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## Full Monte SRA for Microsoft Project – Release Notes version 3.7

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For the release notes of previous versions please scroll down through this document or visit our web site here: <https://www.barbecana.com/full-monte/support/> (click the Version Information tab).

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## Full Monte SRA 3.7 for Microsoft Project

For further information on any feature updates please see the Full Monte SRA for Microsoft Project Installation Guide or the Full Monte SRA User Guide.

### 3.7 Update February 2025

#### Version 3.7.25036.x or later

The focus of this update is enhanced export of the underlying data for graphical reports. For Graphs and JCL Scatter plots the data used to produce the chart can now be saved to CSV files for use in third party analysis tools (Spreadsheets and Business Intelligence (BI)). Additionally, the workflow and validation of the Risk Register introduced in 3.7 has been improved. Fixed an issue where Full Monte would use different working periods to Microsoft Project if the task calendar in Project was invalid.

### 3.7 Update December 2024

#### Version 3.7.24316.x or later

Fixed an issue where View Filters based on Project Enterprise Fields were not restored correctly after saving.

### 3.7 Update November 2024

#### Version 3.7.24313.x or later

Updated product and documentation to reflect the acquisition by Intra Management Software & Technologies. Fixed an issue where Gantt bar colors shown on the screen were not printed correctly. Added support for Duration Units on Discrete Risk duration impacts. Fixed an issue that prevented Discrete Risks containing an apostrophe in the description from importing correctly.

### 3.7 Update August 2024

#### Version 3.7.24220.x or later

Fixed some issues with Risk Register Import and corrected Risk Import Help text. Added a log message when Task Constraint type was improperly defined in Project.

### 3.7 Initial Release (June 2024)

#### Version 3.7.24156.x or later

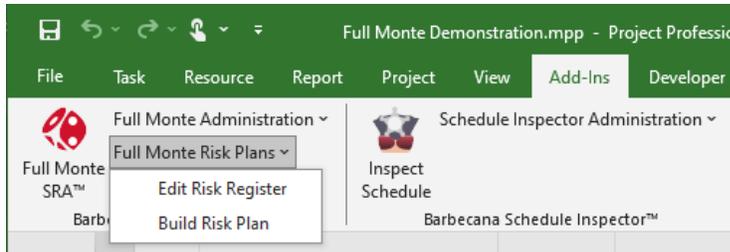
The focus of Full Monte SRA version 3.7 for Microsoft Project is to offer enhanced management of Risks (Threats and Opportunities) and the introduction of a User Options dialog to configure various aspects of Full Monte operation. A new license key has also been introduced.

## License Keys

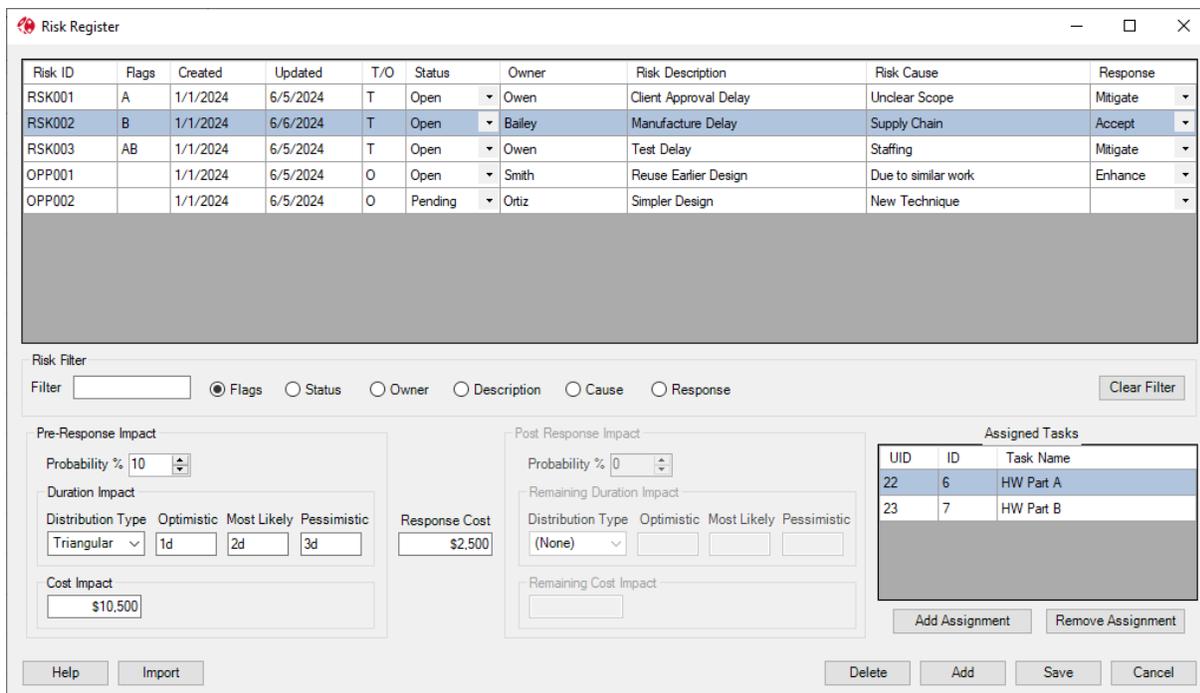
Full Monte SRA version 3.7 for Microsoft Project uses a new license key that will allow us to configure specific options in the future. Customers with a current maintenance and support agreement will be provided with new keys free of charge. Existing license keys will **not** work with this version.

## Risk Plans

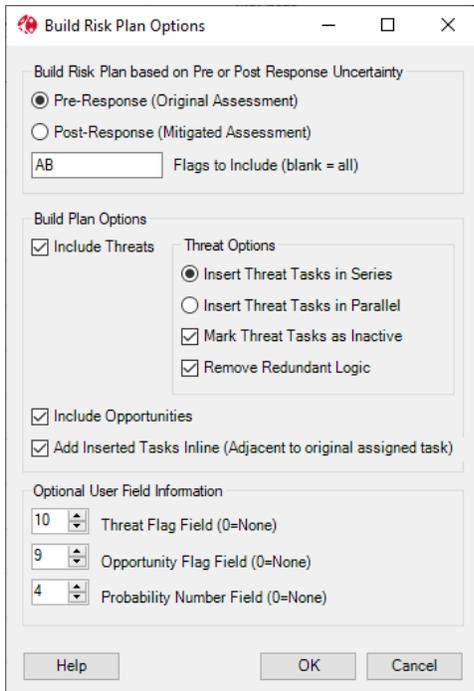
Full Monte SRA version 3.7 for Microsoft Project features a new Risk Register that tracks threats and opportunities in more detail compared to version 3.6 and earlier. The new risk plan features are accessible through a new drop-down menu adjacent to Full Monte Administration.



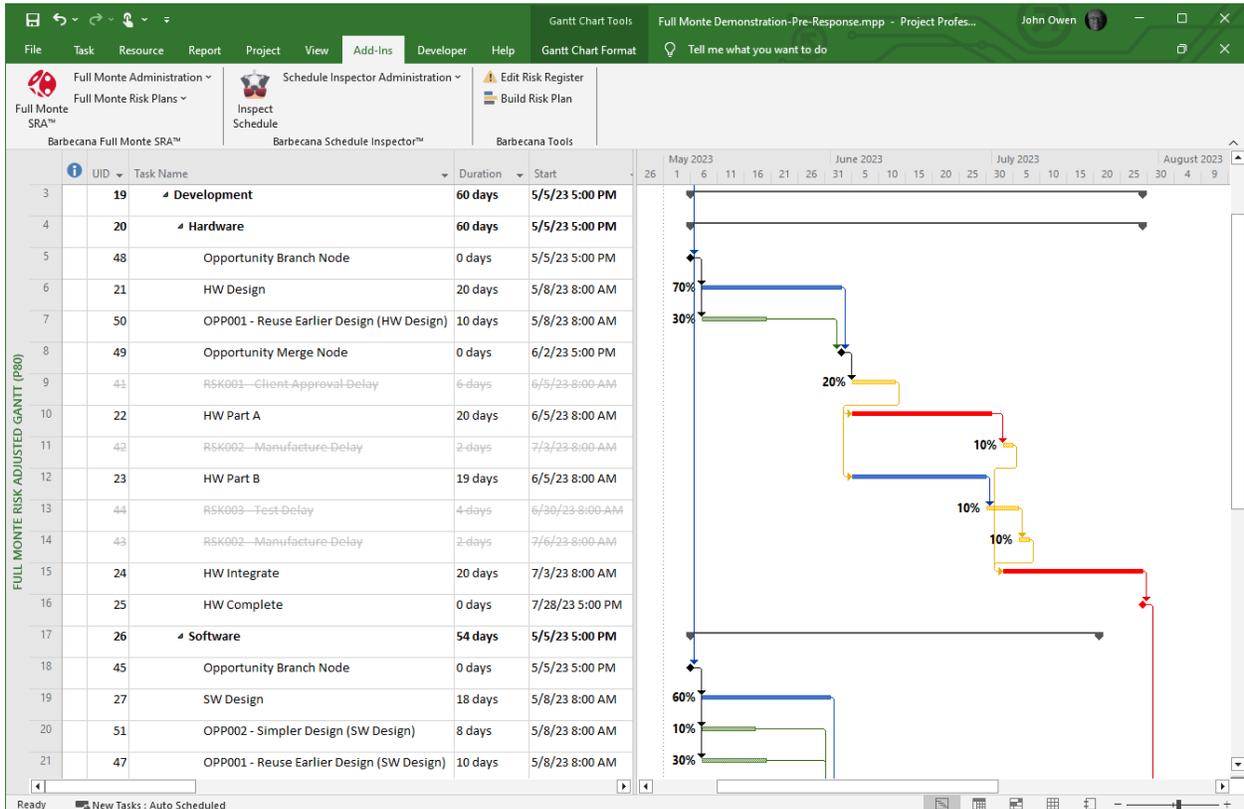
Clicking Edit Risk Register opens the risk register.

A screenshot of the 'Risk Register' dialog box. It features a table with columns: Risk ID, Flags, Created, Updated, T/O, Status, Owner, Risk Description, Risk Cause, and Response. Below the table are sections for 'Risk Filter', 'Pre-Response Impact', and 'Post Response Impact'. The 'Pre-Response Impact' section includes 'Probability %' (10), 'Duration Impact' (Triangular, 1d, 2d, 3d), and 'Cost Impact' (\$10,500). The 'Post Response Impact' section includes 'Probability %' (0), 'Remaining Duration Impact' (None), and 'Remaining Cost Impact'. An 'Assigned Tasks' table is also visible, showing tasks with UID, ID, and Task Name. Buttons for 'Help', 'Import', 'Delete', 'Add', 'Save', and 'Cancel' are at the bottom.

After the risks have been entered in the register, pre and post response plans can be created.



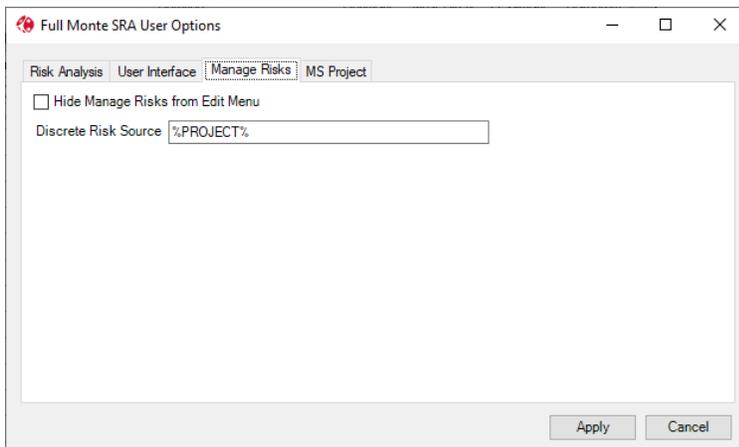
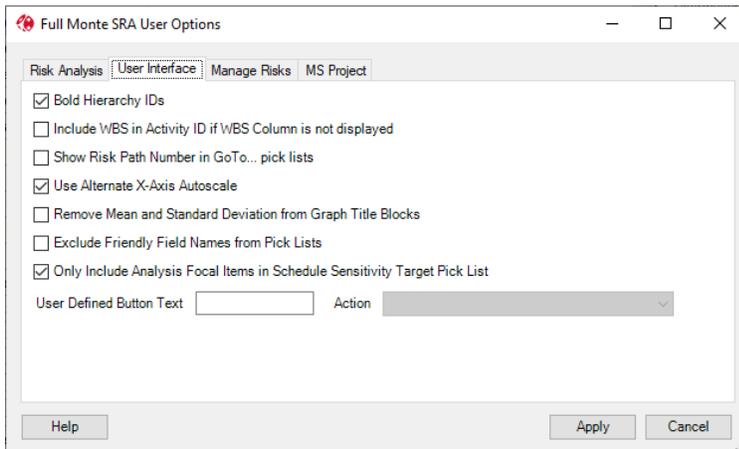
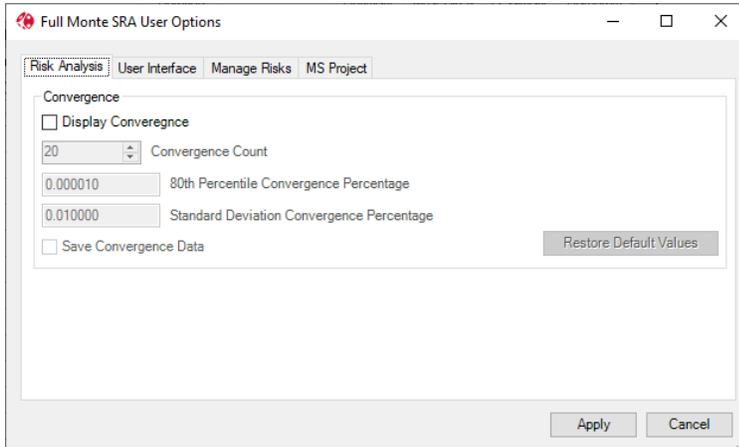
The risk plan will contain tasks to model threats and opportunities. Branching and Task Existence will be set automatically based on the information in the risk register.

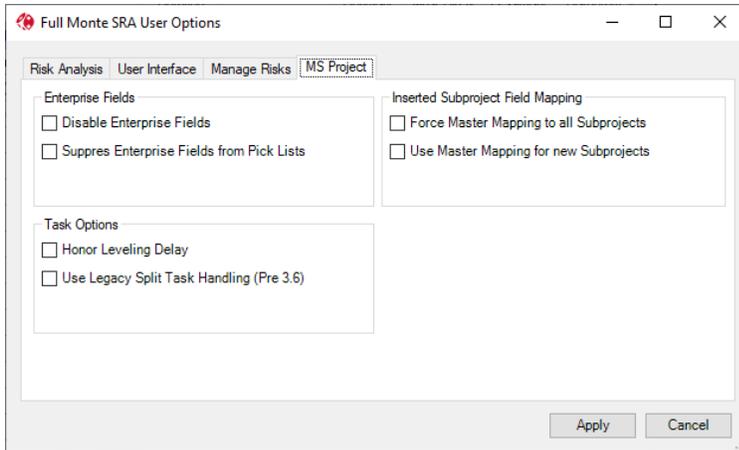


Full Monte can then analyze the new plan.

