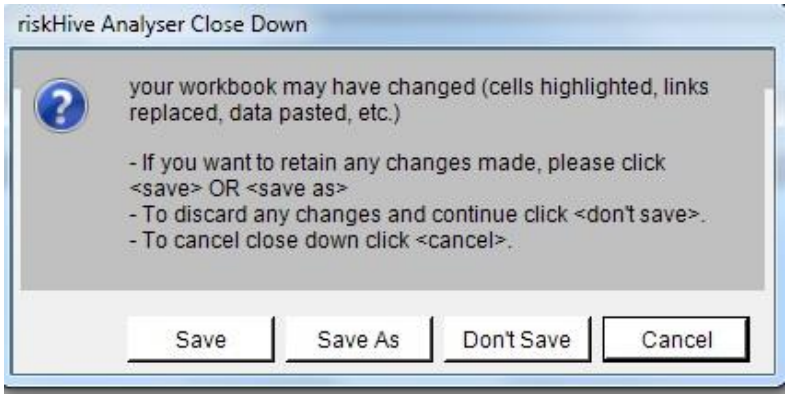
- This file is a compressed archive and contains the following elements: Source project plan (.mpp) (that can be redeployed when the archive is reopened on another machine at a later date),
- Arrisca-related data and parameters
    - Drivers
    - Uncertainty
    - Risks & Opportunities
    - Analysis & Reports
    - All user inputs / outputs and associated comments
    - Associated risk and uncertainty registers
    - All analytical results and reports which can be immediately accessed.

: This provides an excellent method for creating an archive document that as well containing the results of the analysis also contains a frozen copy of the Excel workbook that the analysis was based on.

9.1.5 Open PAF file

Will open a PAF file so that the Arrisca tool is populated and the associated Project file is opened.

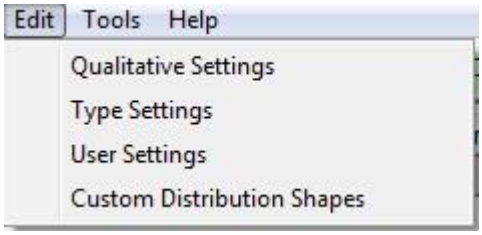
9.1.6 Exit Application



When **Exit** or Close application is selected the close down menu is displayed, this gives you the option to:

- Save – save file without renaming
- Save As- save as a new file
- Don't save – any changes are lost
- Cancel – skip shut down

9.2 Edit

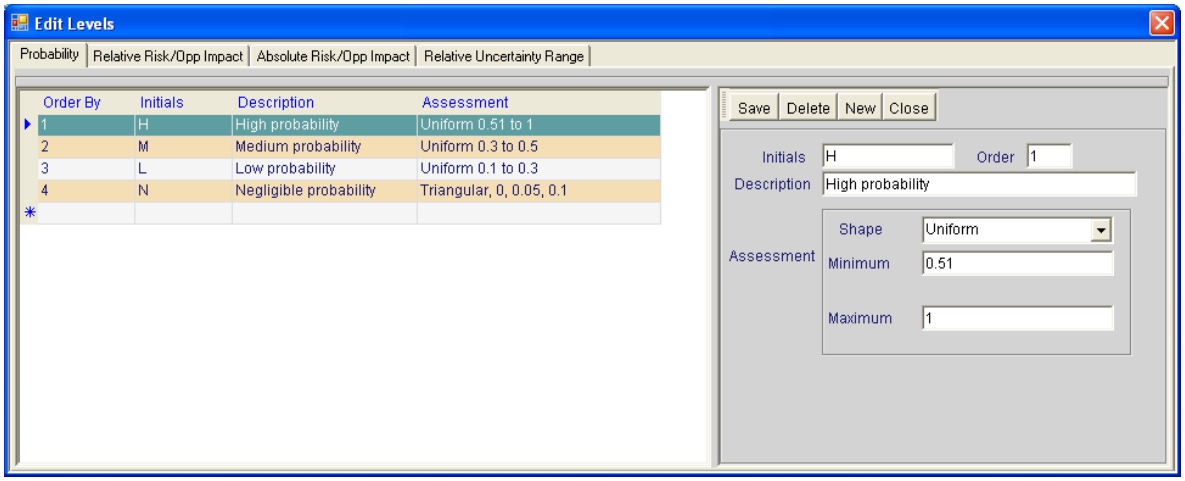


9.2.1 Qualitative Settings

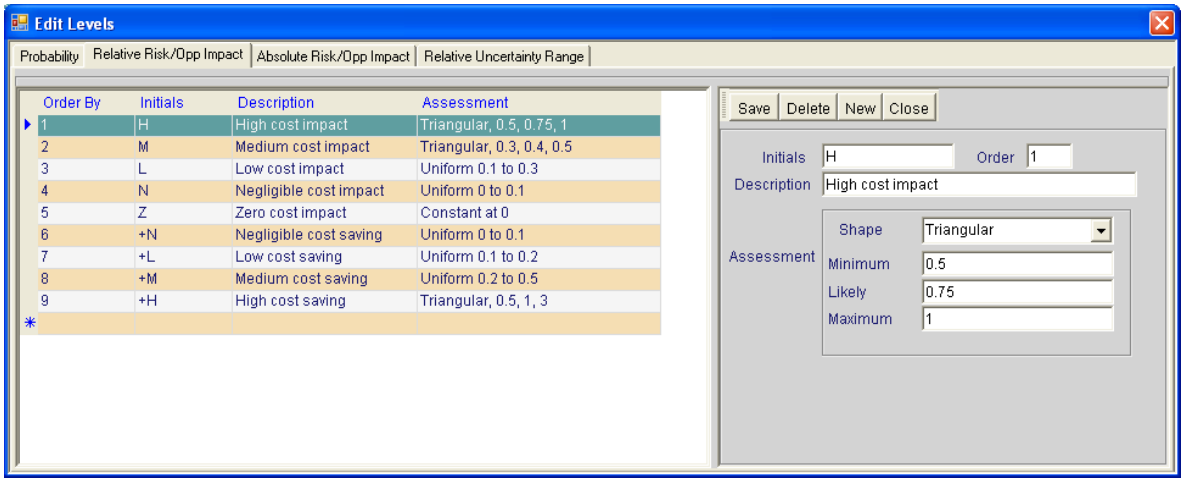
The Qualitative assessments that are possible in Arrisca Velocity use Qualitative Assessment Level Definitions to provide parameter sets for analysis.
The Levels are accessed from the Main Menu select **Edit > Qualitative Settings**
This displays the Edit Levels Function Tab as shown below:

