

@RISK VERSION HISTORY

Table of Contents

- @RISK 7 3
 - Version 7.6.1 4
 - Version 7.6.0 5
 - Version 7.5.2 7
 - Version 7.5.1 9
 - Version 7.5.0 11
 - Version 7.0.1 21
 - Version 7.0.0 22

- @RISK 6 26
 - Version 6.3.1 27
 - Version 6.3.0 28
 - Version 6.2.1 30
 - Version 6.2.0 31
 - Version 6.1.2 35
 - Version 6.1.0/6.1.1 36
 - Version 6.0.0 39

- @RISK 5 45
 - Version 5.7.1 46
 - Version 5.7.0 47
 - Version 5.5.1 49
 - Version 5.5.0 51
 - Version 5.0.1 55

@RISK 7

Version 7.6.1

Users of any of the DecisionTools Suite products will be notified automatically of any updated releases with a pop-up message that once clicked will open a dialog window with a variety of options to update the software. You can also check for available updates by clicking on **Help>Check for Software Updates** in the @RISK ribbon.

September 2019

Changes of Note

- **Excel Dynamic Arrays:** Microsoft recently introduced new functionality in Excel called "Excel Dynamic Arrays" which allow functions that return arrays to "spill" their results into nearby empty cells. This new functionality, unfortunately, was not compatible with how @RISK functions work. Palisade has fixed this problem.
- **Support for Windows Security Updates:** A set of windows security updates in mid August 2019 caused the message "Invalid procedure call or argument" to occur. Palisade has worked around the issue.

*** A Selection of Significant Maintenance Fixes ***

13092 - Microsoft introduced a security fix that broke the Chart in Excel functionality. Palisade has worked around the issue.

13079 - Problem with filtering fitted data sets.

Unnumbered - In some cases multiple CPU simulations would cause multiple prompts to show when shutting down "worker" copies of Excel.

Version 7.6.0

Users of any of the DecisionTools Suite products will be notified automatically of any updated releases with a pop-up message that once clicked will open a dialog window with a variety of options to update the software. You can also check for available updates by clicking on **Help>Check for Software Updates** in the @RISK ribbon.

Build #35 - October, 2018

Changes of Note

- **Support for Excel 2019:** Palisade continues to keep pace with Microsoft Excel's version updates by seeing to it that our software is compatible with their latest version of Excel.
- **Improved support for Multiple Monitors:** With more and more of our users utilizing multiple monitors in their day-to-day tasks, we have improved the way our products interact with multiple monitors and various DPI settings.
- **Added product telemetry for all DecisionTools Suite products:** To improve future software releases, Palisade has included the ability to detect how you are using this product. Usage data is anonymous and includes basic information about your computer's environment (e.g. OS version, Office version, system language) as well as some statistics about which features of the product you are using (e.g. commands clicked, function types used, number of iterations performed). You can find out more information in the software's readme file, accessible from the Help>Documentation menu. The user can choose to opt in or opt out of this at any time by choosing the Usage Reporting item from the Help menu.

*** A Selection of Significant Maintenance Fixes ***

12855 – Correcting inconsistent copula matrices results in NaN values.

12862 – Edit and Export button is not working in the Simulated Correlations Window.

12870 – Improved simulation initialization time for @RISK for Project.

12906 – Correlation tab of Model Window shows wrong dimension for matrices.

12907 – Simulation Settings Dialog help button shows wrong section of help.

12944 – @RISK for Project does not respect Operation Mode setting.

12956 – Import .MPP File operation sometimes overwrites incorrect workbook.

12971 – Error when inserting @RISK function in Excel 2019.

12977 – Improved some performance issues with 64-bit @RISK for Project.

12983 – RiskFitDistribution function not available in German.

12986 – Browse Window sometimes goes blank in Excel 2019.

13032 – Improved support for multiple monitors with different DPI settings.

13034 – “Excel ran out of resources while attempting to calculate one or more formulas” message when closing workbook in Excel 2019 64-bit.

13039 – Busy cursor displaying inappropriately.

Version 7.5.2

Users of any of the DecisionTools Suite products will be notified automatically of any updated releases with a pop-up message that once clicked will open a dialog window with a variety of options to update the software. You can also check for available updates by clicking on **Help>Check for Software Updates** in the @RISK ribbon.

Build #083 - January, 2018

Changes of Note

- **Data Execution Prevention Security Setting:** Palisade software was incompatible with some more restrictive "Data Execution Prevention" security settings in Excel; this release resolved the issue. This also allows all products in the DecisionTools Suite to run inside the 32-bit Excel process for versions 2013 and higher, meaning processing times are faster and more efficient.
- **Large Address Aware:** Palisade software was previously unable to take advantage of the ability of 32-bit Excel to allow users with 64-bit operating systems (which is most users) to use 4 GB of RAM instead of just 2 GB. This has been fixed to now allow Palisade software to support 4 GB of RAM in this environment, speeding up model performance.
- **Improved Licensing Security for Networks:** The FLEXnet licensing system in Palisade software has been upgraded to take advantage of licensing security improvements. This makes it harder for malicious software to access sensitive directories on network servers.
- **Windows XP and Windows Server 2003:** We will no longer support these older operating systems. This is because the latest version of the FLEXnet licensing system no longer supports these.
- **Improved Efficient Frontier Graphs in RISKOptimizer:** The scaling of the y-axis in the Efficient Frontier Excel graphs produced by RISKOptimizer has been improved to intelligently display more useful increments.

*** A Selection of Significant Maintenance Fixes ***

12311 After clicking on the "X" icon in top-right of the Excel Window during a simulation, there appeared an "Application-defined or object-defined" error message.