## Full Monte Options

A new Options dialog has been added to the Full Monte File menu. This allows the user to configure many Full Monte user interface and processing options.





### Analysis Focal Items

A new Full Monte field, 'Analysis Focal Item', has been added to allow customers to identify tasks of specific interest. The new field can be mapped to a Microsoft Project Flag field or set using File, Import. The field can be used to filter views, and optionally, filter the Schedule Sensitivity Target drop list.

### View Enhancements

- Hierarchy summary row Task Names can now use **bold** text.
- If View Highlight is set to System, Summary, then multiple colors are used.
- Option to include WBS in Activity ID column if WBS column is not displayed.
- Now showing Distribution Type of (None) for Milestones.
- Now blanking out Distribution Type for Schedule Margin tasks.
- More consistent highlighting of selected row editable columns.
- New Go to... option on right click-context menu to make logic tracing easier.

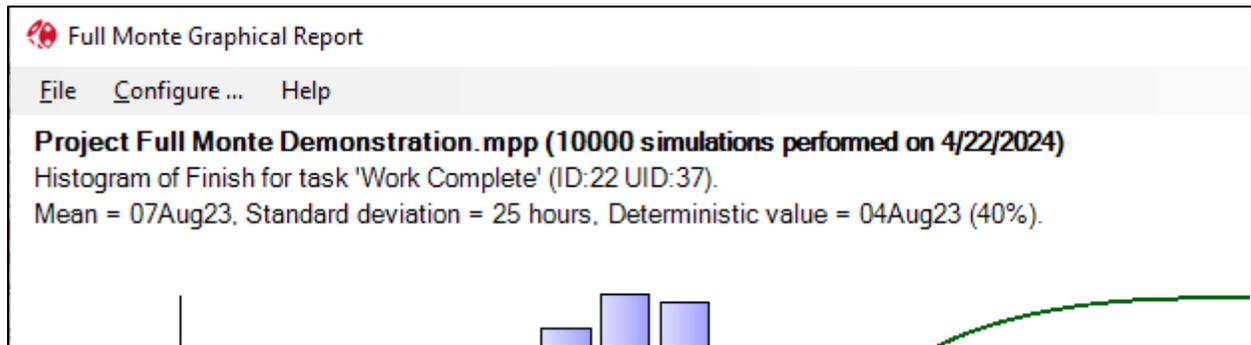
Full Monte Demonstration.mpp - Full Monte View: Task Edit (Customized)

ID	Unique ID	Task Name	Remaining Duration	Duration Distribution Type	Duration Optimistic	Duration Most Likely	Duration Pessimistic	Finish Histogram
0	0	<b>Full Monte Demonstration</b>	78 days	Triangular	75%	100%	125%	Graph
1	17	<b>Sample Project</b>	78 days	Triangular	75%	100%	125%	Graph
2	18	Initiate	5 days	Triangular	75%	100%	125%	Graph
3	19	<b>Development</b>	60 days	Triangular	75%	100%	125%	Graph
4	20	<b>Hardware</b>	60 days	Triangular	75%	100%	125%	Graph
5	21	HW Design	20 days	Triangular	75%	100%	125%	Graph
6	22	HW Part A	20 days	Triangular	75%	100%	125%	Graph
7	23	HW Part B	19 days	Triangular	75%	100%	125%	Graph
8	24	HW Integrate	20 days	Triangular	75%	100%	125%	Graph
9	25	HW Complete	0	(None)				
10	26	<b>Software</b>	54 days	Triangular	75%	100%	125%	Graph
11	27	SW Design	18 days	Triangular	75%	100%	125%	Graph
12	28	SW Code A	18 days	Triangular	75%	100%	125%	Graph

Context menu for task 10 (Software):

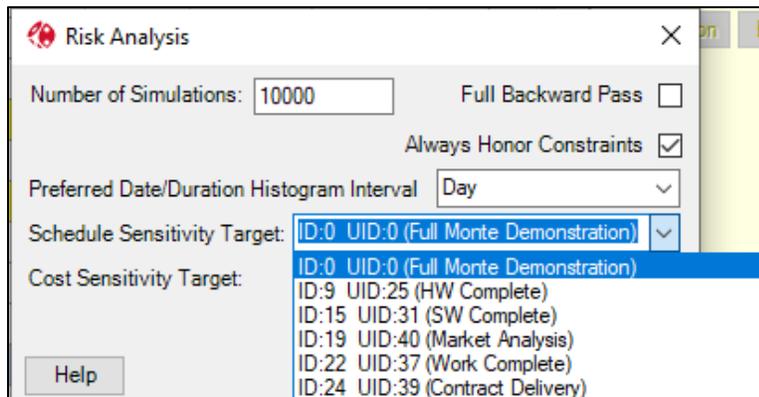
- Apply Template
- Inherit Distribution
- Inherit Correlations
- Go to ...
  - Pred FS ID:2 UID:18 Initiate \*
  - Succ FS ID:6 UID:22 HW Part A \*
  - Succ FS ID:7 UID:23 HW Part B

Graph Title Blocks now include both Task ID and Task Unique ID (UID) information:

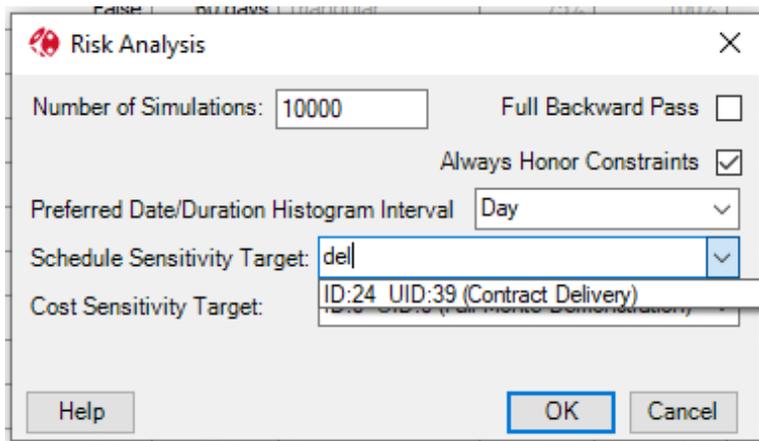


### Risk Analysis Dialog Enhancements

Risk Analysis dialog drop down lists for selecting Sensitivity Targets, now include both Task ID and Task Unique ID (UID):



The Sensitivity Target drop list is now searchable. Enter Task ID, Task Unique ID, or characters from the Task Name to filter to drop list.



### Date Formats

The following date formats have been added to those available from the View, Date Format menu.

31/06/2024

31/06/2024 16:33

2024/06/31

31.06.2024

**Note:** *If you have views configured with specific date formats, you may need to reselect the required date format after upgrading to 3.7.*

See the User Guide Appendix I for further information about date formats.

[Bugs Fixes \(since Full Monte 3.6 February Update\)](#)

An issue where Full Monte would use the master project start date rather than the appropriate subproject start date, if different, was resolved.

The Percent Complete (MSP) field was changed to show 100% for complete milestones.

The Risk Path calculation was changed to set the Risk Path of tasks not logically linked to the selected sensitivity target to 0. Previously it was set to an internal value (int.Maximum) that meant such tasks would be included by the Has Risk Path Filter and could cause a crash.

## Full Monte SRA 3.6 for Microsoft Project

For further information on any feature updates please see the Full Monte SRA for Microsoft Project Installation Guide or the Full Monte SRA User Guide.

### 3.6 Update February 2024

#### Version 3.6.24057.x or later

Two new FullMonteUserConfiguration.txt options related to Project Enterprise Fields have been released.

SUPPRESSEDENTERPRISEFIELDS=TRUE. This command will prevent Full Monte from including Enterprise Fields in field pick lists (e.g. Insert Column). This can reduce the time taken to populate pick lists and reduce clutter if there are a lot of Enterprise Fields. Enterprise Fields specific to Full Monte (named after Full Monte fields) will still be automatically mapped in Field Mappings.

DISABLEENTERPRISEFIELDS=TRUE. This command will disable Enterprise Fields entirely. Enterprise Fields created for Full Monte (named after Full Monte fields) will not be automatically mapped and will be removed if previously mapped. Default local custom field mappings will be applied if Enterprise mappings are automatically removed.

A new option SUPPRESSFRIENDLYFIELDNAMES=TRUE can be added to FullMonteUserConfiguration.txt. This will stop Full Monte from creating two entries for a specific custom field in pick lists. For example, if custom field 'Text1' is renamed to 'WBS' then previously the field would appear twice in pick lists, firstly as 'Text1' and then secondly as 'WBS'.

### 3.6 Update December 2023

#### Version 3.6.23333.x or later

Fixed an issue where the dropdown list of distribution types on the Manage Templates dialog included a 'Discrete' option that was not supported.

Fixed a crash in the JCL report introduced when we added the Risk Analysis Convergence feature.

### 3.6 Update October 2023

#### Version 3.6.23293.x or later

Added a FullMonteSystemConfiguration.txt option (USEAPPDATA=TRUE) to cause Full Monte to save Full Monte user data under c:\Users\\AppData\Roaming\Barbecana\Full Monte MSP. Setting this option overrides any earlier LOCALDIR settings in FullMonteSystemConfiguration.txt.

Fixed a display issue, with multiple linked projects using different modified Standard calendars, that could result in Finish Dates saved back to Project custom fields being adjusted to a working period earlier than those available in the original linked project calendar. Histograms etc. were still correct.

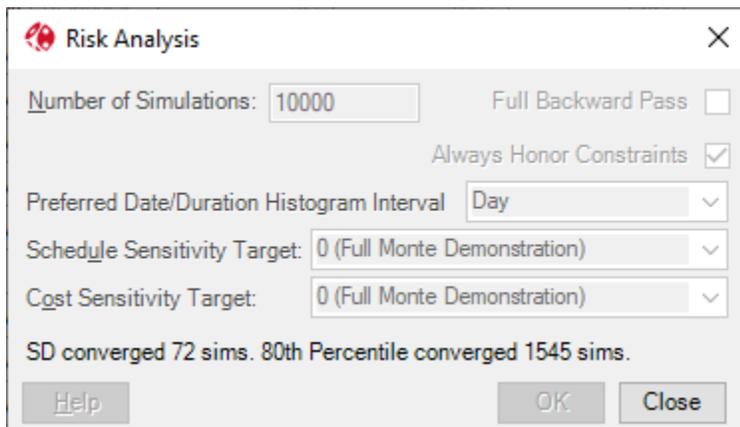
### 3.6 Update August 2023

#### Version 3.6.23237.x

Added the capability to display Convergence information after a Risk Analysis has been performed. Convergence is a way to determine if sufficient simulations have been performed to produce reliable results. The new capability is enabled and controlled by 5 new FullMonteUserConfiguration.txt settings:

DISPLAYCONVERGENCE=TRUE  
SAVECONVERGENCEDATA=TRUE (an optional setting)  
CONVERGENCECOUNT=20 (an optional setting)  
SDCONVERGENCEPERCENTAGE=0.01 (an optional setting)  
80THCONVERGENCEPERCENTAGE=0.00001 (an optional setting)

If enabled, the Convergence information will be displayed on the Risk Analysis dialog after the Risk Analysis is complete.



Two values are displayed: Standard Deviation (SD) and 80<sup>th</sup> Percentile convergence.

Convergence indicates that the results produced by the individual simulations have stabilized, i.e. stopped changing by a significant amount. Note that Mean (not calculated by Full Monte) and Standard Deviation values tend to stabilize relatively quickly (within 10's of simulations) but dates at higher levels of confidence generally require many more simulations to stabilize. The information in the screenshot above indicates that the Standard Deviation was a good approximation for the final result after 72 iterations of the simulation but the 80<sup>th</sup> Percentile date required 1,545 simulations before it stabilized.

Note: This does not mean you should only run 1,545 simulations. Barbecana always recommends performing a large number of simulations, especially when producing final reports.

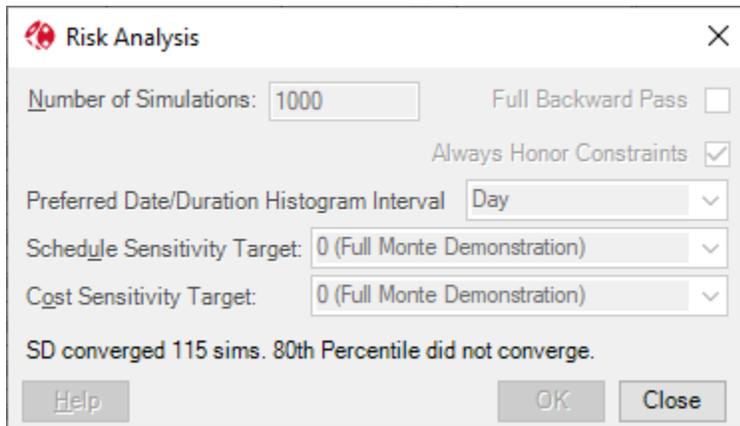
When Convergence is enabled, an additional click is required to Close the Risk Analysis dialog after the analysis is complete. The Convergence data is also displayed in the Status line tool tip (hover text) at the bottom of the Full Monte window.

If SAVECONVERGENCEDATA=TRUE is set, then the results from the individual simulations will be saved to a file (RiskAnalysisLog.txt) in the Full Monte user folder. This data can be used to plot convergence graphs.

The CONVERGENCECOUNT option can be used to specify how many sequential samples must be within the Convergence tolerance for Convergence to be reached. The default is 20.

The SDCONVERGENCEPERCENTAGE and 80THCONVERGENCEPERCENTAGE options can be used to specify the percentage tolerance for Convergence to be reached. The values shown above are the defaults if not specified.

If insufficient simulations were performed to achieve convergence, this will be noted. This indicates more simulations should be performed to produce reliable results.



Fixed an issue when changing an existing Task to a Milestone when the task had conditional branching applied.

Fixed an issue where Risk Path numbering could loop and cause an out of memory condition.

Improved tool tips for Foreign Tasks and their predecessor/successor links.

### 3.6 Update June 2023

#### Version 3.6.23164.x

Added two new FullMonteUserConfiguration.txt options to simplify working with Integrated Master Schedules created using the Microsoft Project Insert Project option.

USEMASTERMAPPINGSFORNEWSUBPROJECTS=TRUE allows Full Monte to automatically apply the master project Full Monte field mappings to individual inserted projects when opened in the context of the master without having to open each individual project first. If the master itself does not have Full Monte field mappings, then it will be set from the user default mappings, or system default if no user default is defined. The default can include Enterprise and User field mappings.

FORCEMASTERMAPPINGSONTOSUBPROJECTS=TRUE causes Full Monte to reset all inserted projects to have the same Full Monte field mappings as the master project for ease of subsequent reporting on individual projects. Note: Full Monte must be closed and reopened if master project field mappings are updated and you wish the change to be applied to all subprojects.

Fixed a crash in linked schedules when an inserted project is opened individually, the field mappings are a mixture of Enterprise and User fields, there are unopen inter-project links, and a Risk Analysis is performed, and results saved.