The default level definitions are as follows:

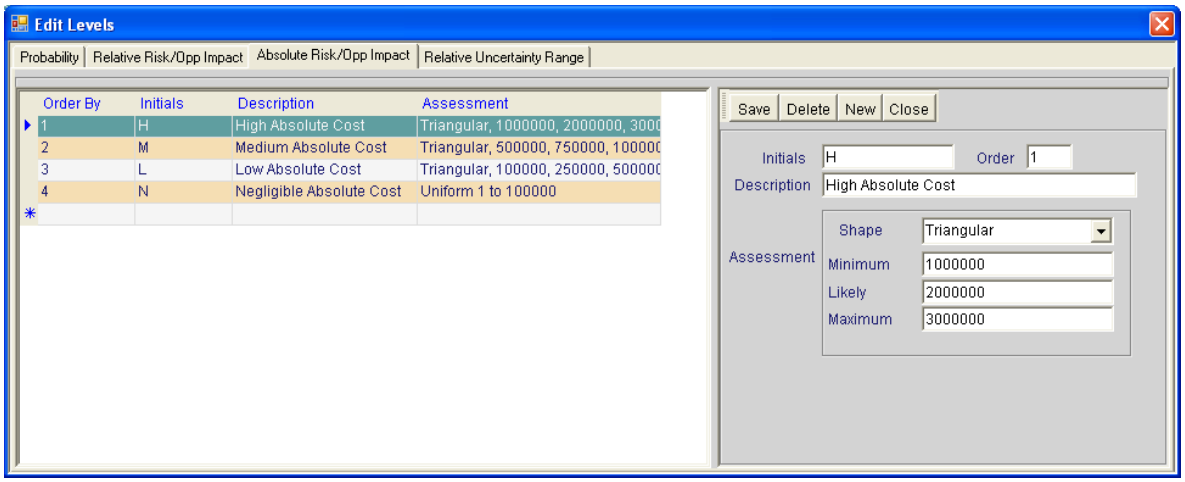
9.2.2 Probability Levels



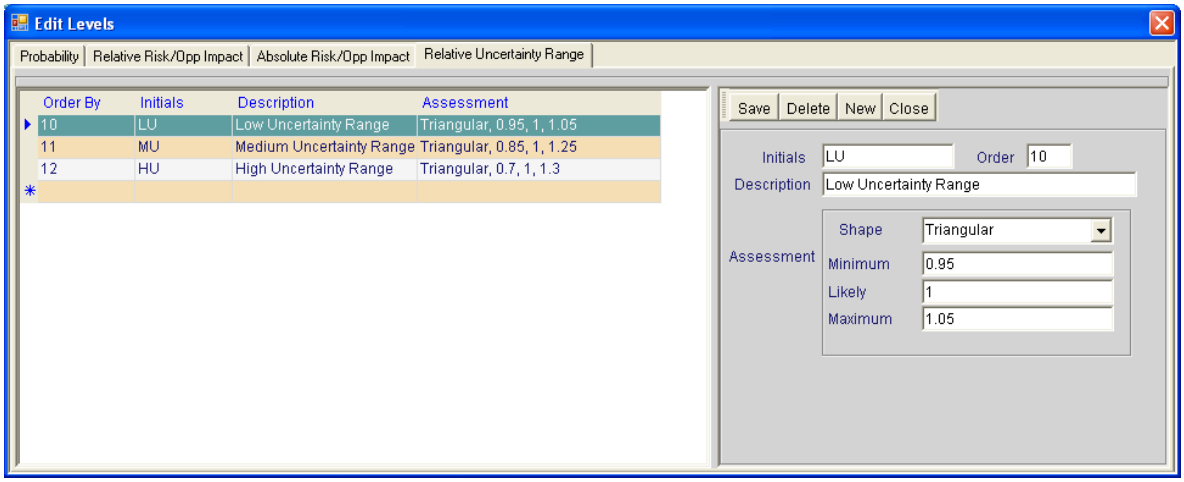
9.2.3 Relative Risk/Opp Impact Levels



9.2.4 Absolute Risk/Opportunity Impact Levels



9.2.5 Relative Uncertainty Levels

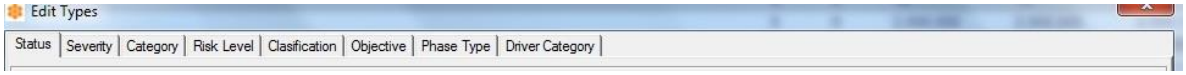


9.2.6 Level management and configuration

All the Edit levels can be changed or added too via the right hand data panel:

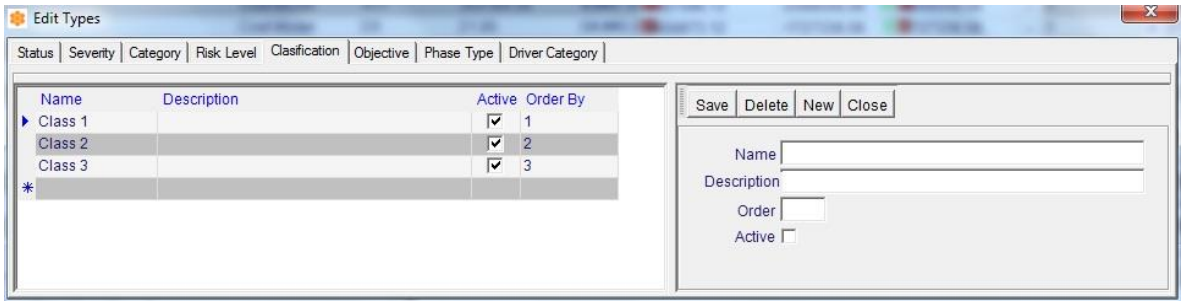
- Changes, select the row you wish amend and update the associated metadata use Save to store data
- New, select **New** input description, then use Assessment to define the impact or probability; **Order by** refers the order the content will be displayed in the dropdown menu