12621 Buffer overflow vulnerability in FLEXnet Publisher was fixed by upgrading to a new version of FLEXnet software.

12691 When two inputs had the same name, a Palisade cell statistic function referencing that name still returned a value.

12694 GraphDistribution method of the Excel Developer Kit failed.

12707 If maintenance expired July-Sept 2016, software did not allow running 7.5.1.

12720 RISKOptimizer failed to run if timespan stopping condition was selected.

12771 RiskPertAlt function returned an error if one of the parameters was specified as a probability distribution inside the formula (it worked properly if that probability distribution was specified in another cell).

Version 7.5.1

Users of any of the DecisionTools Suite products will be notified automatically of any updated releases with a pop up message that once clicked will open a dialog window with a variety of options to update the software. You can also check for available updates by clicking on **Help>Check for Software Updates** in the @RISK ribbon.

Build #146 - October 24, 2016

*** A Selection of Significant Maintenance Fixes ***

- 12689 Question Mark in Automatic Input Name Causes Problems
- 12681 Unable to enter custom correlation adjustment weights in interface.
- 12678 @RISK turns Excel Start screen back on, when it was set to off by group policy.
- 12674 Advanced Sensitivity Analysis fails with 'Method '~' of object '~' failed' with non-English Windows regional settings.
- 12667 Run-time error in trying to change contribution to variance bar display default in application settings dialog.
- 12666 Use of InkEd.dll system utility causing trouble on some machine configurations
- 12664 Multi-CPU RISKOptimizer runs don't stop on progress stopping condition.
- 12657 Multi-CPU RISKOptimizer runs don't stop on target value.
- 12647 Report in Excel causes Fit Results Window to go behind Excel window.
- 12639 Memory issues running simulation with a very large number of iterations in 64-bit Excel.
- 12636 Define Distribution window updating can be very slow.
- 12635 Problems setting alternate parameter defaults in some non-US/English locales.
- 12634 Results not reproducible in multi-CPU optimizations.
- 12632 Update Project Filters in @RISK doesn't restore tasks in Excel after filter deleted.
- 12629 Personal Macro Workbook (PERSONAL.XLSB) interferes with .MPP file import.

- 12628 Chart in Excel graphs are missing delimiter bars and some delimiter values in Excel 2007 and Excel 2010.
- 12617 Log file grows unacceptably big during RISKOptimizer run.
- 12614 Tab key doesn't switch between outputs, or requires two presses.
- 12610 #VALUE error returned by RiskGeneral distribution due to round-off issues.
- 12606 Error when starting optimization using efficient frontier, multiple CPUs, and additional constraints.
- 12598 Log-scaling of graph fails in rare circumstances.
- 12594 Define Filters dialog will not let you enter values/percentages directly
- 12589 Time-Series Batch Fit fails when using "After Last Used Column" or "Query for Starting Cell" options.
- 12588 XDK call ApplicationSettings::ApplyNow can fail on single core machine when changing CPU modes.
- 12587 Unable to change @RISK for Project category names.
- 12582 Ties in copula fitting data not resolved correctly.
- 12349 Progress indicator needed for large correlation correction weight matrix

Version 7.5.0

Users of any of the DecisionTools Suite products will be notified automatically of any updated releases with a pop up message that once clicked will open a dialog window with a variety of options to update the software. You can also check for available updates by clicking on **Help>Check for Software Updates** in the @RISK ribbon.

Build #104 - July 12, 2016

New and Improved Tornado Graphs

Input Shading, Tornado Overlays and Contribution to Variance tornado graphs have all been added to the already powerful collection of tornado graphs that previous versions of @RISK had to offer.

Input Shading (See #1 in image below)

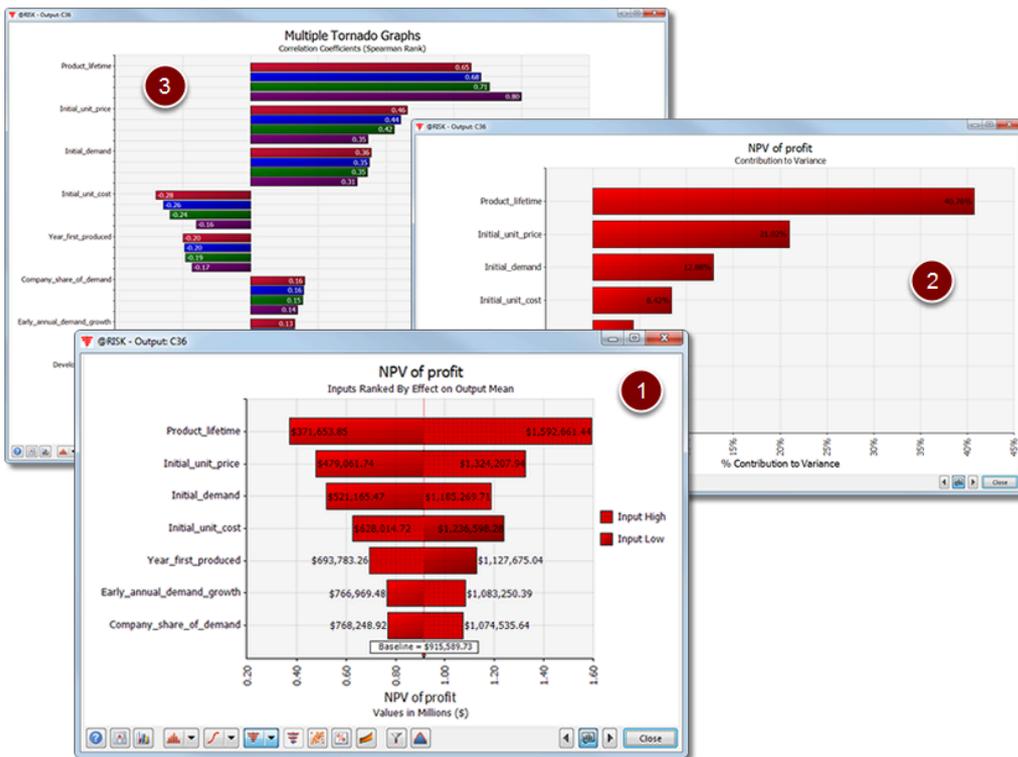
We've added a shading option to our Change in Output Mean Tornado graphs to have the ability to quickly see whether the input associated with each bar is high or low when the output statistic increases or decreases. In the example below you can see that when inputs such as Product Lifetime and Initial Unit Price are high, there is a positive impact on the net present value (NPV) of the project; when an input such as Initial Cost is high it will have a negative impact on the NPV.