### 3.6 Update May 2023

#### Version 3.6.23152.x

Fixed a crash when assigning User Default Field Mappings to a new project where there was a conflict with existing data and the mappings included a Full Monte input field (like LOE or Schedule Margin flags).

Added a new FullMonteUserSettings.txt option (HONORLEVELINGDELAY=TRUE) to respect Leveling Delays following resource leveling. This will prevent Full Monte dates being earlier than those reported by Microsoft Project following resource leveling.

### 3.6 Update April 2023

#### Version 3.6.23108.x

Significantly improved the performance of the File, Export function for larger schedules.

Full Monte now saves the Manual X-Axis marking options separately for Date and Cost graphs.

Improved support for Split tasks by calculating a 'span' duration encompassing all splits and using this in the simulation. Added a tooltip to the Remaining Duration column in Tabular views to highlight durations modified for splits. Added a new FullMonteUserConfiguration.txt option (USELEGACYSPLITHANDLING=TRUE) to suppress the new functionality if required.

Fixed a crash in the File Import dialog when Saving configurations if no other settings had ever been changed.

Improved the File Import/Export dialogs to remember the currently selected configuration when Save is clicked and clicking Cancel now prompts if there are unsaved changes.

Changed the algorithm used to draw graph manual X-Axis scales to better match the specified manual scale.

Added a new FullMonteUserConfiguration.txt option (USENEWXAXISSCALE=TRUE) to allow the user to select the new algorithm for marking graph X-Axis scales when not in manual mode.

### 3.6 Update March 2023

#### Version 3.6.23069.x

Added the ability to assign templates from custom Number fields.

Added the ability to insert Microsoft Project custom Number fields as columns in views.

Added a FullMonteUserConfiguration.txt option (SIMPLIFYGRAPHTITLE=TRUE) to simplify the Graph title area by omitting Mean and Standard Deviation information.

Added a FullMonteUserConfiguration.txt option (SUPPRESSEDENTERPRISEFIELDS=TRUE) to suppress loading of Project Server Enterprise fields for Full Monte field lists if they are not required.

Added a FullMonteUserConfiguration.txt option (SUPPRESSFRIENDLYFIELDNAMES=TRUE) to suppress custom Text and Number field friendly names from field pick lists.

Changed sorting of Text and Number field pick lists from ASCII (1,11,2) to 'natural' order (1,2,11) and list custom Text/Number fields before Friendly and Enterprise field names.

Major improvements to the time taken to load the Edit menu and field pick lists for systems with many Enterprise fields.

Improved the messaging displayed when the software trial period expires, and the software enters Academic mode because no license key has been entered.

Slightly reduced the required gap between graph x-axis markers.

### 3.6 Update January 2023

#### Version 3.6.23025.2

Fixed an issue where Full Monte would incorrectly prompt to Save Mappings after Field Mappings were updated.

Fixed an issue where risk cost impact values could not be saved if the Microsoft Project currency setting was different to the Windows regional currency setting. The Microsoft project currency setting is now used for all validation.

### 3.6 Update December 2022

#### Version 3.6.22346.2

Fixed an issue with discrete risks caused by project names with no file extension.

### 3.6 Initial Release (November 2022)

#### Version 3.6.22336.x

Results Differences between 3.6 and earlier versions.

There are three updates in this version that can alter results compared to earlier version of Full Monte.

- Percentage start-to-start lags are now calculated from predecessor stochastic duration.
- Sensitivity results for inactive tasks when the Full Backward Pass option is enabled.
- Merge Bias calculations now consider inactive predecessors.

More information can be found in the details below.

#### File Import/Export Enhancements

The File Import/Export dialog has been enhanced to allow multiple import/export definitions to be saved. The File Import mechanism now also allows the import of milestone date uncertainty.

#### Manage Risks

New Duration and Cost Impact columns have been added to the Manage Risks dialog. If the Duration Impact is non-zero, any duration specified will be added to the remaining duration of any tasks to which the risk has been assigned when the risk is active (based on Probability) in the simulation. Assigned tasks will always be active but the duration and cost will change if the risk is active. If the Duration Impact

column is zero, then the assigned tasks will be made active/inactive based on probability as before although any Cost Impact will also be applied. The Manage Risks dialog has also been enhanced to show any assigned tasks (up to a limit of 14 characters after which you will still have to click to see a full list as before).

### Graph View Data Export

Added a new option on the Graph view File menu to 'Copy to CSV'. This saves the histogram data (X axis interval and Y axis percentage hits) to a CSV file for use with Excel.

### Other View Enhancements

The 'Results', 'Tornado (Cost)' and 'Tornado (Schedule)' views have been updated with more useful information as standard. If customers use these views at present, they will retain their current settings until the user chooses 'Reset the Current View to Default' from the View menu. A new 'Risk Path Gantt' view has been added.

### Risk Analysis Enhancement

In earlier versions of Full Monte, Percentage Start to Start Lags were always calculated based on the deterministic (original) duration of the task. With this version, percentage lags are now calculated based on the current stochastic sampled duration during each iteration of the simulation.

### Configuration Enhancements

It is now possible to create a file called FullMonteSystemConfiguration.txt in the product installation folder. This file can contain commands to change the location used by Full Monte to display documentation and the location of the Full Monte user folder (normally <Documents>\Barbecana\Full Monte MSP>).

The LocalFiles.txt copy mechanism has been enhanced to allow user control over versions and to support copying files from multiple source locations to the Full Monte user folder. The file LocalFiles.txt is no longer created by default and must be created if required.

A new user configuration file 'FullMonteUserConfiguration.txt' can be created in the Full Monte user folder. Currently the released commands include an optional user button and an option change the file used to store Full Monte risks.

For further information see the Full Monte SRA for Microsoft Project Installation Guide.

### Merge Delay Change

In earlier versions of Full Monte, Merge Delay calculations would not consider predecessors that were inactive. In 3.6 we now consider information from inactive predecessors.

### Language Localization

Modified Full Monte to attempt to use English duration units if a foreign language version of Microsoft Project does not return the expected localized duration unit strings.

### Other Minor Changes

Added a 'Tornado' button to the Full Monte edit window to allow quick access to the Tornado (Schedule with Index) report.

Added a warning if Split tasks are encountered as these are not supported by Full Monte.

Made several changes to better support monitors with high Windows scaling factors (typically high resolution 4k monitors).

#### Bug Fixes

The right Y-Axis could be a duplicate of the left Y-Axis on detailed sensitivity graphs.

The Sensitivity Index could be non-zero for inactive tasks if the Full backward Pass option was enabled.

Fixed an issue where mapped Microsoft Project fields could display their internal field ID rather than their name in the field mapping and import dialog, if mappings were changed.

Fixed an issue where the Edit, Template preview graph did not show the correct most likely value when the template Duration Confidence Interval was not 100%.

## Full Monte SRA 3.5 for Microsoft Project Update 3 (June 2022)

Version 3.5.22165.1

### Bug Fix

Fixed an issue where importing duration uncertainty using discrete durations would fail with an 'Unknown Error' for Normal Distributions. This defect was introduced in version 3.5.21229.1 when the warning regarding Most Likely durations not matching Remaining Duration was added.

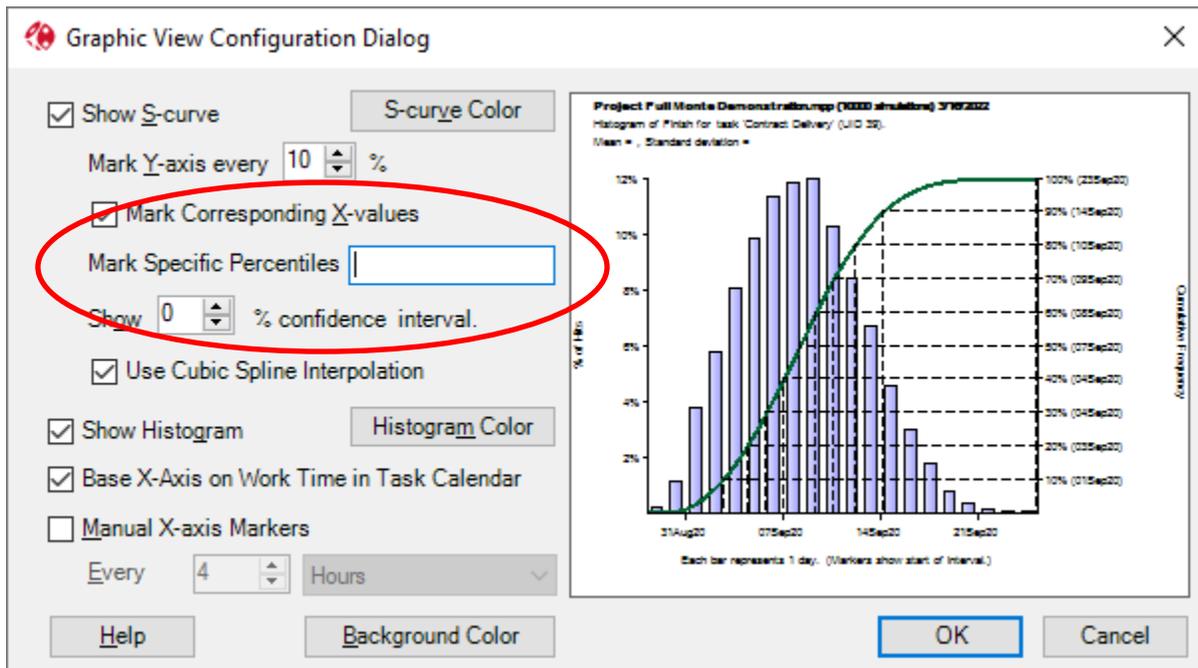
## Full Monte SRA 3.5 for Microsoft Project Update 2 (March 2022)

Version 3.5.22081.1

### Graph View Enhancements

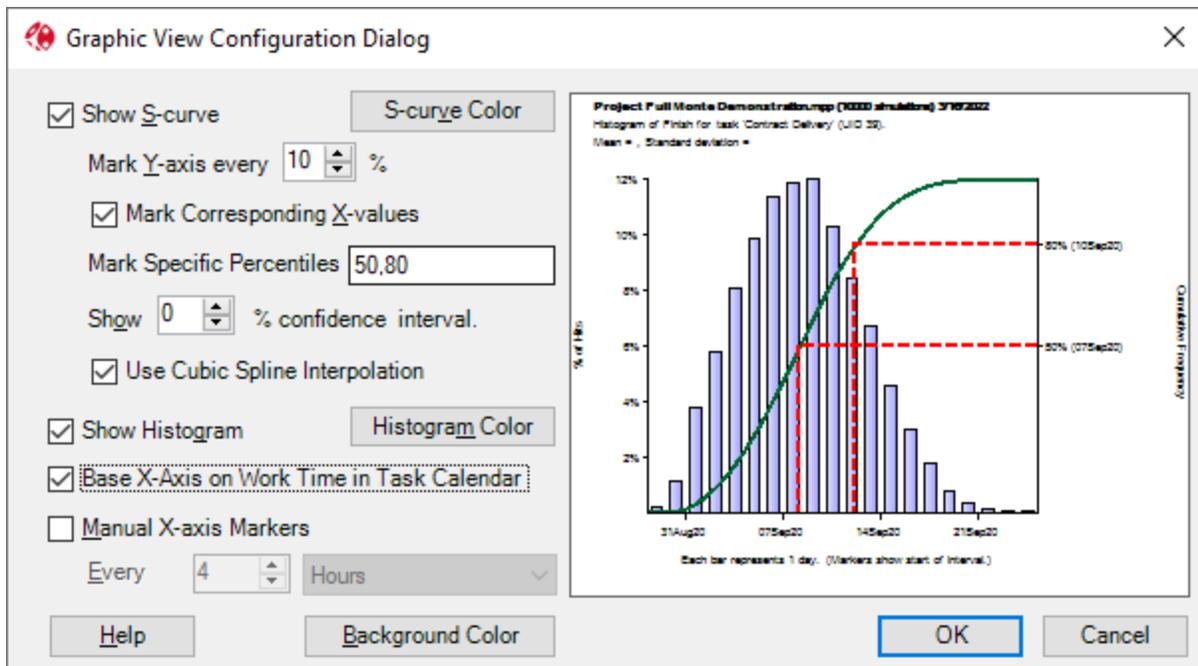
Enhanced the Graph View with options to highlight specific percentiles when marking corresponding X-values.

A new option to 'Mark Specific Percentiles' has been added to the Graph View Configuration Dialog.

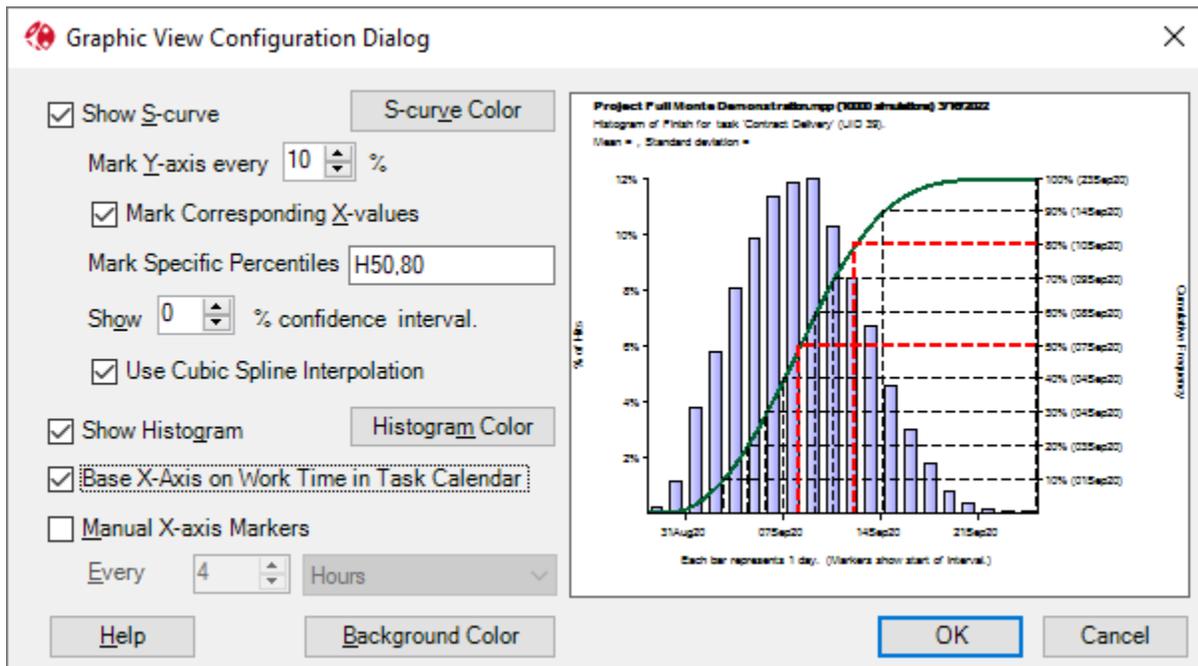


The 'Mark Specific Percentiles' control accepts formatting characters and values.