9.2.7 Type Settings (Risk and Drivers)



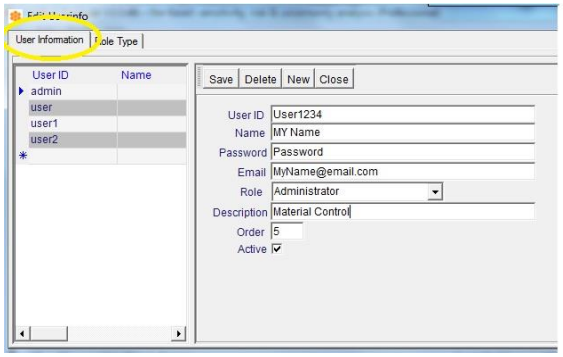
- **Status-** Risk term to describe the life cycle of the risk and will be defined in risk management process
- **Severity-Impact** of the risk; these are defined by your Organisation's risk management process
- **Category (for Risk)**- The part of business that effected by the risk; this defined by risk management process.
- **Risk Level**- The ranking of risks by their effect; the number of risk levels will be defined in risk management process.
- **Classification**- What type of risk is it can it be grouped with other risks e.g. By Cost impact, by Time, etc, these will be defined in risk management plan.
- **Phase Type**- describes when the risk is likely to occur. For an ISO 15 288 company this the CADMID phases.
- **Driver Category-** What part of the Business or process is affected e.g. Wage rates, Material, Testing, etc

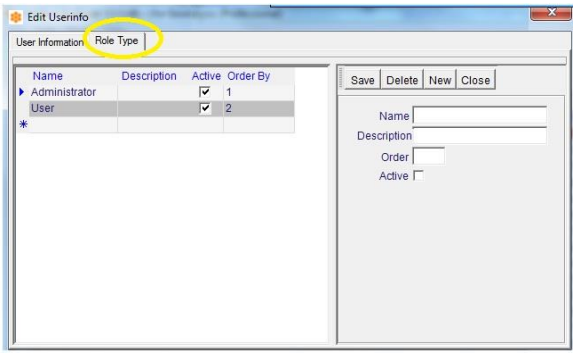
9.2.8 Type Settings management and configuration



- All **Type settings** can be changed or added too via the right hand data panel:
- Changes, select the row you wish amend and update the associated metadata use **Save** to store data
- New, select **New** input description and associated data and press **Save**. **Order by** refers the order the content will be displayed in the dropdown menu

9.2.9 User Information

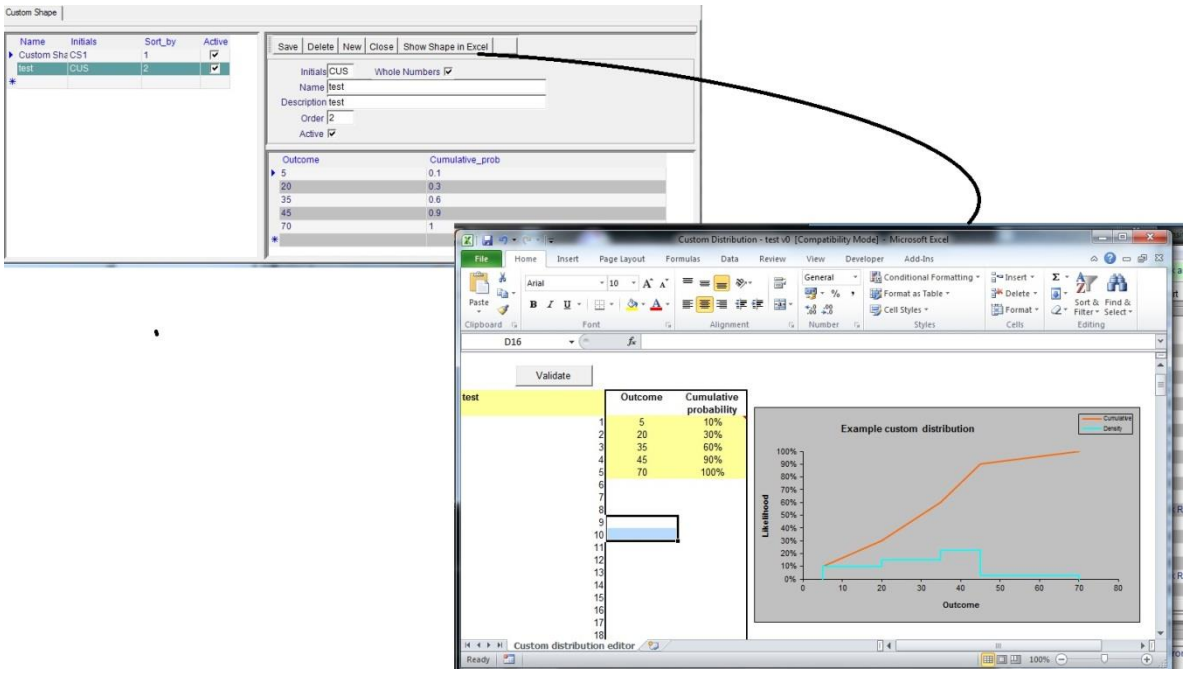




This provides a method of controlling data and providing an audit trail. It will require the risk management plan to define Users limitations.

- **Users** can be changed or added too via the right hand data panel:
- **Changes**: select the row you wish amend and update the associated metadata use **Save** to store data
- New, select **New** input details and press **Save**. **Order by** refers the order the content will be displayed in the dropdown menu

9.2.10 User-Custom Distributions



This feature allows you to add a custom distribution, this may be data from a previous project that best describes a possible outcome if a risk occurs.