Contribution to Variance (See #2 in image below)

@RISK's new Contribution to Variance tornado graphs help you understand how much of the variance in the output variable is attributable to each individual input. There are options for displaying both the magnitude and direction of the bars, or just the magnitude. The former displays bars to the left and right of the centerline, depending on the correlation between the input and the output, while the latter displays all input bars to the right (as shown below), so the contribution to variance can be more easily compared.

Tornado Overlays (See #3 in image below)

You can now overlay multiple tornado graphs to make specific comparisons easy to understand and communicate to others. This is especially helpful when you want to compare pre-mitigation vs post-mitigation on the same model; or if you would simply like to compare the results of multiple simulations to analyze other strategies.



RISKOptimizer is 4x Faster

RISKOptimizer now utilizes multiple CPUs (or cores) to dramatically speed up optimizations. Speed tests show optimizations run four times faster than before – or more – saving you tremendous time!

New Probability Distribution Functions

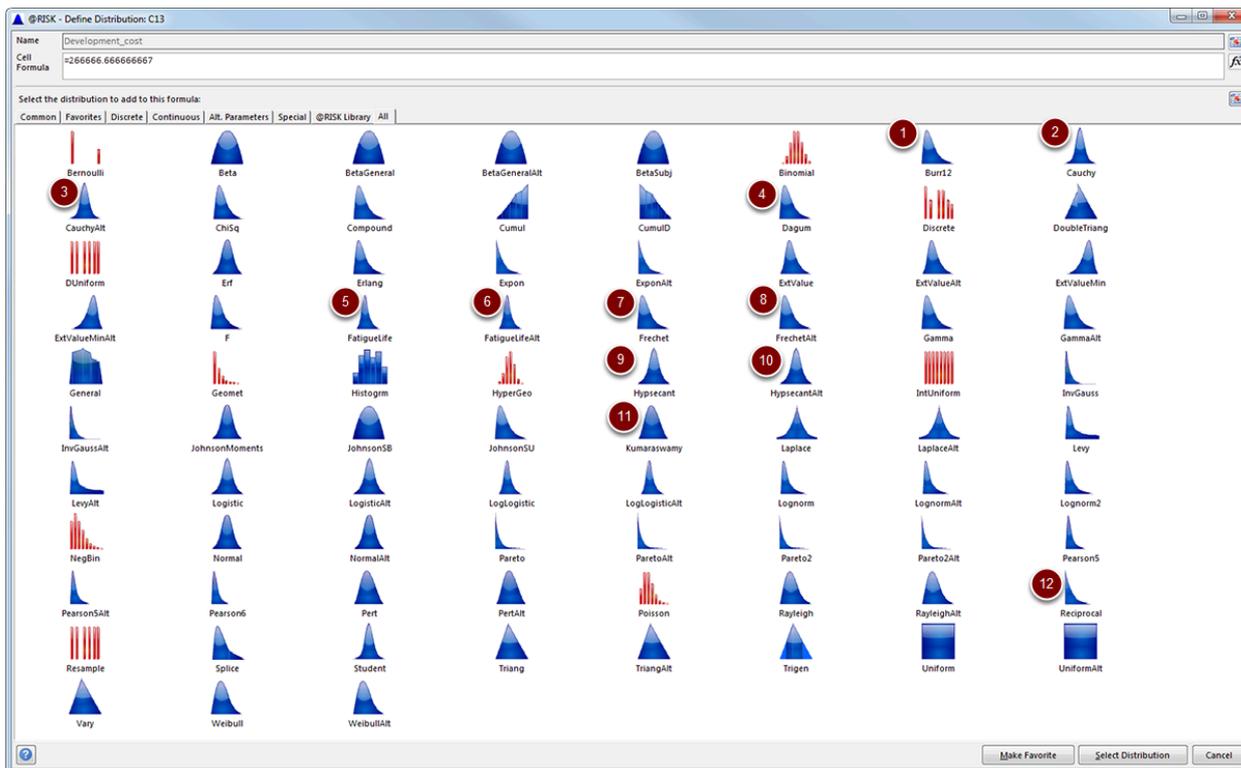
Functions are at the heart of risk analysis involving Monte Carlo simulation. In version 7.5 we have added a total of 16 new distribution functions. The new distribution functions will appeal to a variety of industries and applications, ranging from insurance risk to reliability engineering to modeling of household income. These new functions are important for accurate, insightful estimation of uncertainty.