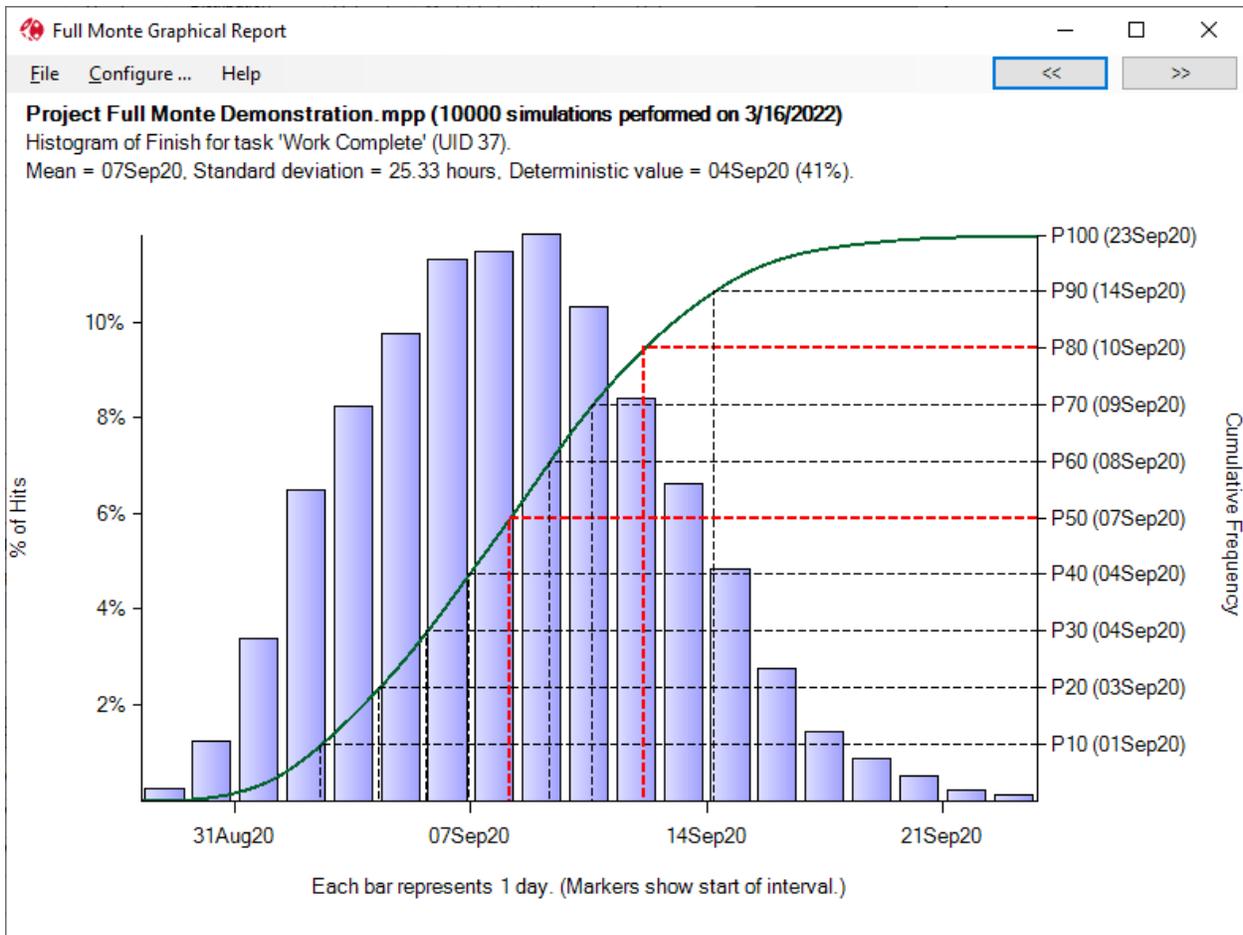
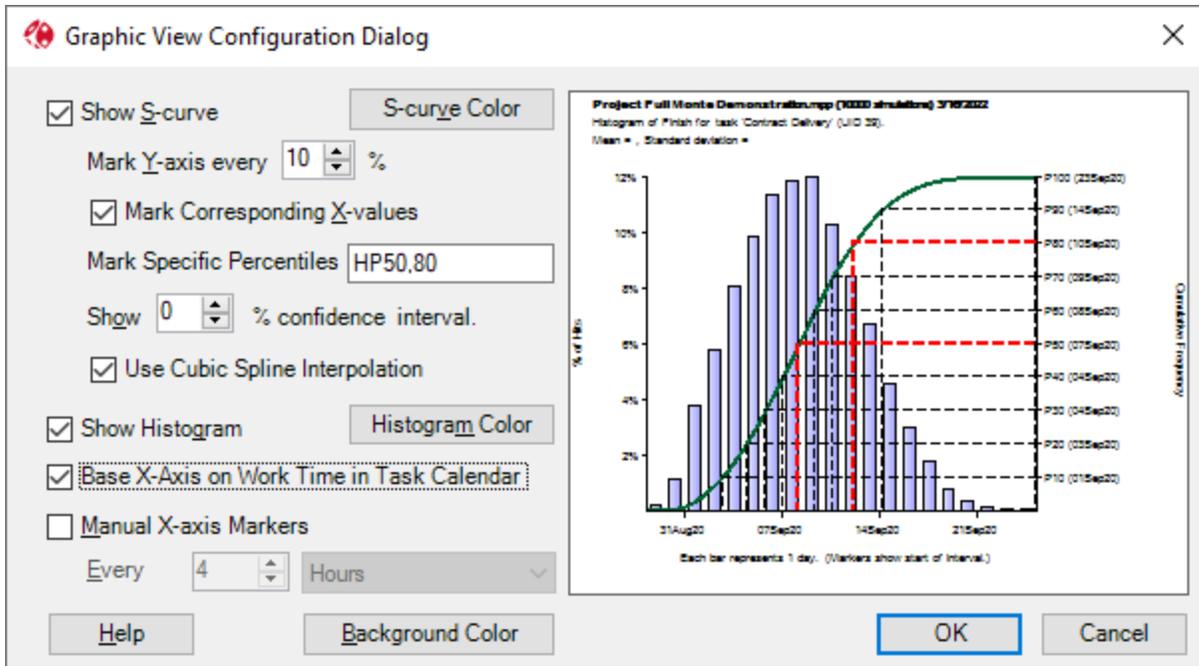
Values – A list of specific Y axis values to display. For example, if the values 50,80 are entered then the graph will appear as shown here: (only the 50% and 80% intersections are shown).



If the values are prefixed with an 'H', then all values will be displayed but the listed values will be highlighted as shown here:



Lastly, if any of the values are prefixed with a P then the Y-axis will be displayed using the 'P' notation rather than as percentages. So P80 rather than 80% etc.



## Other Minor Changes

Fixed an issue with the 'Default' Gantt bar header for the Tornado Chart view not displaying.

## Full Monte SRA 3.5 for Microsoft Project Update 1 (August 2021)

### Version 3.5.21229.1

#### Schedule Margin Flag

A Schedule Margin Flag field can now be mapped to a custom Flag or Text field so Full Monte can identify Schedule Margin tasks and automatically set their Probability of Existence to 0% (zero) so they have no impact during Risk Analysis. This saves the user having to zero out Schedule Margin tasks before an analysis and makes it easier to model work complete vs committed delivery milestones. See the user guide for further information.

#### Performance Improvements

Improved Risk Analysis performance by reducing Garbage Collection Pressure. This has two benefits: Reducing the time for a risk analysis by around 20% and reducing the likelihood of an 'out of memory' condition being reported.

#### Other Minor Changes

Customer request – added a warning to the log file when an imported Most Likely Duration was different to the current task Remaining Duration.

Added additional error diagnostic information when opening projects.

Added required Microsoft .Net 4.0 files to the install to avoid installation problems on Windows 10 with incompatible versions of .Net 4.0.

## Full Monte SRA 3.5 for Microsoft Project (March 2021)

### Introduction

This document describes the new and updated features in Full Monte SRA 3.5 for Microsoft Project.

**Important Note:** *If you are upgrading from Full Monte version 3.3, also known as Full Monte 2017 R2, or earlier, please review the Full Monte 3.4 Release Notes for important information about changes to the handling of Inactive tasks.*

### Installation

Full Monte 3.5 is being distributed with an entirely new installation mechanism. For standalone installations, the process is similar to earlier versions, but the installation now supports upgrading existing installations without first uninstalling older versions.

For corporate installation, the installation process now better supports 'push' installations and allows the corporate license information to be pushed with the installation.

Please see the Full Monte 3.5 Installation Guide for Microsoft Project for further information.

## Data Compatibility

Data stored and used by Full Monte 3.5 is backward compatible with Full Monte 3.3, and 3.4. Data from versions earlier than 3.3 will be converted on first use and will no longer be recognized by version 3.2 or earlier. Data conversion from Full Monte 2.x or earlier is no longer supported.

## Enterprise Fields

We now support the use of Lookup Tables on Project Enterprise Fields (Project Server or Project Online) for Duration Distribution Type and uncertainty templates assigned from an Enterprise Text field.

The product now better adapts information being saved to Enterprise Duration fields. For example, if duration optimistic uncertainty was specified as 90% of a Remaining Duration of 10 days, the Optimistic Duration will now be saved as 9 days if the Enterprise Optimistic Duration field is of type Duration since a field with type Duration cannot store percentages.

## Manually Scheduled Tasks

In previous versions of Full Monte, if tasks set to Manually Scheduled in Microsoft Project were detected when the data was opened in Full Monte, a warning was issued, and the task schedule mode was treated as Auto Scheduled. This could result in different dates calculated by Full Monte. We have changed this behavior to treat the task as 'constrained' with either a Must Start On (Summary Tasks) or Must Finish On (regular tasks/milestones) to better replicate the results from Project. A warning is still issued.

## Minor Enhancements

Removed (None) as a selectable option when mapping fields in the File, Import dialog.

We now trim (remove unnecessary spaces) from around Template Names specified in custom text columns so assigning Templates from a Text field will not fail if there is a leading or trailing space.

Updated the About Full Monte dialog to support Corporate Deployments and provide some basic memory diagnostic information.

## Bug Fixes

### **Original Release Full Monte SRA for Microsoft Project 3.5.21058.1 (March 2021)**

Fixed an issue where, if a task with discrete duration uncertainty (specified using durations not percentages) was promoted to a Summary Task in Microsoft Project, an exception would occur as Full Monte does not allow uncertainty defined using Duration values on Summary Tasks. A warning is now issued, and the uncertainty is set to None.

Fixed an issue when inserting the Microsoft Project WBS field as a column in Full Monte. The column would display the parent summary task name rather than the numeric Project WBS. The field 'Parent' can still be used to show the parent summary task name.

Resolved an issue where Graph views (Histograms) would be scaled too small where the users primary monitor is 4K resolution with a high scaling factor. This fix does not correct poorly sized columns in tabular views on 4K monitors. The workaround is to manually adjust the column size and, if prompted, save the changes to the view.

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## Introduction

This document describes the new and updated features in Full Monte SRA 3.4 for Microsoft Project.

**Important Note:** *The treatment of Inactive tasks, the calculation of Work (Labor) Costs, and the treatment of Manually Scheduled tasks has been altered in this latest version of Full Monte based on customer feedback. Before implementing Full Monte 3.4, please familiarize yourself with these changes as results may differ from earlier versions.*

## Installation

Any earlier versions of Full Monte must be uninstalled before installing Full Monte 3.4. The Full Monte data stored by Full Monte 3.4 is backward compatible with Full Monte 3.2 and 3.3. Data from earlier versions of Full Monte (prior to 3.2) will be converted to 3.4 format on first use. Once converted it will no longer be recognized by those older versions. Please refer to the Full Monte for Microsoft Project Installation Guide for information regarding converting from Full Monte 2.1 or earlier.

## Microsoft Project Inactive Task option

In Microsoft Project 2010 **Professional** and later, Microsoft added a feature to allow Tasks to be marked as **Inactive**. When marked as Inactive, tasks are treated as zero duration with no cost impact on the schedule.

**Note:** *Although Microsoft Project **Standard** editions do not allow the Inactive flag to be modified, the Standard Edition will respect any changes made to the Inactive flag using the Microsoft Project **Professional** edition.*

The image shows a 'Task Information' dialog box with the following details:

- General Tab:**
  - Name: Initiate
  - Duration: 5 days
  - Estimated:
  - Percent complete: 0%
  - Priority: 500
  - Schedule Mode:  Manually Scheduled,  Auto Scheduled
  - Inactive (circled in red)
- Dates:**
  - Start: 6/1/20 8:00 AM
  - Finish: 6/5/20 5:00 PM
- Display Options:**
  - Display on Timeline
  - Hide Bar
  - Rollup
- Buttons:** Help, OK, Cancel

In versions of Full Monte prior to 3.4, tasks marked as Inactive were always treated as Active, and an appropriate warning issued when a project was opened if Inactive tasks were encountered. Our reasoning at the time was that Inactive tasks could be used to model the impact of risks in Full Monte and therefore should be considered as Active.

Customers could set the task Probability of Existence to 0% (zero) if they also wanted Full Monte to treat these tasks as zero duration with no cost impact.

In practice we are now finding that customers, who use the Inactive flag, do so to exclude scope that is not required or not currently approved and should not be considered by either Microsoft Project or Full Monte.

**Therefore, for Full Monte 3.4 we have modified the handling of the Inactive flag as follows:**

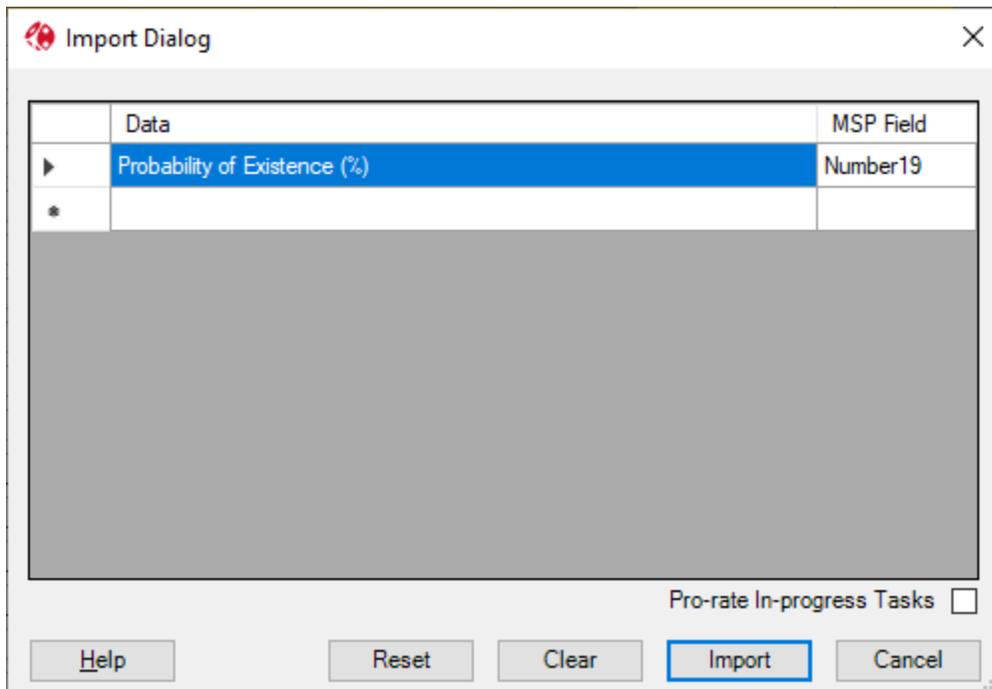
When a project is first opened in Full Monte, the task Probability of Existence will be set based on the status of the Inactive flag. If the Task is marked as Inactive, then the Probability of Existence will be set to 0%. If the Task is marked as Active, then the Probability of Existence will be set to 100%. No warnings are issued.