Create distribution

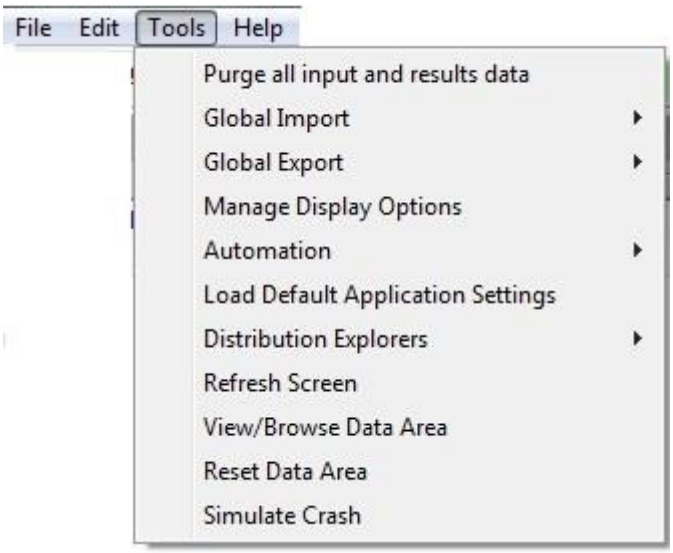
- Select New from data input panel, fill in the blank metadata cells Name, Order (default =1) and Active are mandated inputs others are optional.

Distribution data input

- The shape of the distribution is described by an outcome value and the point at it occurs (**Cumulative_Prob**). The **Outcomes** must be a progressive value and the Cumulative probability must also be progressive with a range of 0 to 1. A maximum of 21 data points are allowed; press **Save**.
- Once entered the distribution can viewed in Excel by selecting the **Show Shape in Excel button** (see above).
- Plots can be amended in Excel
    - Change **cumulative prob** or **outcomes**.
    - Press **Validate** button in workbook to check that data conforms.
    - Return to Arrisca and select **Retrieve shape from Excel** button

- Press Save to store shape.

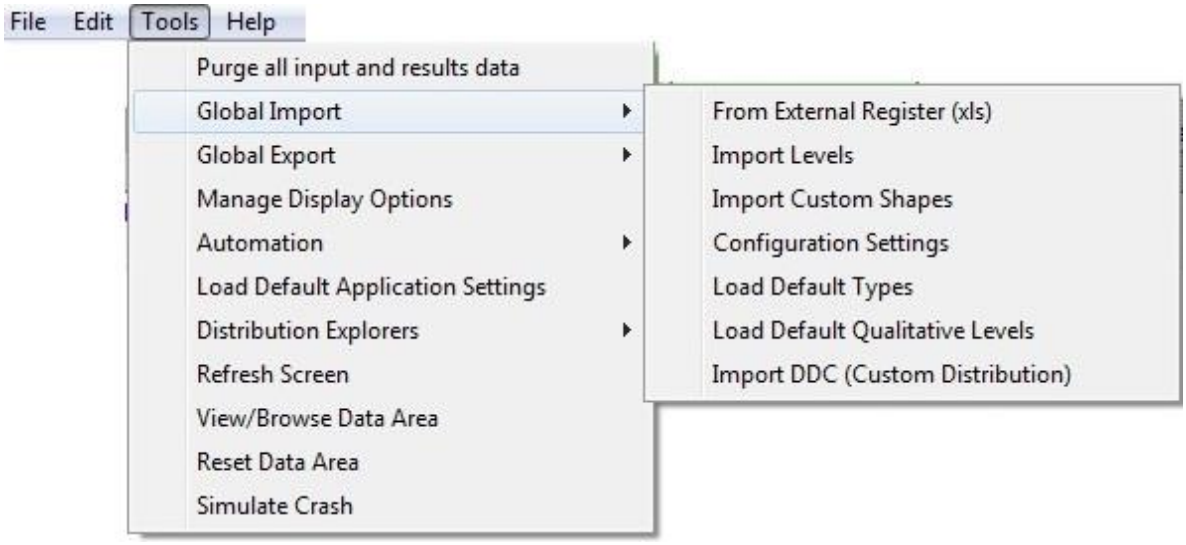
9.3 Tools



9.3.1 Purge all inputs and results data

After several runs of the software certain internal computer memory devices will need to be reset to eliminate inconsistent results, select this option to clear memory.

9.3.2 Global Import



9.3.2.1 From External Register (.xls)

- Enables a saved formatted risk register to be imported and used as a template for a new workbook

9.3.2.2 Import Levels

- Import risk levels from .xlm file

9.3.2.3 Import Custom Shape

- Import custom shape from Excel workbook

9.3.2.4 Configuration Settings

- To maintain constancy of approach you can import a saved configuration from an earlier task via a .xlm file.