1. **RiskBurr12**($\gamma, \beta, \alpha1, \alpha2$) specifies a Burr12 distribution with the parameters $\gamma, \beta, \alpha1$ and $\alpha2$. Also known as the Singh-Maddala distribution, the *RiskBurr12* distribution is **commonly used to model household income, insurance risk, and reliability data**.
2. **RiskCauchy**(γ, β) specifies a Cauchy distribution with the parameters γ and β . Often used as an example of a "pathological" distribution since it has no mean, variance, or higher moments, the *RiskCauchy* distribution is **commonly used in scientific and engineering applications to model resonance behavior in matter, measurement repeatability, and light-dispersion**.

3. **RiskCauchyAlt**(*arg1type, arg1value, arg2type, arg2value*) specifies a Cauchy distribution with two arguments of the type *arg1type* and *arg2type*. These arguments can be either "gamma", "beta", or a value between 0 and 1 to specify a percentile.
4. **RiskDagum**($\gamma, \beta, \alpha_1, \alpha_2$) specifies a Dagum distribution with the parameters γ, β, α_1 and α_2 . The *RiskDagum* distribution is most **commonly used in the modeling of income distribution and actuarial statistics**.
5. **RiskFatigueLife**(γ, β, α) specifies a FatigueLife distribution with the parameters γ, β , and α . Also called the Birnbaum-Saunders distribution, the *RiskFatigueLife* distribution is **commonly used to model crack propagation, the failure of materials over time, and related concepts**.
6. **RiskFatigueLifeAlt**(*arg1type, arg1value, arg2type, arg2value, arg3type, arg3value*) specifies a *RiskFatigueLife* distribution with three arguments of the type *arg1type, arg2type* and *arg3type*. These arguments can be either "gamma", "beta", "alpha" or a value between 0 and 1 to specify a percentile.
7. **RiskFrechet**(γ, β, α) specifies a Frechet distribution with the parameters γ, β , and α . The Fréchet distribution is **commonly used to model extreme events**. Used in hydrology to model peak annual rainfall, damn overflow, and related concepts.
8. **RiskFrechetAlt**(*arg1type, arg1value, arg2type, arg2value, arg3type, arg3value*) specifies a Frechet distribution with three arguments of the type *arg1type, arg2type* and *arg3type*. These arguments can be either "gamma", "beta", "alpha" or a value between 0 and 1 to specify a percentile.
9. **RiskHypSecant**(γ, β) specifies a HypSecant distribution with the parameters γ , and β . The hypersecant distribution is quite **similar to the normal distribution, but has a larger kurtosis, giving it a sharper peak**.
10. **RiskHypSecantAlt**(*arg1type, arg1value, arg2type, arg2value*) specifies a HypSecant distribution with two arguments of the type *arg1type* and *arg2type*. These arguments can be either "gamma", "beta" or a value between 0 and 1 to specify a percentile.
11. **RiskKumaraswamy**(*alpha1, alpha2, minimum, maximum*) specifies a Kumaraswamy distribution with the defined *minimum* and *maximum* and shape parameters *alpha1* and *alpha2*. The Kumaraswamy is a very flexible distribution that **can be used as a mathematically simpler replacement for the BetaGeneral distribution**.
12. **RiskReciprocal**(*minimum, maximum*) specifies a Reciprocal distribution with the defined *minimum* and *maximum*. The Reciprocal distribution is **commonly used in numerical analysis, Bayesian statistics, and analysis of noise**.

Other alternatives to some of the functions above are the corresponding "AltD" functions where any entered percentile values are cumulative descending percentiles, where the percentile specifies the probability of a value greater than or equal to the entered value.

1. **RiskCauchyAltD**
2. **RiskFatigueLifeAltD**
3. **RiskFrechetAltD**
4. **RiskHypSecantAltD**



New Statistical Functions

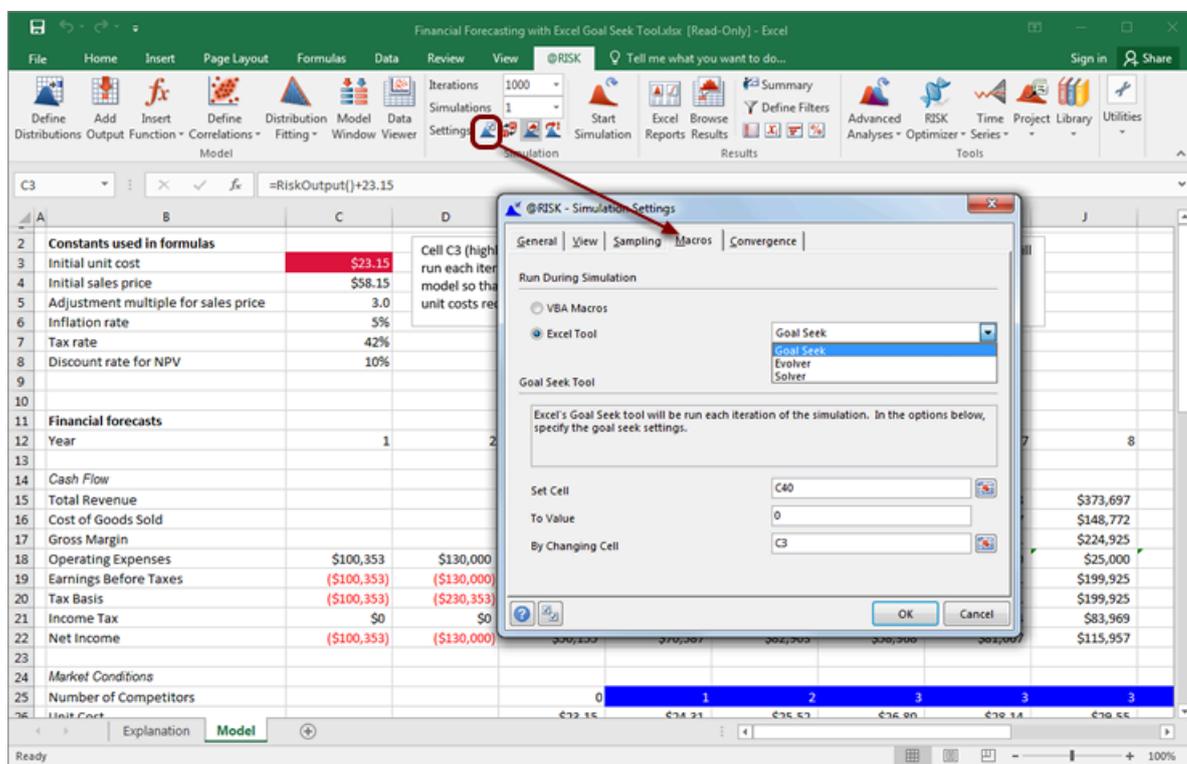
Statistics functions return desired statistics on simulation results for 1) a specified cell or 2) a simulation output or input. These functions are updated in real time as a simulation is running or at the end of a simulation. Statistics functions located in template sheets used for creating custom reports are updated only when a simulation is completed. All of the following functions can use the RiskTruncate property function to optionally restrict the range of the simulated distribution for calculating the statistic.