If the Probability of Existence is subsequently modified by the user, then the user specified value will be saved and will take precedence over the setting of the Inactive flag when the project is reopened. A warning will be added to the log file if the saved Probability of Existence is not consistent with the setting of the Inactive Flag. The data is considered inconsistent if the task is marked as Inactive but the Probability of Existence is not zero or if the task is marked as Active and the Probability of Existence is 0 (zero).

*Note: Earlier versions of Full Monte always saved the Task Probability of Existence, usually 100%, when task Duration Uncertainty information was updated (Distribution Type, Optimistic, Pessimistic etc.). Full Monte 3.4 will consider this user entered data and use it in preference to the current setting of the Inactive flag until Duration Uncertainty is updated in the new version. So, to ensure the new Full Monte 3.4 behavior is used with projects previously used with Full Monte 3.3 or earlier, we recommend re-applying duration uncertainty to all tasks using the new version and saving the project.*

## File, Import...

The File, Import feature has been updated to allow task Probability of Existence to be imported independently of other duration uncertainty information.



The task Probability of Existence can be imported from either a Microsoft Project custom **Number** or custom **Text** field.

The behavior for the two types of field is slightly different:

When importing from a custom **Text** field, values that are blank will result in no change to the existing Probability of Existence values in Full Monte. This supports only populating the specific tasks where the Probability of Existence needs to be imported. Values of, for example, 100 and 100% are both valid.

When importing from a custom **Number** field, the field must be updated for all tasks as there is no concept of a blank number field. If the value is 0 (zero) then the relevant Probability of Existence will be set to 0 (zero). Number fields do not allow the percentage sign to be entered and it is not required.

The Pro-rate In-Progress Tasks option has no effect on imported Probability of Existence values.

## Work (Labor) Cost Calculations

In Microsoft Project 2010 and later, Microsoft removed functionality that recalculated assigned Units when Total Work was modified. This allows the assigned Units to be inconsistent with the total Work.

Full Monte cost calculations for Work (Labor) resources have always been on assigned Units and this might not be consistent with total Work because of the above change.

In Full Monte 3.4 we have revised the calculation of Work resource assignment costs to be based on Work/Duration rather than Units. This matches the costs calculated by Microsoft Project.

### Default Edit View – Duration Confidence Interval

For Full Monte 3.4, we have removed the column 'Duration Confidence Interval (%)' from the default configuration of the Task Edit view. View configurations created/modified by users are not affected by this change.

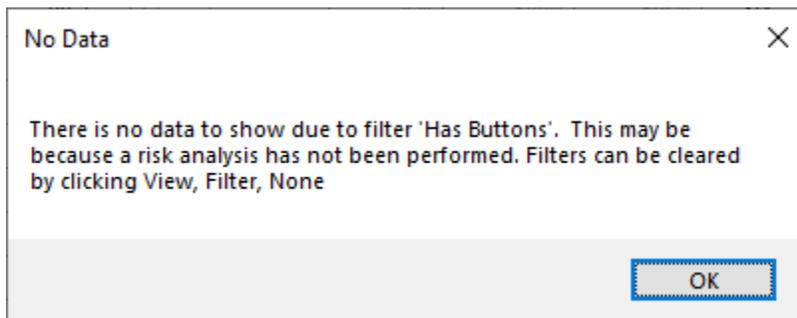
This change was made based on feedback from customers. Barbecana recommends that the Duration Confidence Interval is set to 100% for all tasks.

Users should be aware that the Duration Confidence Interval is **not** related to predicting results at a specific level of confidence. A full explanation can be found here <https://www.barbecana.com/full-monte/full-monte-documents/>, in the document 'The Duration Confidence Interval Explained (and why not to use it)'.

### There is no data to show...

Several Full Monte views including the 'Graphs' and 'Tornado' views would offer to cancel their default filters if no data was available to display. The most common reason for no data was not having previously performed a risk analysis. Unnecessarily cancelling the filter would make the view less useful in the future.

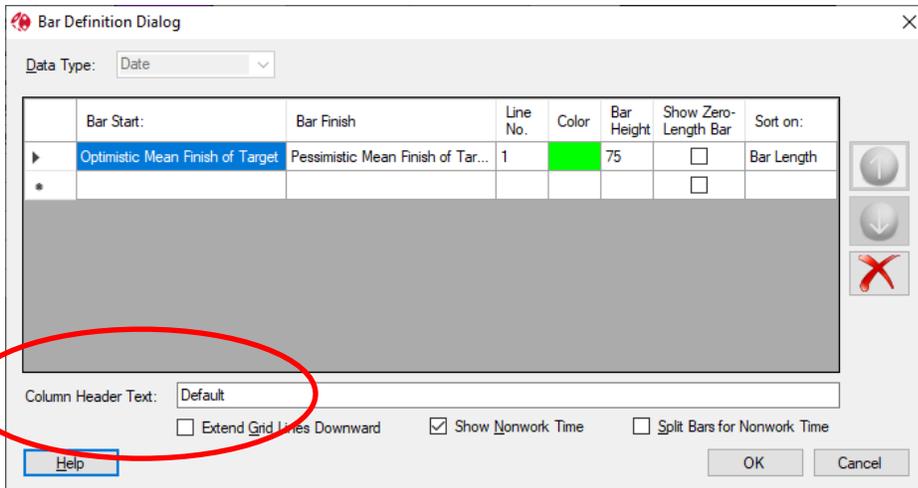
Full Monte 3.4 no longer prompts to clear the filter and instead suggests why there may be no data and instruction on how to manually clear the filter if appropriate.



### Sensitivity Tornado Views

A new option has been added to Sensitivity Tornado views to allow the mean finish of the selected schedule sensitivity target to be displayed as a header on the split bar column.

The option is enabled by setting the Column Header Text to 'Default'.



The view will then display the sensitivity target and mean finish date in the column header.

Activity ID	Activity Name	Remaining Duration	Percent Critical	Percent Critical (Sensitivity)	Sensitivity Index	Sensitivity Index 50.0	Optimistic Mean Finish of Project	Pessimistic Mean Finish of Project	Project Mean Finish 08-Aug-17 10:54
A1010	HW Task 1	20 days	89%	89%	58%		03-Aug-17 13:27	15-Aug-17 10:54	
A1040	HW Task 4	20 days	89%	89%	58%		03-Aug-17 13:27	15-Aug-17 10:54	
A1020	HW Task 2	20 days	45%	45%	29%		07-Aug-17 13:49	14-Aug-17 11:58	
A1030	HW Task 3	20 days	44%	44%	28%		07-Aug-17 14:05	14-Aug-17 11:33	
A1000	Initiate	5 days	97%	97%	16%		07-Aug-17 11:13	09-Aug-17 12:54	
A1090	Integration	5 days	97%	97%	16%		07-Aug-17 11:13	09-Aug-17 12:54	
A1080	SW Task 4	18 days	8%	8%	5%		08-Aug-17 10:33	10-Aug-17 09:01	
A1050	SW Task 1	18 days	8%	8%	5%		08-Aug-17 10:33	10-Aug-17 09:01	
A1070	SW Task 3	18 days	4%	4%	2%		08-Aug-17 10:47	09-Aug-17 13:06	
A1060	SW Task 2	18 days	4%	4%	2%		08-Aug-17 10:47	09-Aug-17 12:55	
A1110	Brochure Development	10 days	3%	3%	1%		08-Aug-17 10:52	08-Aug-17 15:31	

## Bug Fixes

### Original Release Full Monte SRA for Microsoft Project 3.4.20162.x (June 2020)

Fixed a defect where the Early Finish and Late Start dates were transposed for Foreign Tasks when the linked project was not available.

Fixed an issue with the calculation of Material resource costs for in-progress Tasks.

Modified the Full Monte installer to use a temporary location accessible by the Windows 'System' account for file extraction to facilitate silent push installs using Microsoft System Center Configuration Manager (SCCM).

### Update Release Full Monte SRA for Microsoft Project 3.4.20275.x (October 2020)

Fixed an issue where the Sensitivity Tornado views bar column did not correctly show the sensitivity target split date if the selected Sensitivity Target was changed by running Risk Analysis from within the Tornado Chart.

Improved the presentation of Finish dates where the activity finished on the last working period of a day, but the finish date was being shown as the first working period of the following working day.

Fixed an issue where changing the size/location of views did not prompt the user to save changes to the view.

Modified the behavior of Manually Scheduled tasks when processed by Full Monte. In all previous versions of Full Monte, manually scheduled tasks were treated as auto-scheduled which could result in significantly different results compared to Microsoft Project. We now impose a constraint on the manually scheduled tasks to better reproduce the results from Microsoft Project. Several customers explained that there might be manually scheduled tasks in third party schedules provided to them over which they had no control, but their successor logic could be tied to those tasks.

Fixed an issue where European decimal separator characters (commas) failed to save correctly when used for duration uncertainty percentages and durations.

#### **Update Release Full Monte SRA for Microsoft Project 3.4.20289.x (October 2020)**

Added improved exception diagnostic information when saving Enterprise custom fields and reading resource rates (currencies).

#### **Update Release Full Monte SRA for Microsoft Project 3.4.20321.x (November 2020)**

Added support for a registry option to revert the Inactive task functionality back to Full Monte 3.3 (where Inactive tasks were treated as Active) using the following String value:

```
[HKEY_CURRENT_USER\SOFTWARE\Barbecana\Full Monte\MSP]
"Make Inactive Active"="TRUE"
```

This option was requested by a customer using Full Monte branching where they set tasks to Inactive but needed Full Monte to consider all tasks active in the context of branching.

Fixed an issue when saving Discrete Risk task assignments.

Added additional informational messages when opened projects contain data from different versions of Full Monte.

Fixed an issue where integer numbers displayed as NA by Full Monte would cause an exception when saving results to MS Project Enterprise Fields. NA values are now set to zero (0) in Enterprise Fields.

Improved the warning when invalid template names are found in Microsoft Project custom Text Fields or P6 Activity Codes when assigning Templates. It now identifies the value that is not a valid template name.

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### Introduction

This document describes the new and updated features in Full Monte 3.3 for Microsoft Project.

### Installation

Any earlier versions of Full Monte must be uninstalled before installing Full Monte 3.3. The Full Monte data stored by Full Monte 3.3 is backward compatible with Full Monte 3.2. However, data from earlier versions of Full Monte will be converted on first use. Once converted it will no longer be recognized by those older versions. Please refer to the Full Monte for Microsoft Project Installation Guide for information regarding converting from Full Monte 2.1 or earlier.

### Field Mappings

Full Monte for Microsoft Project stores duration uncertainty and result information in Microsoft Project custom fields and uses a process called ‘mapping’ to choose which custom fields contain Full Monte data. In Full Monte 3.0/3.1 the system default was to try to use Text1 through Text14. Many customers already used those fields for their own information. Full Monte would detect these conflicts and would then suggest alternate mappings which was found complex by inexperienced users. For Full Monte 3.2/3.3 we have reduced the number of custom text fields mapped by default and now try to use Text26 through Text30. The only mandatory field that must be mapped remains Full Monte Input Data.

*Note: This change only affects new projects never opened by Full Monte and will not change existing implementations where User Default Mappings have previously been defined.*

### File, Import...

The File, Import... capability used to load duration uncertainty information from Microsoft Project custom fields has been enhanced with a new option to ‘Pro-rate In-Progress Tasks’.

In earlier versions, data was always imported exactly as it appeared in the source fields. This meant that, if the original data was re-imported once a task was in-progress, the imported uncertainty data would reset the uncertainty data previously modified by Full Monte to take into account progress. This would result in greater uncertainty than perhaps was expected.

The new option allows Full Monte to pro-rate the imported data to consider progress in the same way that it automatically pro-rates uncertainty previously set in Full Monte as tasks are progressed.

The new option can be seen above the Cancel button in Figure 1.

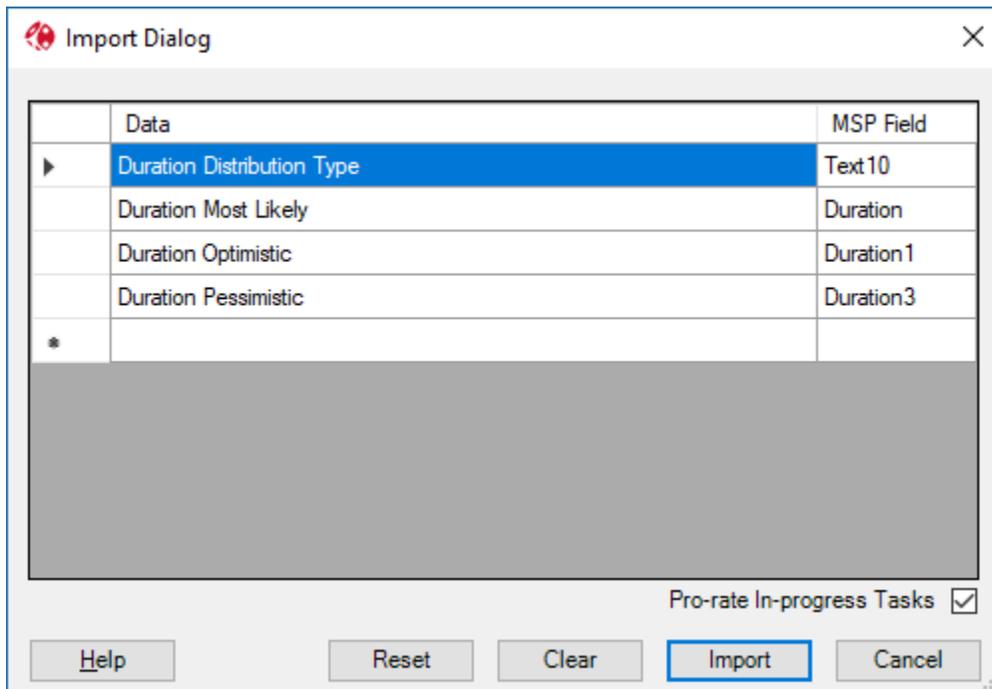


Figure 1

The import mechanism has also been enhanced to completely ignore tasks where the imported Duration Distribution Type stored in a custom text field is blank.

Note: This change only affects cases where the Duration Distribution Type is imported from a custom Text field. Data in a custom Numeric field cannot be blank. If the numeric field is cleared it becomes a zero which represents a Duration Distribution Type of (None).

This change allows generic uncertainty to be specified for groups of tasks using Full Monte Templates and then specific discrete Duration values to be loaded for known high risk tasks.

### Bug Fixes

#### **Original Release Full Monte 2017 R2 (May 2019 version 3.3.19123.2)**

Fixed an issue with Material Costs.