9.3.2.5 Load Default Types

- Reset to “Factory supplied” values

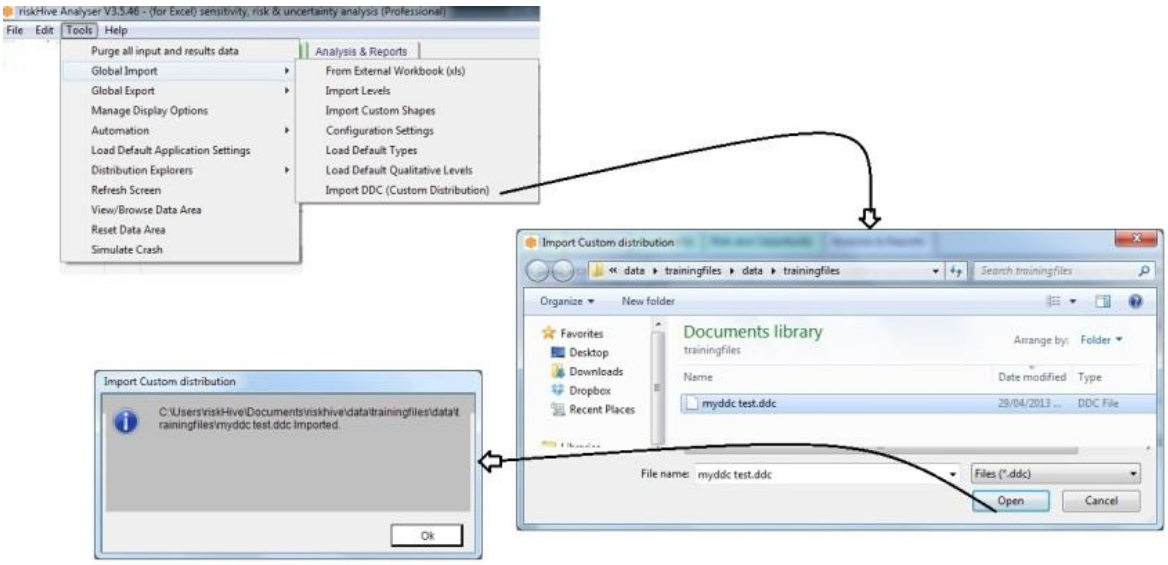
9.3.2.6 Load Default Qualitative Levels

- Reset “Factory Supplied” values

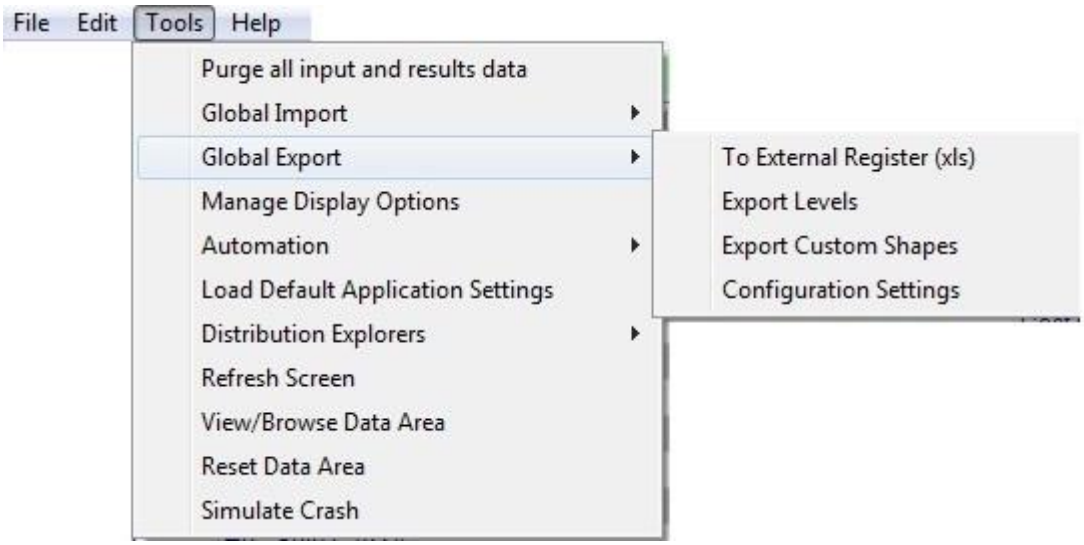
9.3.2.7 Import DDC (custom distribution)

The Arrisca software allows you create DDC file which captures a distribution from a previous analysis and may represent a input distribution for a new analysis

- From the Tools tab on the main menu select Import DDC (Custom Distribution)
- Select the required file from the Import Custom Distribution popup.
- A popup will confirm the file has been imported, Press OK.



9.3.3 Global Export



9.3.3.1 Export to External register (.xls)

9.3.3.2 Export Levels to Excel

- Saving the custom Levels will you to reuse Levels for similar tasks.

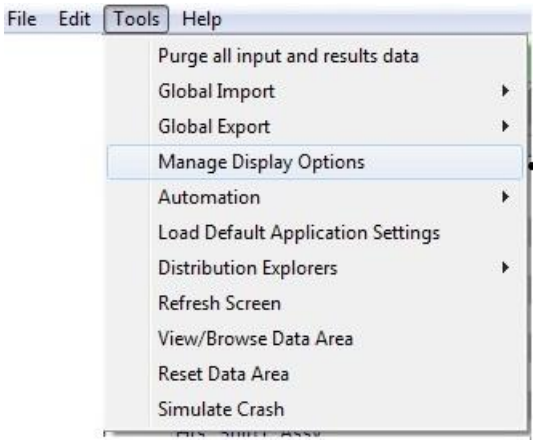
9.3.3.3 Export Custom shape to Excel (.xls)