1. **RiskCI***Mean*(*cellref* or *output/input name*,*confidence level*,*lower bound*,*Sim#*) returns the lower or upper bound of the confidence interval of the mean of the simulated distribution for *cellref*. Instead of a single point estimate for the mean, a confidence interval generates lower and upper bounds for the possible value of the mean, at a given confidence level.
2. **RiskCoeffOfVariation**(*cellref* or *output/input name*,*Sim#*) returns the coefficient of variation of the simulated distribution for *cellref*. The coefficient of variation is a measure of dispersion of a probability distribution or frequency distribution. It is often expressed as a percentage, and is defined as the ratio of the standard deviation to the mean.
3. **RiskMeanAbsDev** (*cellref* or *output/input name*,*Sim#*) returns the mean absolute deviation of the simulated distribution for *cellref*. Mean Absolute Deviation is the mean of the data's absolute deviations around the data's mean or the average (absolute) distance from the mean.
4. **RiskSemiStdDev** (*cellref* or *output/input name*,*lower_data*,*Sim#*) returns the semi standard deviation of the simulated distribution for *cellref*, or the standard deviation of the values in the distribution below the mean.

5. **RiskSemiVariance** (*cellref* or *output/input name*, *lower_data*, *Sim#*) returns the semi variance of the simulated distribution for *cellref*, or the variance of the values in the distribution below the mean.
6. **RiskStdErrOfMean** (*cellref* or *output/input name*, *Sim#*) returns the standard error of the mean of the simulated distribution for *cellref*.

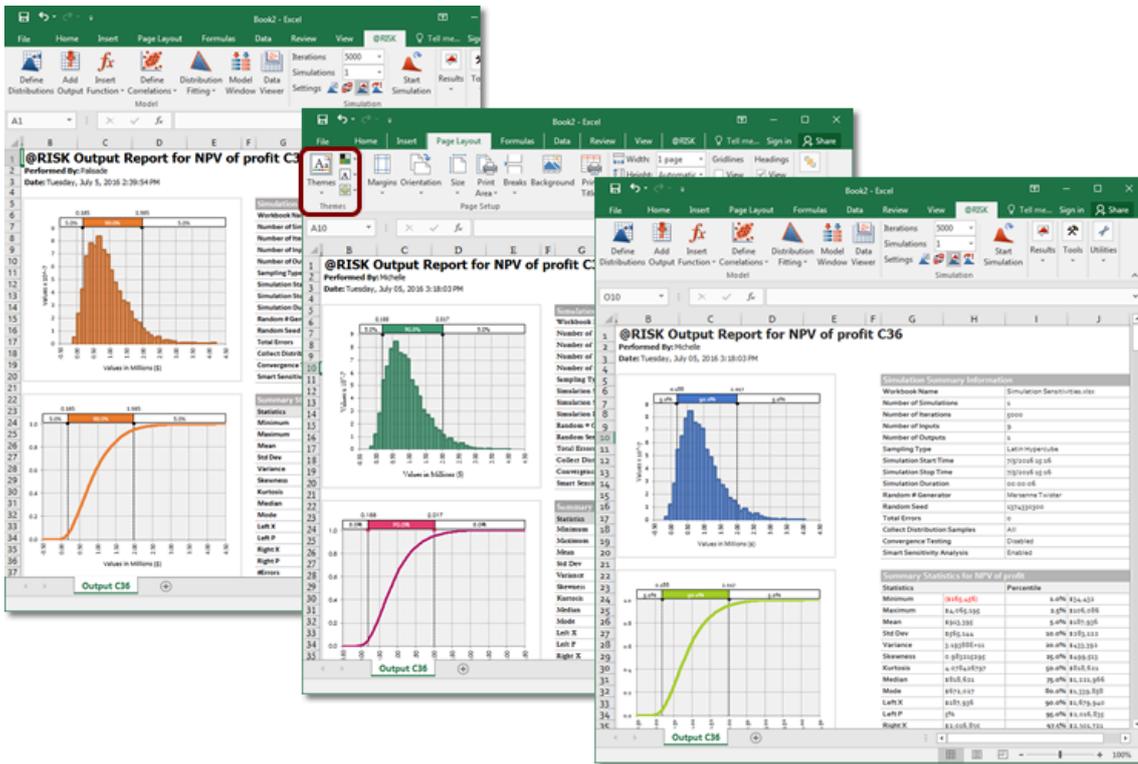
Run Goal Seek, Evolver or Solver During Each Iteration without VBA Coding

For EACH iteration in your simulation you can now run Goal Seek, Evolver or Solver without having to face the hurdle of writing a VBA macro to do so. You can simply set this up using the Macros tab of the Simulation Settings dialog, and @RISK does the rest for you - saving you an incredible amount of time and hassle!