Removed messages related to LOE tasks from the log file.

Removed messages related to Summary Tasks flagged as Milestones.

Signed the VSTO add-in for secure installations that don't allow unsigned add-ins.

Fixed an exception if Optimistic/Pessimistic durations were deleted and left blank in the spreadsheet.

Resolved an issue with File, Export settings not being correctly persisted between sessions.

#### **Updated Release Full Monte 2017 R2 (June 2019 version 3.3.19158.1)**

Fixed an issue with Probabilistic Branching.

Improved support for Foreign Language version of Microsoft Project.

Corrected an issue with Edit Pane sizing when screen scaling was used.

**Updated Release Full Monte 2017 R2 (September 2019 version 3.3.19249.1) (aka 2017 R2)**

Enhanced File Export to convert percentages to durations when the target User Field is a Duration field.

Enhanced the History View to automatically scale the X-Axis.

Fixed a Costs issue where resources had manual profiles and cost escalation.

Updated the Code Signing Certificate and added the certificate to the VSTO file for secure environments.

**Updated Release Full Monte SRA 3.3 (September 2019 version 3.3.20097.2)**

Name change to Full Monte SRA.

Dropped the use of the '2017 Rx' version name. We now use the internal major/minor version (3.3)

Trial period reduced from 30 to 14 days.

Exported Durations honor the default units specified in Full Monte.

Resolved a crash in the Filter Dialog.

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### Introduction

This document describes the new and updated features in Full Monte 2017 R1 for Microsoft Project. The primary focus of this release is performance and stability.

### Installation

If you have Full Monte 2016 or Full Monte 2017 then this must be uninstalled before installing Full Monte 2017 R1. Please note that the format of the data stored by Full Monte 2017 R1 is different to any earlier version. Full Monte 2017 R1 will automatically convert Full Monte 2016/2017 data into the newer format. Once converted it will no longer be recognized by Full Monte 2016/2017. Please refer to the Full Monte for Microsoft Project Installation Guide for information regarding converting from Full Monte 2.1 or earlier.

### Field Mappings

Full Monte for Microsoft Project stores duration uncertainty and result information in Microsoft Project custom fields and uses a process called ‘mapping’ to choose which custom fields contain Full Monte data. In Full Monte 2016/2017 the system default was to try to use Text1 through Text14. Many customers already used those fields for their own information. Full Monte would detect these conflicts and would then suggest alternate mappings which was found complex by inexperienced users. For Full Monte 2017 R1 we have reduced the number of custom text fields mapped by default and now try to use Text26 through Text30. The only mandatory field that must be mapped remains Full Monte Input Data.

*Note: This change only affects new projects never opened by Full Monte and will not change existing implementations where User Default Mappings have previously been defined.*

## Risk Analysis

For Full Monte 2017 R1 for Microsoft Project, the Risk Analysis dialog has been updated as shown in Figure 1.

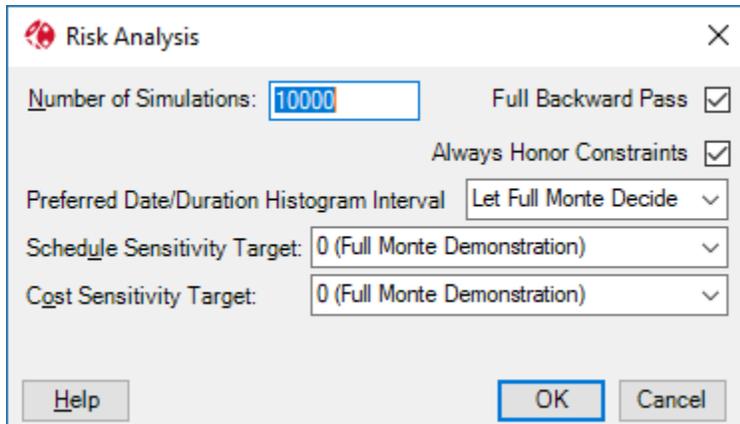


Figure 1

### Use Fixed Seed (removed)

This feature has been removed from the dialog as it served no practical purpose. In theory it allowed two separate runs of the risk analysis to produce identical results, but this was only true if no changes were made to the source project and the applied uncertainty. The rationale behind this type of feature dates to the 1960's, when the only way to print a second copy of a report was to repeat the entire risk analysis process, and it was necessary to reproduce the exact same results. There are now better ways to produce multiple copies!

### 'Fast Backward Pass' replaced by 'Full Backward Pass'

In Full Monte 2017, we introduced the option for the 'Fast Backward Pass'. This reduced the time to complete a sequence of simulations by not calculating Late Dates and Slack/Floats. Full Monte would still calculate early dates, sensitivity, criticality, and basis information in this mode.

Reducing the time for simulations is important because it allows more simulations to be performed in a given amount of time. The more simulations that are performed the better the fidelity of the results, especially at the ends of the confidence curves on the histograms.

In Full Monte 2017 R1 we have inverted the purpose of the option and it is now called 'Full Backward Pass'. For new projects, this will default to unchecked. Effectively this makes the 'Fast Backward Pass' the new default. Late Dates and Slack/Float can still be calculated by checking the option for the 'Full Backward Pass'.

*Note: if any tasks with a constraint type of 'As Late As Possible' (ALAP) are encountered when opening the project in Full Monte, the option for a 'Full Backward Pass' will be automatically enabled as the 'Full Backward Pass' is required to correctly analyze ALAP tasks.*

## 'Ignore Hard Constraints' replaced by 'Always Honor Constraints'

The 'Ignore Hard Constraints' option has been replaced by 'Always Honor Constraints' to align with the 'Tasks will always honor their constraint dates' setting on the Schedule tab of the Microsoft Project options dialog.

If the Microsoft Project setting 'Tasks will always honor their constraints dates' is set (checked), then the 'Always Honor Constraints' option in Full Monte will also be set however the user can choose to unset the option to allow Full Monte to more realistically forecast future dates by treating constraints as follows:

<b>Constraint Type</b>	<b>Treated As</b>
Must Start On	Start No Earlier Than
Must Finish On	Finish No Earlier Than
Start No Later Than	Ignored
Finish No Later Than	Ignored

If the Microsoft Project setting 'Tasks will always honor their constraint dates' is not set, then the 'Always Honor Constraints' option in Full Monte will also be unset and the option disabled.

It is considered a poor scheduling practice to use Must Start/Finish On or Start/Finish No Later Than constraints in Microsoft Project as, when the setting 'Tasks will always honor their constraints dates' is set, future dates may not be logic driven and may be entirely unattainable. By allowing the user to turn off this setting in Full Monte we are allowing risk analysis to produce more realistic results even when the option is set in Microsoft Project.

*Note: It is a best practice to use the Microsoft Project **Deadline** Date in place of Finish No Later Than or Must Finish On constraints as Deadline dates still allow the schedule to be logic driven.*

## Performance

The performance of the risk analysis engine has also been improved especially for larger, more complex, projects.

## File Import/Export

The import of duration uncertainty information from Microsoft Project custom fields and the export of Full Monte results to Microsoft Project custom fields has been enhanced.

The import/export settings are now saved after a successful import/export and become the initial setting the next time the import/export dialog is opened.

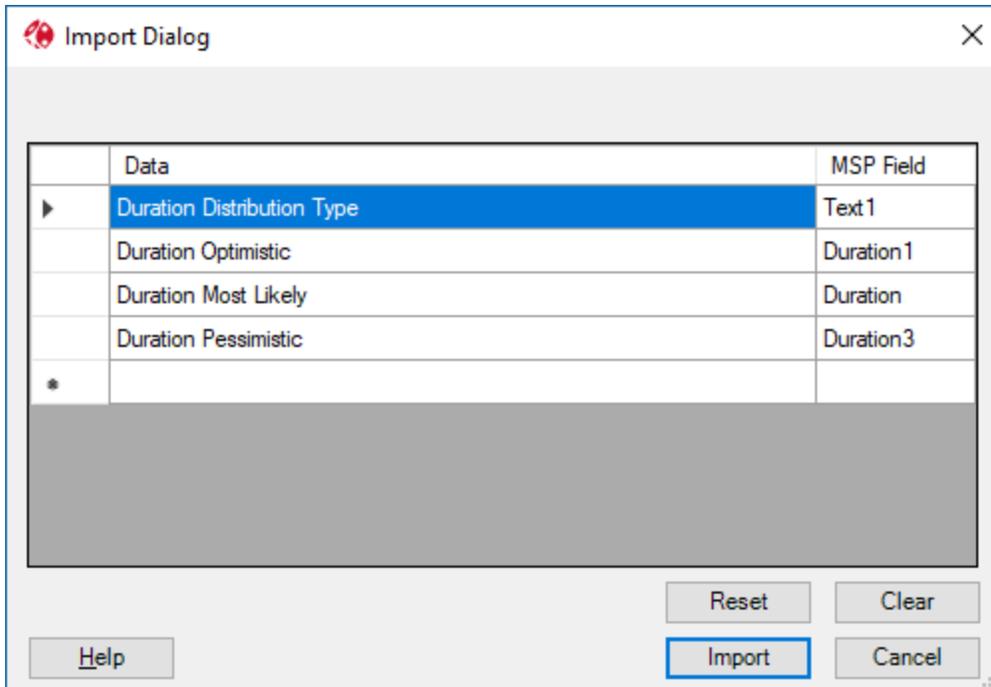


Figure 2

The 'Clear' button can be used to clear the current contents of the dialog. The 'Reset' button resets the dialog to the last good saved configuration undoing any current changes made since the dialog was opened.

### Duration Most Likely

The Duration Most Likely field is now automatically included when any Duration Uncertainty fields are added to the dialog.

The Duration Most Likely can now be set to the Microsoft Project task Duration field as shown in Figure 2. Previously, if you wished to use the Microsoft Project task Duration as the most likely value, it had to be copied to a custom Duration field (1-10) to be accessible to the import.

### Project Server Enterprise Fields

Support for Microsoft Project Server Enterprise Fields has been extended to include inserting any type of Enterprise Field as a column in Full Monte spreadsheet views and allowing them to be used in Filters.

There are also significant performance improvements when many Enterprise Fields are defined.

### Messages

Full Monte now displays messages related to schedule quality or data issues when the project is first opened rather than at the end of each Risk Analysis.

If messages are generated when the project is opened, the following dialog is displayed:

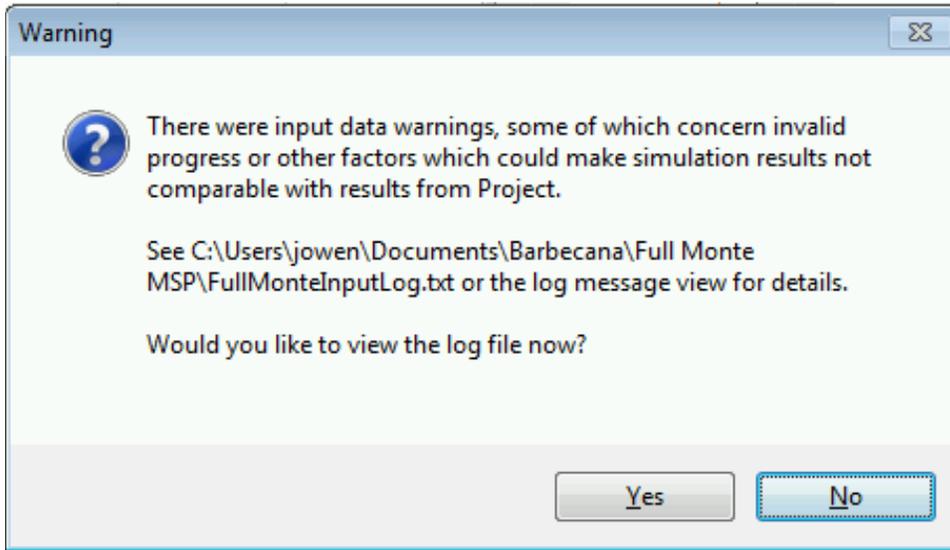


Figure 3

These 'input' messages are stored in 'FullMonteInputLog.txt'.

The format of messages has been enhanced to include the source project and task ID to make it easier to find and resolve issues when linked projects are opened.

Message may include:

- <Project Name>\<ID> (<Task Name>): Task started but FS predecessor <ID2> has not finished.
- <Project Name>\<ID> (<Task Name>): Milestone flag ignored on summary task.

### Unique ID (Raw)

In the context of linked projects, the Task Unique ID (UID) displayed by Full Monte is displayed in a hierarchical format showing the project and individual task UID. However, Microsoft Project displays special UIDs in the context of linked projects which made it hard to locate specific tasks using the UID from Full Monte. We have added a new Full Monte field called Unique ID (Raw) that displays the UID in the same format as Microsoft Project.

The example in figure 4 shows tasks from 3 linked projects in Microsoft Project. Note the Unique ID. It is coincidental that the ID and Unique ID are the same for tasks numbered 1,2 and 3.

	Task Name	ID	Unique ID
1	Master Task 1	1	1
2	msproj11	2	2
1	Ext 2 Task 2	1	8388609
3	msproj11	3	3
1	Ext 1 Task 1	1	12582913

Figure 4

Figure 5 shows the same data in Full Monte. Note the new Unique ID (Raw) field.

ID	Task Name	Unique ID	Unique ID (Raw)
0	msproj11	0	0
1	Master Task 1	1	1
2	msproj11	2	2
2.1	Ext 2 Task 2	2.1	8388609
3	msproj11	3	3
3.1	Ext 1 Task 1	3.1	12582913

Figure 5

## Bug Fixes

### Original Release (3.2.18122.2) May 2018.

Resolved an issue where in-progress tasks would be started at project start rather than actual start if the 'Split in-progress tasks' setting was not enabled in Microsoft Project.

Improved the performance and stability of the field mapping process when opening new projects in Full Monte for the first time and deleting and adding new mappings to an existing project.

Resolved an issue where duration uncertainty values specified as durations were not correct pro-rated as a task was progressed.

Resolved an issue where File, Import would incorrectly warn about invalid uncertainty data during an import.

Corrected a situation where sensitivity data was not correct for tasks with an ALAP constraint type.

Resolved an issue where the message 'An item with the same key has already been added' might be encountered when opening linked projects. The problem was caused by conflicting calendar/resource data in the linked projects.

Improved memory management to reduce the potential for an out-of-memory condition when opening large linked projects.

Fixed a graph display issue where X-axis markers could overwrite the cumulative Y axis markers.

### Bug Fix Release (3.2.18155.1) June 2018.

Fixed an issue with Material Costs

Removed messages related to LOE tasks from the log file

Removed messages related to Summary Tasks flagged as Milestones

### Bug Fix Release (3.2.19036.1) February 2019

Signed VSTO add-in for secure installations that don't allow unsigned add-ins

Fixed an exception if Optimistic/Pessimistic durations were deleted and left blank in the spreadsheet

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## Introduction

This document describes the new features in Full Monte 2017.

## Installation

If you have Full Monte 2016 then this must be uninstalled before installing Full Monte 2017. Please note that the format of the data stored by Full Monte 2017 is different to any earlier version. Full Monte 2017 will automatically convert Full Monte 2016 (and Full Monte 2014 P6 data) data into the newer format. Once converted it will no longer be recognized by Full Monte 2016/2014. Please refer to the Full Monte for Microsoft Project Installation Guide for information regarding converting from Full Monte 2.1 or earlier.