- Saving Custom Shapes allows reuse for other tasks

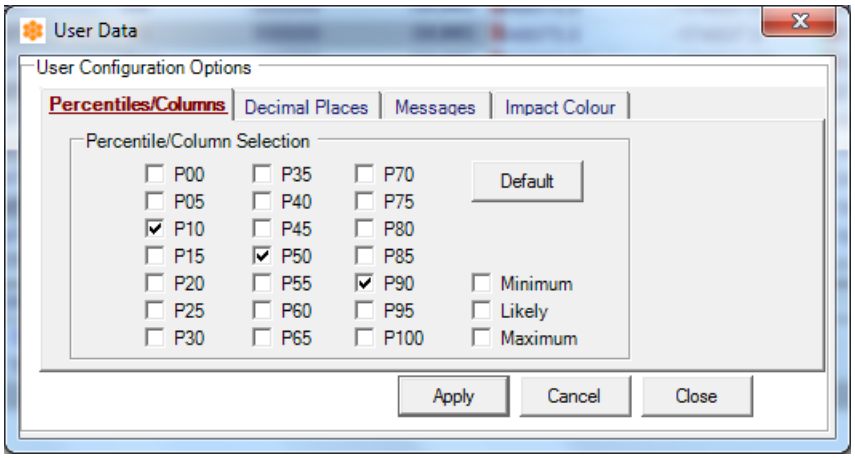
9.3.3.4 Export Configuration Settings

- Saving Configuration settings allows reuse for other tasks

9.3.4 Manage Display Options

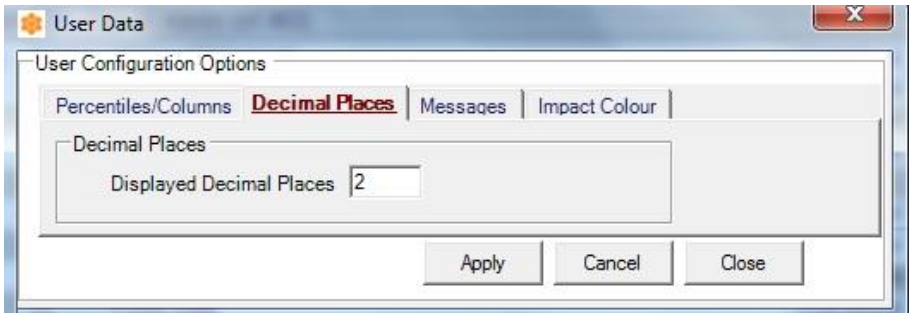


9.3.4.1 Percentiles Columns



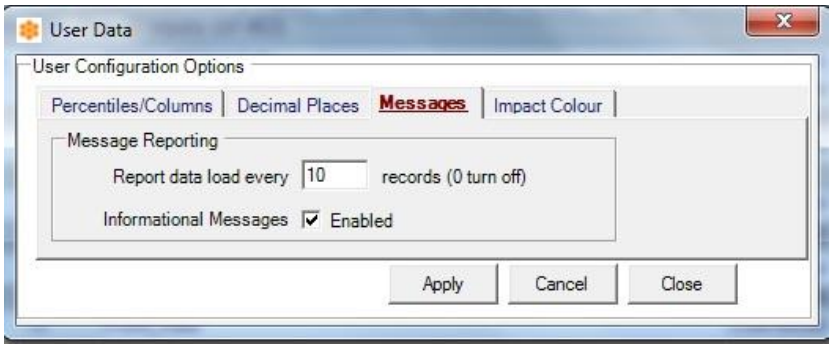
- The Analysis results display can be changed to suit your requirements
- Select the required percentage values and press **Apply** then **Close.**
- By selecting **Default** you can reset to "Factory settings"

9.3.4.2 Decimal Places



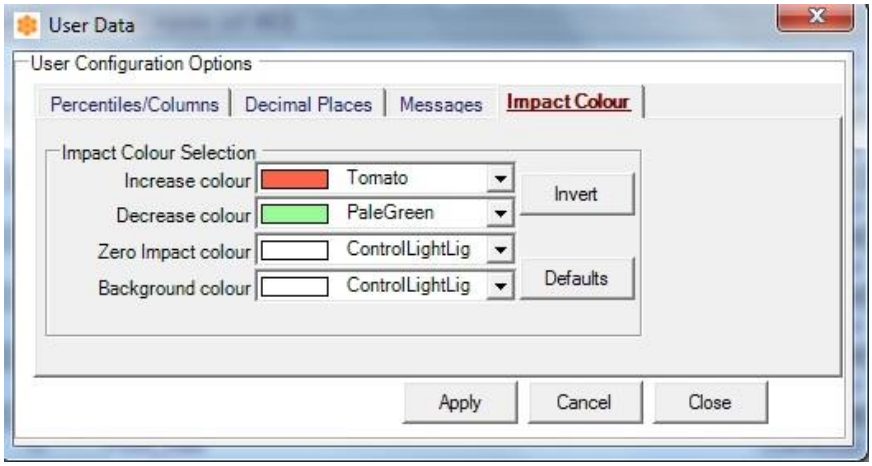
- The decimal places shown in the result displayed can be adjusted to level you require, this is useful when working in £k.
- Input required value and press **Apply** then **Close**.

9.3.4.3 Messages



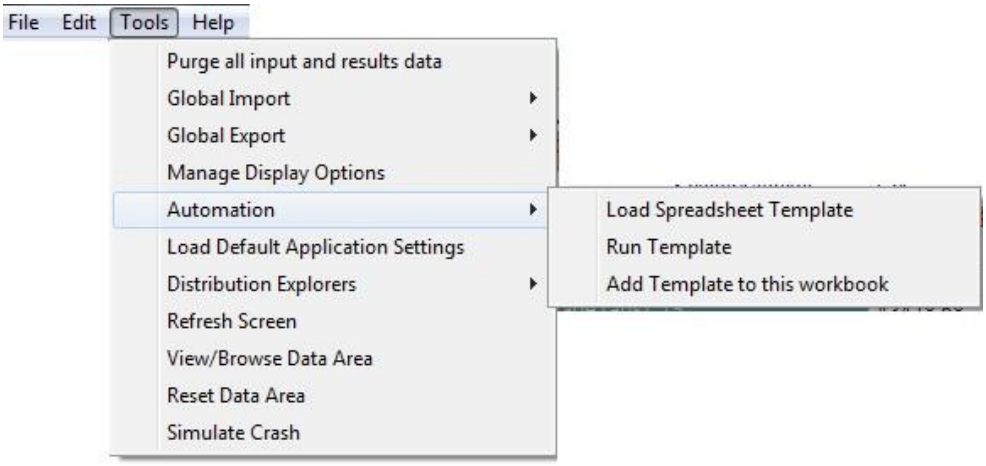
- Messages are useful to track progress or warn you of error, but they do slightly increase process time, this options allow you to change the frequency or turn then off completely.
- Input record refresh rate
- Un-**tick box** to switch off information messages then press **Apply** and **Close.**

9.3.4.4 Impact Colour



- This options allows you to change the 'Impact colour' used .
- Select required colour setting and press **Apply** then **Close**
- The **invert** button will swop the "increase" and "decrease" selections press **Apply** then **Close**
- **Def**ault resets to "factory Settings"