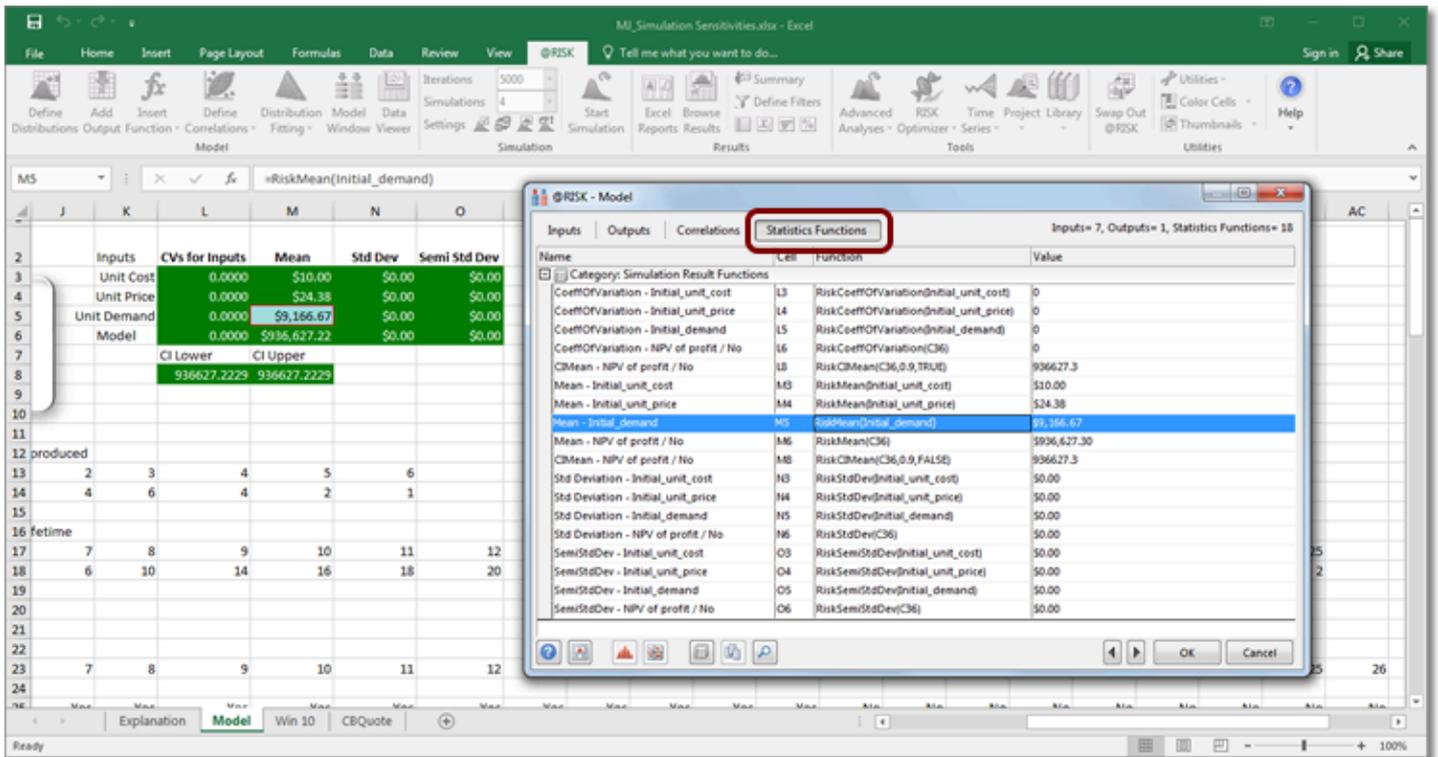
Graphing and Reporting Improvements, Support for Excel Themes

All @RISK graphs and reports now feature a more streamlined interface, to accomplish more in fewer clicks. In addition, graphs and reports support Excel's built-in themes and colors. Now you can apply your company's standard Excel themes to your @RISK reports, improving communication consistency and efficiency.