### Microsoft Project Configuration

An additional Full Monte field ('Full Monte Results 2') has been added to the default system field mappings. This field will **not** be automatically mapped for projects previously used with Full Monte 2016. Currently the only data stored in Full Monte Results 2 is the diagnostic data shown in Early Start Basis, Early Finish Basis, Critical Predecessors, Critical Successors, Last Finish Basis, Last Start Basis fields. If Full Monte Results 2 is not mapped, then this information will not be available until a Risk Analysis has been performed in the current session.

It is no longer mandatory to map the field 'Full Monte Results'. This makes 'Full Monte Input Data' the only mandatory mapped field in Full Monte 2017. If the standard results and histogram fields are not mapped, then that data will not be available in a new Full Monte session until a Risk Analysis is performed.

Please see the Full Monte for Microsoft Project Installation Guide for further information.

### Oracle Primavera P6 Configuration

A new Primavera user defined field called 'Full Monte Risk Path' is automatically created (if undefined) and populated with the Full Monte Risk Path data when a project is saved after performing a Risk Analysis. This field can be used to group tasks by criticality to either project completion or an interim milestone.

Please see the Full Monte User Guide for more information on Risk Path analysis.

### Tabular View Sorting

The options to Sort in ascending and descending order have been removed from the right-click context menus for column headings in tabular views. Columns can be sorted simply by clicking on the column heading and by using Ctrl+Click to sort on multiple columns. There is also a new Sort dialog on the View menu.

### Risk Analysis

For Full Monte 2017, new features have been added to the Risk Analysis dialog as shown in Figure 1.

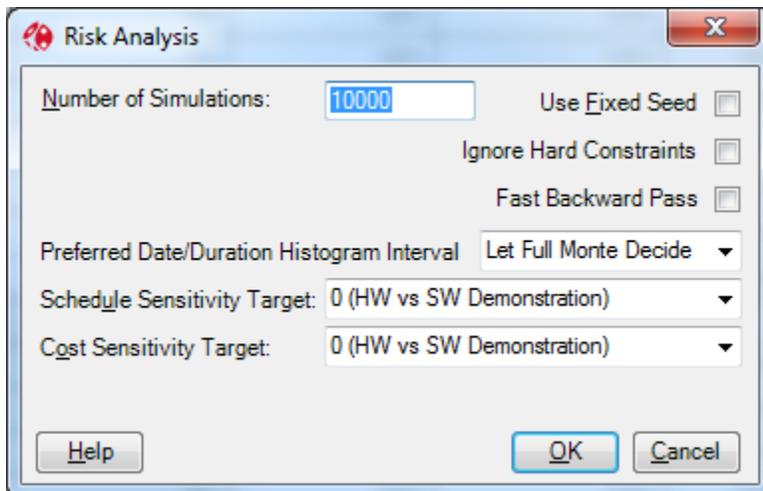


Figure 1

### Ignore Hard Constraints

It has always been a best practice to remove 'hard' constraints from a schedule prior to performing a Monte Carlo simulation. While the term 'hard' constraint is not formally defined, it is often used to describe a constraint (target) date that will prevent the early dates moving into the future. Examples include Start No Later Than, Finish No Later Than, Start On, Finish On, Must Finish On etc.

Tools exist (such as Barbecana's Schedule Inspector) that can automate the removal of such constraints but if these are not available then manually removing the constraints can be tedious. Full Monte 2017

now features a risk analysis option to ignore such constraints during the simulation. This can result in a far more realistic assessment of future schedule dates.

### Fast Backward Pass

While Full Monte already utilizes a very fast simulation engine it can still take some time to run thousands of simulations on larger schedules. The Fast Backward Pass option can reduce processing times by around 50% at the expense of not calculating Late Date data and Floats. Full Monte will still calculate all Early Date data, sensitivity, percent critical (criticality), and diagnostic aids such as the Critical Predecessor and Early Start/Finish Basis fields.

### Risk Path Analysis

A new Full Monte field, Risk Path, has been added and is calculated during risk analysis. Similar in concept to float tracing tools, the Full Monte Risk Path number is unique in grouping tasks by their criticality to the project (or interim milestone) outcome after considering uncertainty. An example is shown in Figure 2.

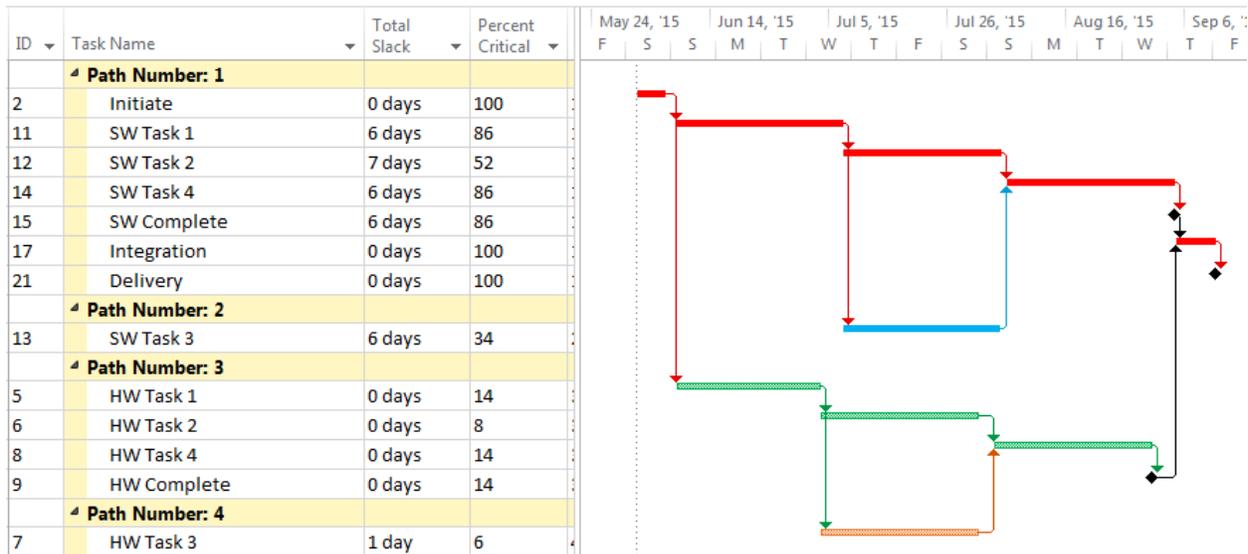


Figure 2

Note that while the tasks shown on Path Number 1 have more float than those in Path Number 3 they are more important to the project outcome after taking into account uncertainty.

The example in Figure 2 was produced in Microsoft Project by mapping the Full Monte Risk Path field to a Microsoft Project Custom Number field. For Primavera P6, a new integer user field called 'Full Monte Risk Path' is automatically created when risk analysis results are saved.

The path numbers will be calculated relative to the sensitivity target task selected in the risk analysis dialog.

Risk Path analysis can be used alongside traditional Sensitivity Tornado charts as an aid to understanding what is driving an outcome. Path analysis has the advantage that it will include tasks with no uncertainty provided they affect the outcome (are on the critical path) at least some of the time during the simulations.

## Input Milestones

Many projects are dependent on external inputs from both clients and subcontractors. These are often modelled with an input milestone with a constraint/target date to represent the expected date of receipt. Until now it has not been possible to easily enter a range of dates during which the deliverable might be expected. With Full Monte 2017 the capability to enter a range of dates together with an uncertainty distribution has been added where a task is defined as a milestone, has a zero duration, and has a Start No Earlier (or similar) constraint/target date. Dates can be entered either in the spreadsheet or edit pane as shown in Figure 3.

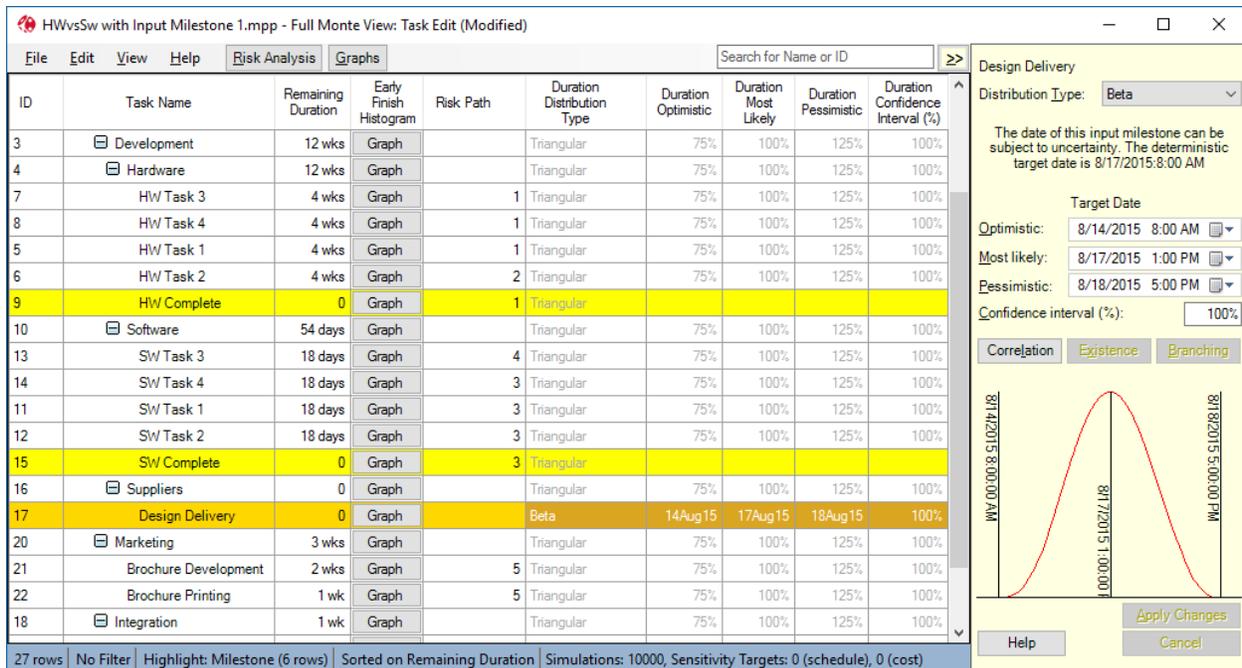


Figure 3

## Task Existence

In previous versions of Full Monte, risks (threats) could be modelled by using Probabilistic Branching. While this was especially useful if a number of tasks were used to model the threat (or opportunity), the process was unnecessarily complex if the threat could be modelled with a single task.

Consider the example of making something, testing it, fixing if faulty and then delivering.

The Probabilistic Branching example is modelled with a 20% chance of executing successor Task 4 and an 80% chance of proceeding directly to Task 5 as shown in Figure 4.

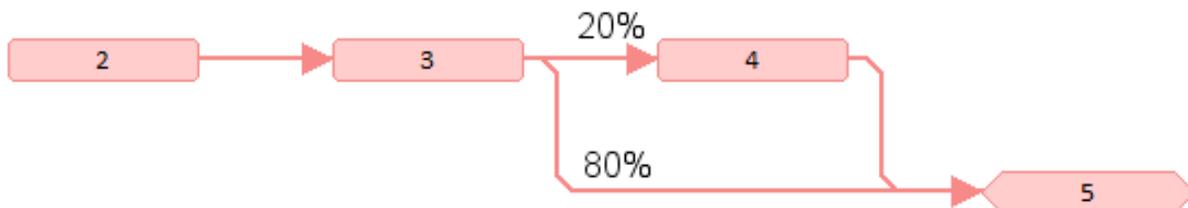


Figure 4

The Task Existence model is simpler with no additional logic as shown in Figure 5. Task 9 has a 20% chance of existing/occurring.



Figure 5

Full Monte 2017 allows both a simple probability of existence for a single task as well as a definition for a shared risk that can affect multiple tasks using a simple risk register.

When a task has a probability of existence specified (either directly or by a shared risk) then Full Monte will only consider it as affecting the outcome for the specified percentage of the simulations. For the remainder of the simulations it will be treated as a zero duration task with no cost impact.

The probability of a task existing (occurring) can be entered by clicking the ‘Existence’ button on the task edit pane or by adding the column ‘Probability of Existence’ to the spreadsheet as shown in figure 6.

ID	Task Name	Remaining Duration	Early Finish Histogram	Risk Path	Duration Distribution Type	Duration Optimistic	Duration Most Likely	Duration Pessimistic	Probability of Existence (%)
0	FM2017 Task Existence	8 days	Graph		(None)				100%
1	Project	8 days	Graph		(None)				100%
2	Make	1 wk	24Oct16	1	(None)				100%
3	Test	2 days	26Oct16	1	(None)				100%
4	Repair	1 day	27Oct16	1	(None)				20%
5	Deliver	0	Graph	1	(None)				100%

Figure 6

*Note that probability of occurrence is independent of any duration uncertainty information assigned to the task. In the example above the only uncertainty is regarding whether items will fail testing. Duration uncertainty information, if specified, will only have any effect in the simulations where the task exists.*

If the Discrete Risk ID is set to ‘(None)’ then the Existence Probability is unique to the selected task however a shared risk can be defined under Edit, Manage Risks and selected from the drop down list as shown in Figure 7.

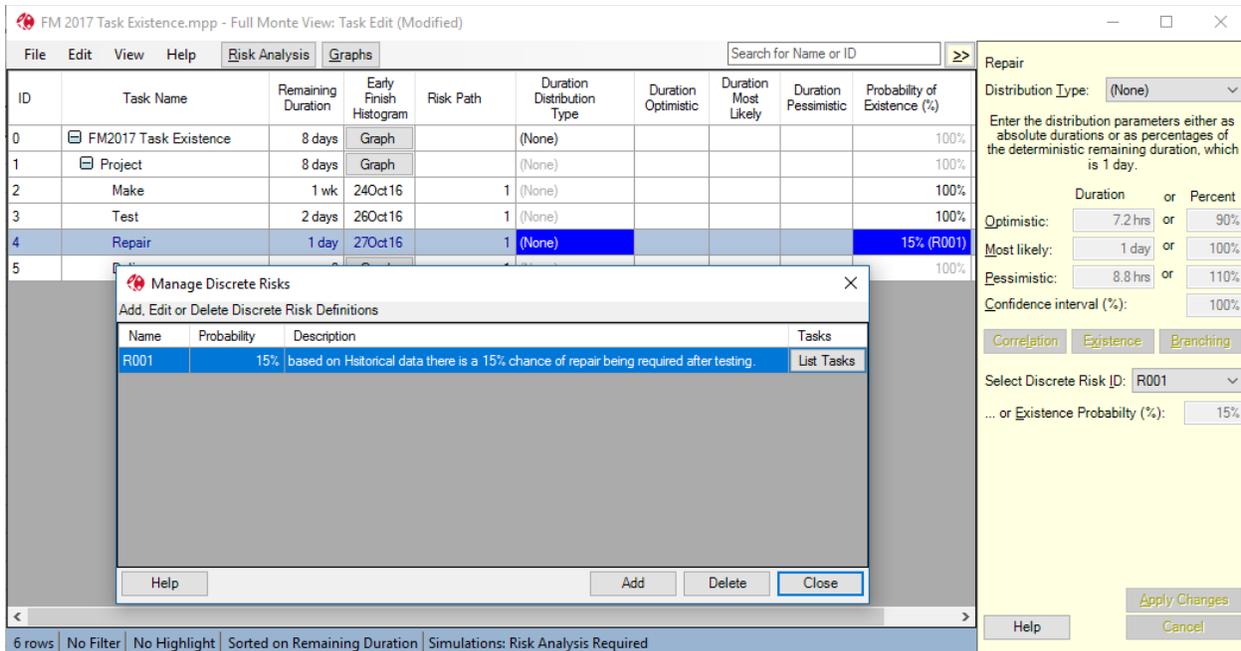


Figure 7

Note that the Probability of Existence column shows both the probability and the source risk ID.