9.3.5 Automation

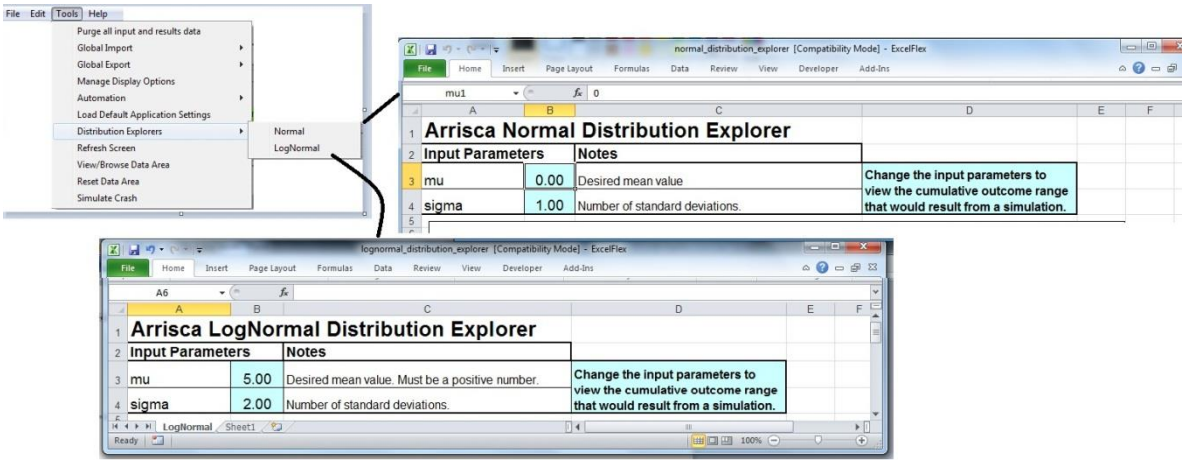


- The Arrisca software can be run automatically by dragging the Excel workbook over the Arrisca Desktop icon. However, for this to function to work the workbook must be constructed in particular format.
- Load spreadsheet Template
- Run Template
- Add Template to this Workbook-

9.3.5.1 Load Default Application Settings

- Select this option to reset all levels, Category's and Classification's to "Factory setting".

9.3.6 Distribution Explorers



- The explorer tool allows you picture the distributions based on a Normal and Log Normal basis.
- Select which option **Normal** or **Log Normal** an Excel workbook will open, there are only 2 inputs required **Desired mean** and number of **Standard Deviations**

: *The use of a log normal can have a significant effect in that it concentrates impacts at the lower end of the probability scale but extreme high impacts compared to a normal distribution. It should only be used when there evidence to justify its use.*

9.3.7 Refresh Screen

- This is a standard refresh function use when display's get over written with spurious data.

9.3.8 View & Browse Data Area

- This function will start the **Windows Explorer** and take you straight to the folder where you have stored files.

9.3.9 Reset Data Area

- This will reset all data area and restart software.

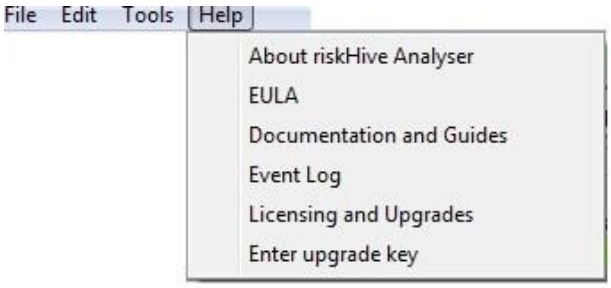
: Use with caution as Arrisca will shut down and your data may be lost.

9.3.10 Simulate Crash

- The **simulate crash** function is to provide you with confidence in the Arrisca's capability to capture your inputs as you progress through the risk analyse assessment (sensitivity, uncertainty, etc).

: *Use this to demonstrate the Arrisca's tool robustness.*

9.4 Help



9.4.1 About riskHive Analyser

- Will display the issue, build state release date and contact information

9.4.2 EULA

- Will display a copy of the software licence agreement.

9.4.3 Documentation and Guides

- Will link you the riskHive Web site where you can access online help files

9.4.4 Event Log

- Will display in MS Note a recorded of all the error logs created for the day.