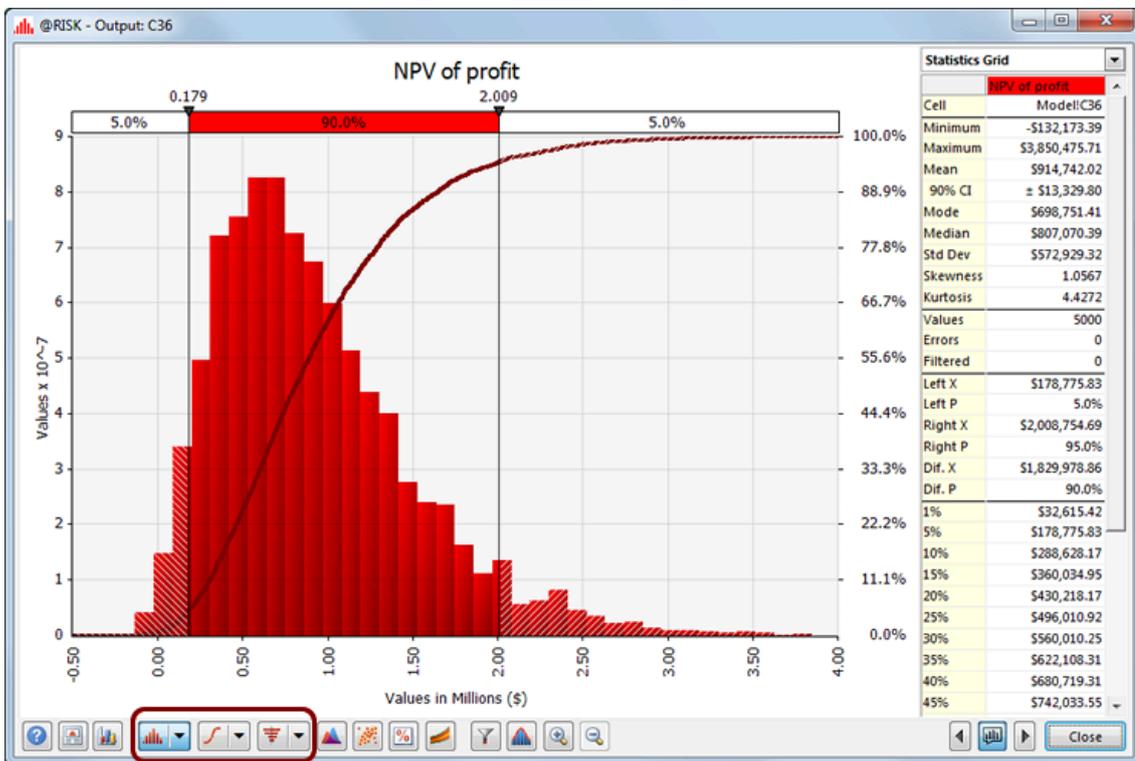
New Statistics Functions Tab

@RISK has added a new tab to your Model window and your Summary Results window. This new tab lists all of your @RISK statistics functions all in one spot - giving you the ability to navigate more easily through your model, make changes to functions on the fly and search for specific functions.



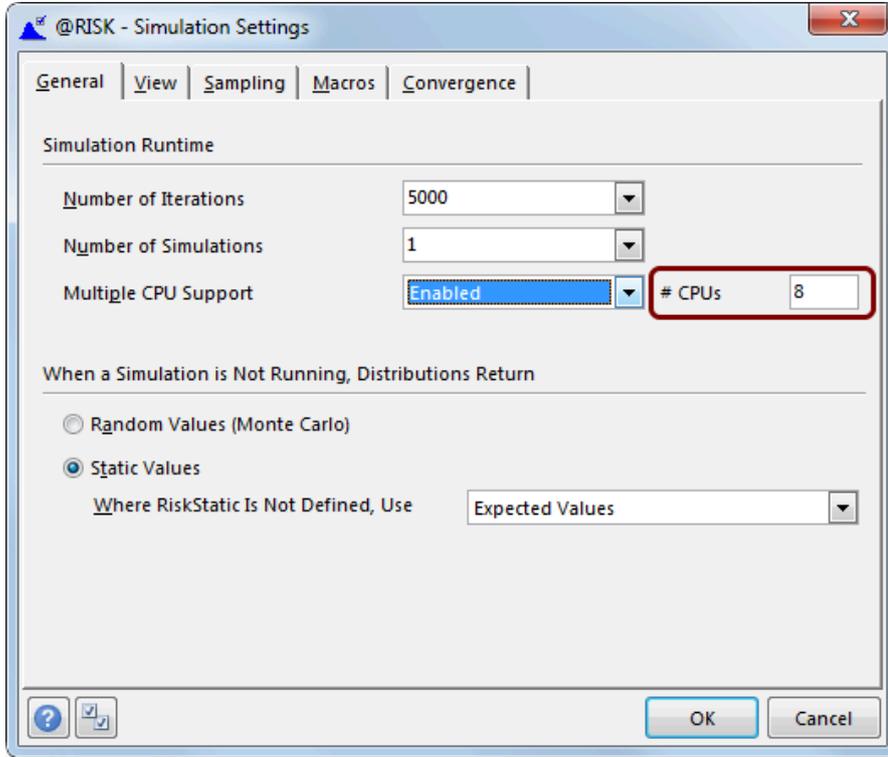
Easier Access to Default Graphs

Toggle between your default probability, cumulative and tornado graphs without having to select them from their respective drop-down menus.