### Expected Cost Calculations in Full Monte 2017

The calculation of costs for tasks that do not always occur has been changed in Full Monte 2017. In earlier versions of Full Monte (2.x and 2016), the Cost Expected Value for tasks that did not always occur was not modified to take into account the tasks Percentage Active. So a Task with a budget cost of \$1,600 would display a Cost Expected Value of \$1,600 even if it was only active say 20% of the time. However, the cost rolled up to higher level summary tasks would be modified to reflect the percentage Active. In Full Monte 2017, the Cost Expected Value is modified by the tasks Percentage Active. Examples of previous and current results are shown in Figure 8.

Task Name	Duration	Start	Finish	Predecessors	Cost	Cost Expected Value (FM 2.1 and 2016)	Cost Expected Value (FM 2016 R1)
<b>Probabilistic Branching</b>	<b>8 days</b>	<b>Thu 4/21/16</b>	<b>Mon 5/2/16</b>		<b>\$6,400.00</b>	<b>\$5,120.00</b>	<b>\$5,120.00</b>
Make	5 days	Thu 4/21/16	Wed		\$4,000.00	\$4,000.00	\$4,000.00
Test	1 day	Thu 4/28/16	Thu 4/28/16	2	\$800.00	\$800.00	\$800.00
Remedial Work	2 days	Fri 4/29/16	Mon 5/2/16	3	\$1,600.00	\$1,600.00	\$320.00
Deliver	0 days	Mon 5/2/16	Mon 5/2/16	3,4	\$0.00	\$0.00	\$0.00
<b>Probability of Occurrence</b>	<b>8 days</b>	<b>Thu 4/21/16</b>	<b>Mon 5/2/16</b>		<b>\$6,400.00</b>	<b>\$5,120.00</b>	<b>\$5,120.00</b>
Make	5 days	Thu 4/21/16	Wed		\$4,000.00	\$4,000.00	\$4,000.00
Test	1 day	Thu 4/28/16	Thu 4/28/16	7	\$800.00	\$800.00	\$800.00
Remedial Work	2 days	Fri 4/29/16	Mon 5/2/16	8	\$1,600.00	\$1,600.00	\$320.00
Deliver	0 days	Mon 5/2/16	Mon 5/2/16	9	\$0.00	\$0.00	\$0.00

Figure 8

Note that the results shown in Figure 8 for Probability of Existence costs are simulated for earlier versions of Full Monte since they did not include that feature.

This change has one other effect, cost histograms for tasks that are not always active will now contain a bar for occurrences of zero cost as shown in Figure 9.

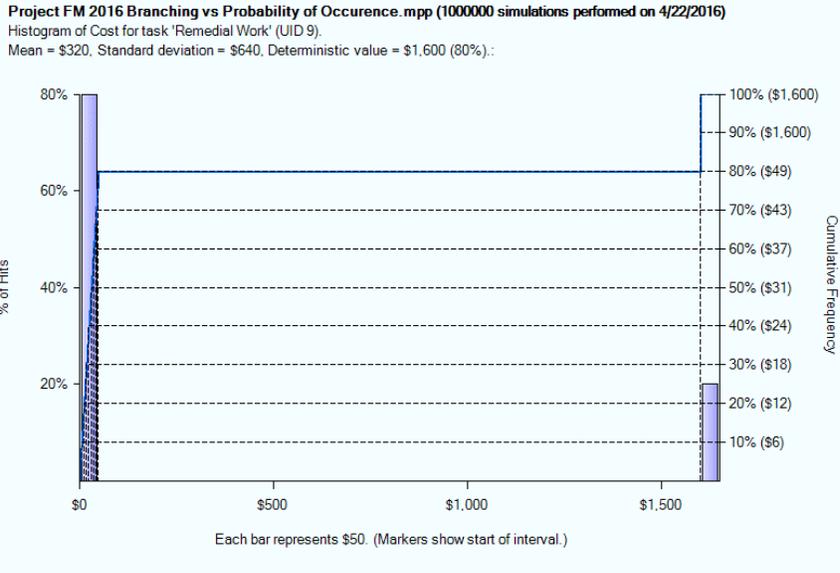


Figure 9

The graph shows that 20% of the time (left axis) the task cost (right axis) was \$1,600.

*Note: The odd right Y-Axis values (\$12, \$18, \$24, \$31, \$37, \$43, \$49) are due to the fact that intermediate values are interpolated. The values are being derived as the S-Curve crosses the \$0 bar.*

### Filters & Highlights

Users can now select which tasks are displayed in tabular views and apply conditional highlighting. Please see the Full Monte User Guide sections 3.2 and 3.3 for details. The example shown in Figure 12 is highlighting any tasks where the Early Finish Percentile (80%) is later than a Task Deadline date.

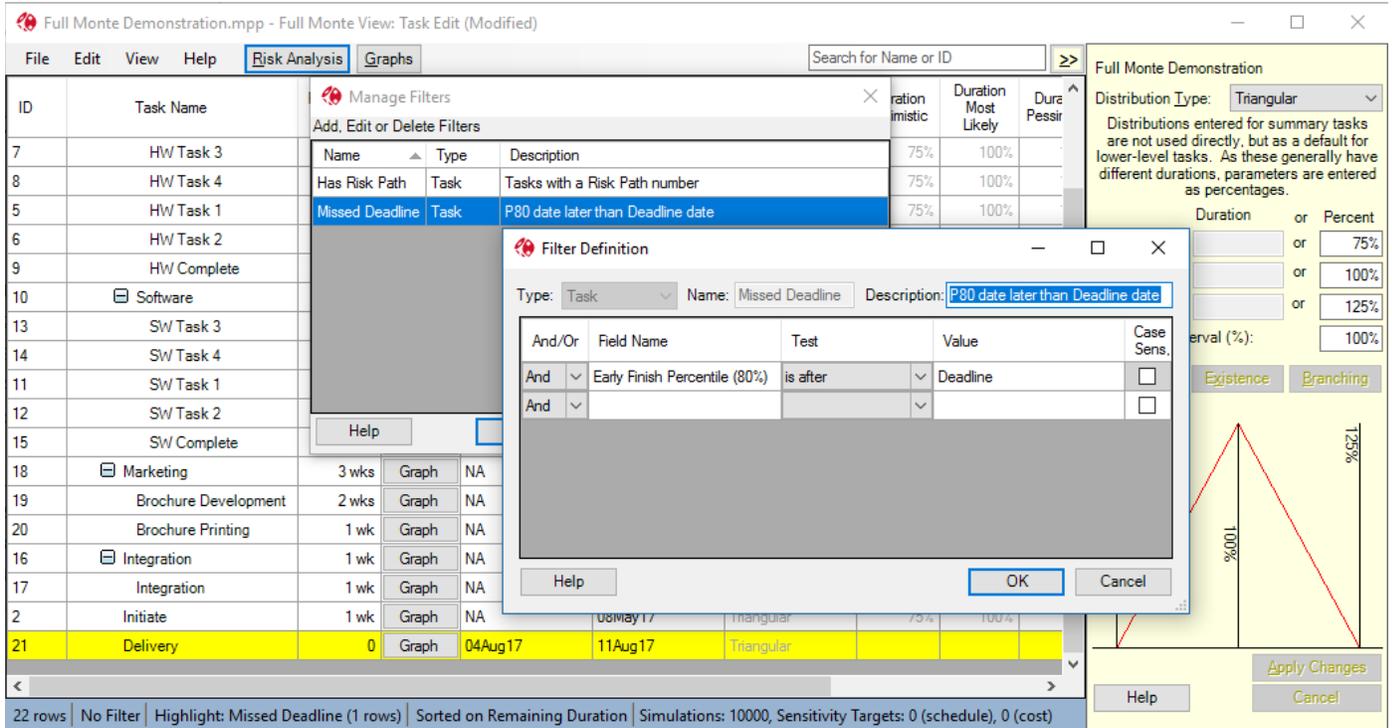


Figure 12

## History Report

The history report, used to review past performance against estimated durations, now has an option to set boundaries for the data to be included. This allows unrepresentative outliers to be excluded and makes it easier to discern values that can be used for duration uncertainty on future work as shown in Figure 11.

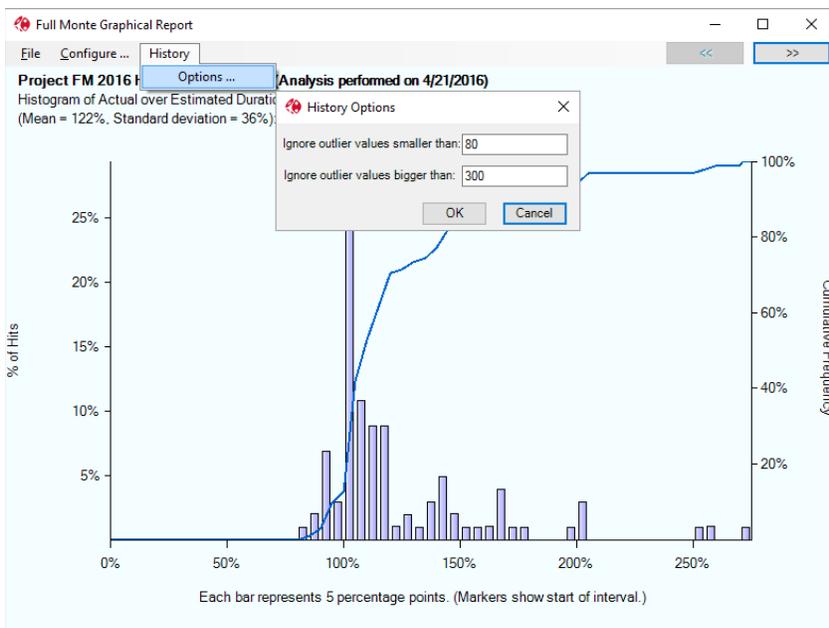


Figure 11

## Enterprise Fields (Microsoft project)

When assigning Templates based on Custom Fields, Full Monte will now include any available Enterprise text fields in the menu as shown in Figure 10.

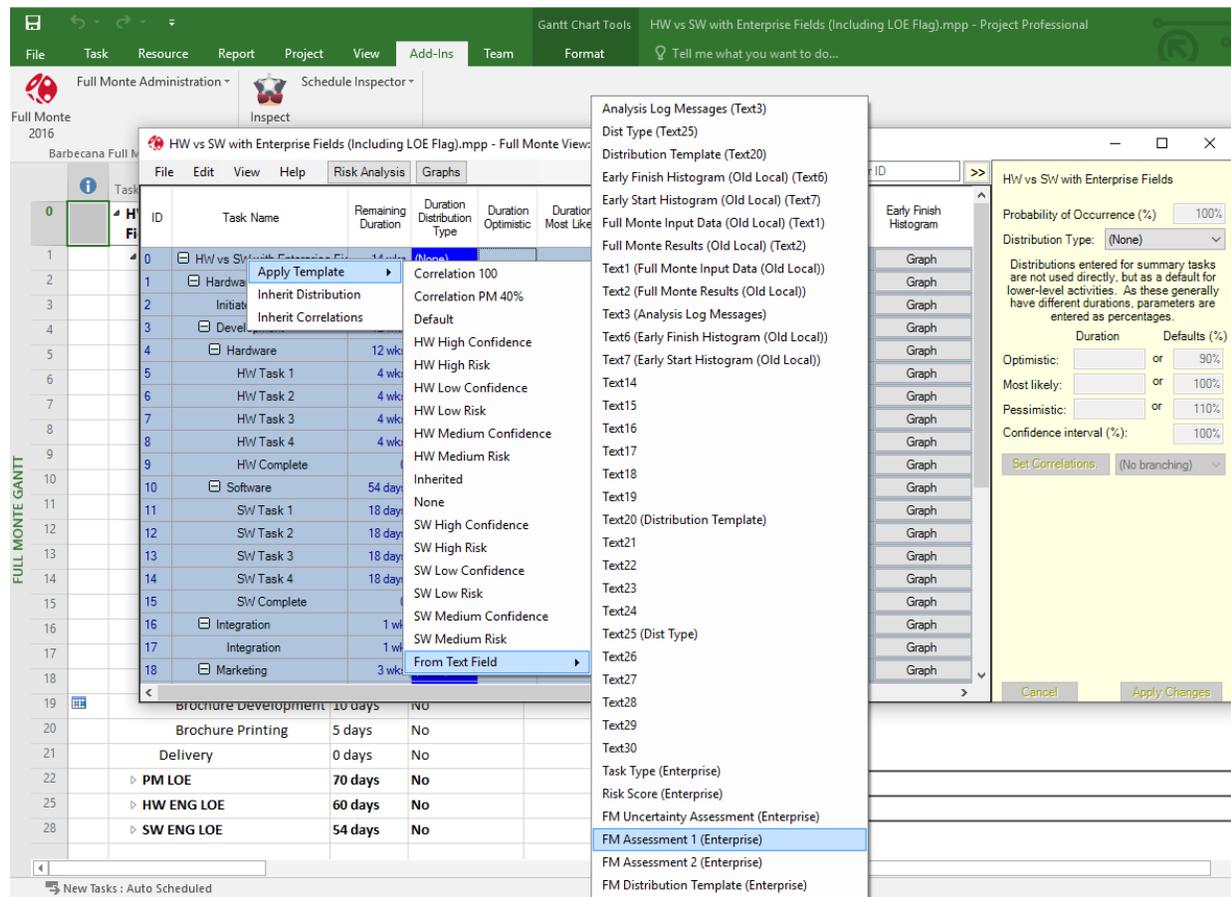


Figure 10

## Level of Effort

While Primavera P6 has a special activity type (Level of Effort) to model overhead/support resources, Microsoft Project does not. This can lead to Level of Effort (LOE) support work being modelled using regular tasks. This can be hard to maintain, as the LOE duration must be manually adjusted to reflect changes to the underlying discrete work, and can result in LOE tasks being shown on the critical path. LOE tasks should not be on the critical path.

A Full Monte field called 'Level of Effort' can be mapped to a Microsoft Project Flag field to identify LOE tasks. The LOE task must be linked with Start-to-Start/Finish-to-Finish logic to the relevant start/finish of the discrete work. Full Monte will derive the duration of the LOE task from the underlying discrete work on each simulation and calculate costs accordingly. The Percent Criticality of the LOE task will be zero. For further information see Appendix F in the Full Monte User Guide.