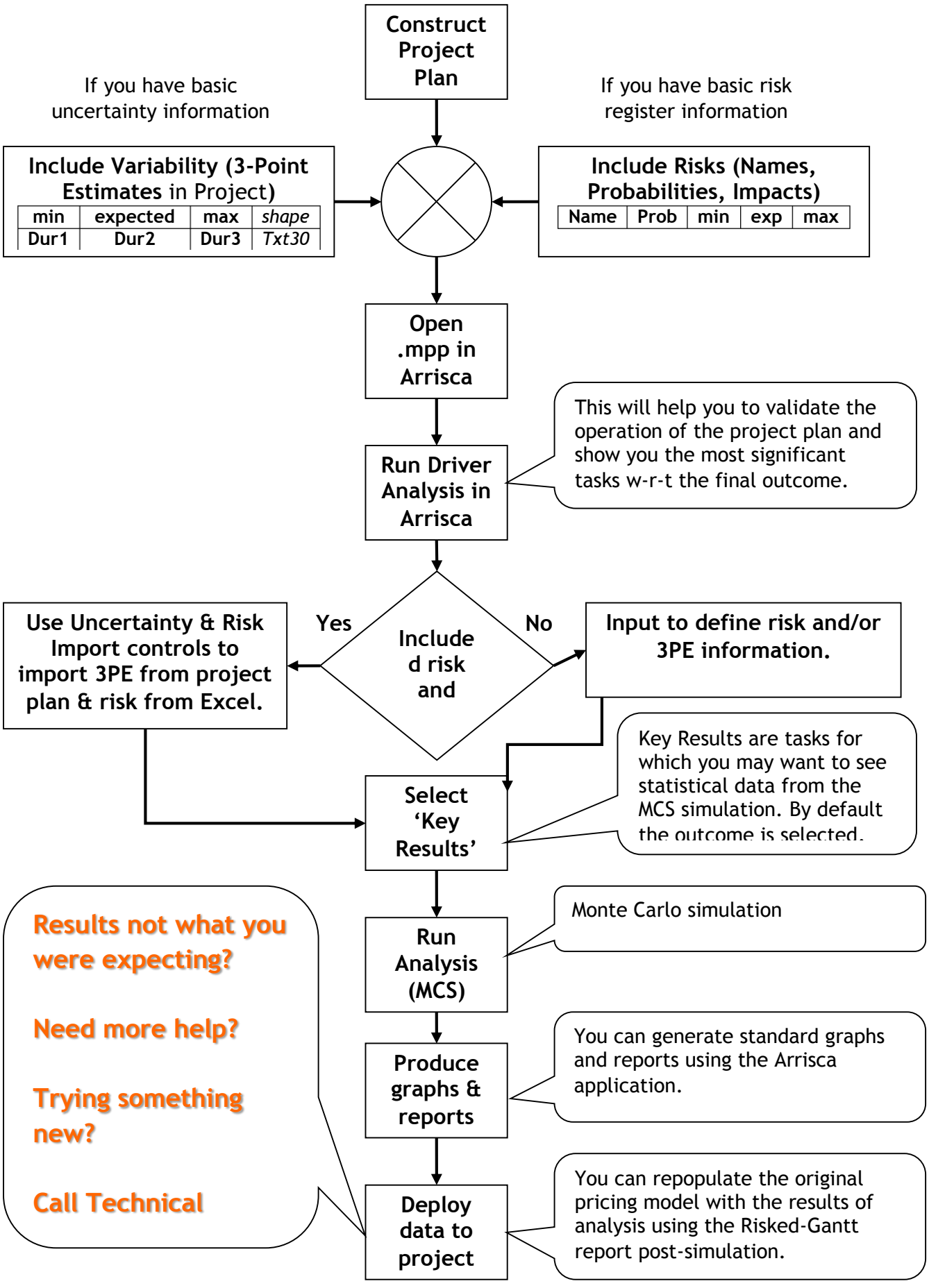
9.4.5 Licensing and upgrades

- Will link you the riskHive Web site where you can obtain information regarding licensing and upgrade keys

9.4.6 Enter upgrade key

- Input new upgrade key code

10 Quick-start Flowchart



11 Excel Risk Register Format

Field	Format	Required/Optional
TaskUnique ID	number	Required
Task Name	Text	Optional
Code	Text	Optional
Risk Name	Text	Required
Risk notes	Text	Optional
Scatter_or_blanket	S OR B	Required
Probability Level	Text	Optional
Probability	Number 1-100	Required
Impact Level	Text	Optional
Minimum	Number	Required
Likely	Number	Required
Maximum	Number	Required
Shape	Text	Optional
Whole	True\False	Optional
Serial_or_concurrent	S OR C	Required
Include_risk	True\False	Required
Include_impact	True\False	Required
Impact notes	Text	Optional
Register	True\False	Optional
LPHI	True\False	Optional
Manager	Text	Optional
Status	Text	Optional
Severity	Text	Optional
Category	Text	Optional
Level	Text	Optional
Classification	Text	Optional
Objective	Text	Optional
Phase	Text	Optional

TaskUnique ID	Task Name	Code	Risk Name	Risk notes	Scatter_or_blanket	Probability Level	Probability	Impact Level	Minimum	Likely	Maximum	Shape	Whole	Serial_or_concurrent	Include_risk	Include_impact	Impact notes	Register	LPHI	Manager	Status	Severity	Category	Level	Classification	Objective	Phase
4	Core build	R3	New technology is an impediment	New technology is an impediment to normal proj	S		55		20		60	Uniform	FALSE	C	TRUE	TRUE	TRUE	FALSE	FALSE								
22	Stuctural build	R2	Build is more complex than anticipated	Build is more complex than anticipated and doub	S				10		41	Uniform	FALSE	C	TRUE	TRUE	TRUE	FALSE	FALSE								
3	Functional design	R1	Scope cannot be agreed	Scope cannot be agreed leading to delays	S		75		1	3	9	Triangular	FALSE	C	TRUE	TRUE	TRUE	FALSE	FALSE								
7	Deployment build	O1	Objects can be reused	Objects can be reused saving time and effort	S		75		-18	-10	-1	Triangular	FALSE	C	TRUE	TRUE	TRUE	FALSE	FALSE								

12 Support

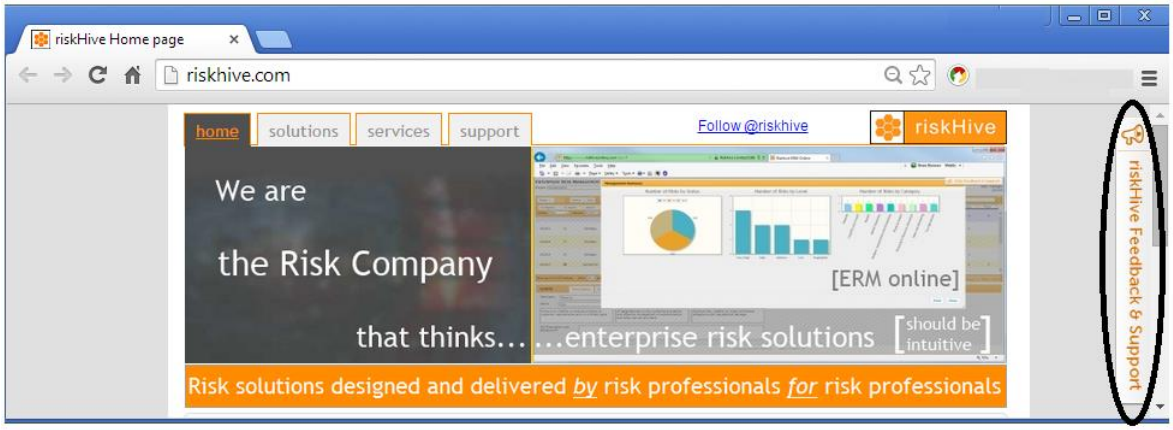
Your appointed reseller is:

riskHive Ltd.
Dilkush
Farlers End
BS48 4PG

Tel: +44 (0)117 373 1100
Fax: +44 (0)117 373 1103
www.riskHive.com

Support

Support service: Via the 'feedback & support' online service. It will keep you posted on the progress of your enquiry



Alternatively

email: support@riskhive.com

Phone +44(0)117 373 1100

Support lines are open from 09:00 to 17:30 (GMT) Monday to Friday.

General enquiries email: info@riskhive.com