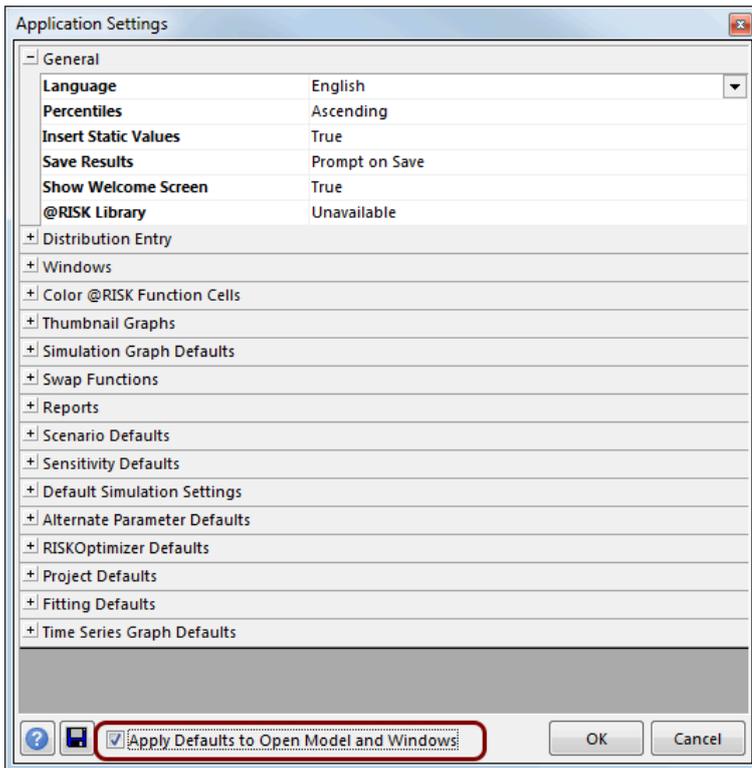
Greater Control over CPU Usage

You can now control exactly how many CPUs @RISK uses to run simulations via the Simulation Settings dialog box.



Apply to Open Models Checkbox in Application Settings Dialog

Set your application settings and apply them immediately to your open model and windows by putting a check in the option at the bottom of the Application Settings dialog box.



Optimized for Windows 10 and Excel 2016

All DecisionTools Suite products, including @RISK, have been retooled for optimal performance and presentation in the latest Windows 10 and Office 2016 environments.

Interface Improvements

The user interface has been updated to make common tasks easier to perform, saving time and clicks.

Enhanced Support for Ultra HD Displays

We've leveraged the power of ultra high definition displays to ensure that all DecisionTools graphs and reports look better than ever.

Ability to switch between Languages More Easily

Switch between any of the language versions without having to change a corresponding code page.

Other Changes of Note

In addition to @RISK's New Features the following Maintenance Fixes have also been taken care of.

*** A Selection of Significant Maintenance Fixes ***

- 12541 "Swap Out" Summary Report sometimes displays incorrect thumbnail graph image.
- 12475 'Overflow' message when running Stress Analysis with very large number of iterations.
- 12447 Swap Out with protected sheet doesn't produce thumbnail graphs.
- 12373 @RISK for Project resource sheet items improperly hidden in international versions.
- 12366 RiskCurrentSim returns incorrect value during "After Simulation" macro.
- 12360 Output marked with RiskIsDate property has incorrect number formatting in Excel reports.
- 12358 Multiple RiskProjectRemoveTask function might interfere with each other.
- 12353 @RISK for Project Gantt chart incorrectly suppressed.
- 12348 @RISK for Project Import.MPP feature not working correctly with Project 2007.
- 12346 Probabilistic calendars dialog does not appear for some models.
- 12344 Corrected correlation matrix still not self-consistent.
- 12339: Theoretical statistic functions applied to RiskMakeInput function returning incorrect values.
- 12333 @RISK for Project Parameter Entry Table not adding fields all selected tasks.
- 12324 Smart Sensitivity Analysis failing to recognize subtasks.
- 12319 @RISK for Project constraints being overridden.
- 12316 Accessing tornado settings via Excel right-click menu can freeze @RISK.
- 12314 Color cells and thumbnail options may slow down Excel significantly in higher DPI display modes.
- 12310 Infrequent crashes when saving simulation data while color cells options on.

Version 7.0.1

Users of any of the DecisionTools Suite products will be notified automatically of any updated releases with a pop up message that once clicked will open a dialog window with a variety of options to update the software. You can also check for available updates by clicking on **Help>Check for Software Updates** in the @RISK ribbon.

Build #393 - February 10, 2016

*** A Selection of Significant Maintenance Fixes ***

- 12296 Errors saving images from Fit Result window.
- 12261 @RISK bootup sometimes turns off NumLock key.
- 12077 Unable to generate Quick Reports using XDK Automation.
- 12078 Smart Sensitivity Analysis failing to recognize Project subtasks.
- 12084 Obsolete license blocks license manager from being displayed.
- 12106 Custom Summary Statistics report missing data when multiple simulations are run.
- 12167 Progress status message added for long Smart Sensitivity Analysis process.
- 12181 RiskCompound using very large RiskDiscrete severity distribution crashes.
- 12189 Fit boundaries specifications improperly applied to predefined "fits".
- 12277 Swap Out incorrect removes RiskMakeInput function.
- 12224 Model count summary not updating with changes.
- 12225 Errors in model function prevent model window from deleting functions.
- 12227 Manually installed license file not automatically found.

Version 7.0.0

Users of any of the DecisionTools Suite products will be notified automatically of any updated releases with a pop up message that once clicked will open a dialog window with a variety of options to update the software. You can also check for available updates by clicking on **Help>Check for Software Updates** in the @RISK ribbon.

Updated Release - August 13, 2015 - Build #289

Deployment of Network licenses

@RISK version 7 is available as a network license. For more information please contact your Sales Representative, or email sales@palisade.com.

Deployment of Course Licenses

@RISK version 7 is available as a course license. For more information please contact your Sales Representative, or email sales@palisade.com.

Support for Extended Trial Licenses

If a user has the initial version 7 release (Build #281) of any of the DecisionTools Suite they will be unable to receive an extension code to extend the trial past the standard 15-day trial, without updating to build #289. If the trial has already expired the user will need to download the latest installer from the [Palisade website](http://www.palisade.com) and then enter the code provided by your Palisade representative.

Original Release - July 31, 2015 - Build #281

For more details on the following enhancements please visit http://www.palisade.com/decisiontools_suite/7/whatsnew.asp.

Correlation Using Copulas

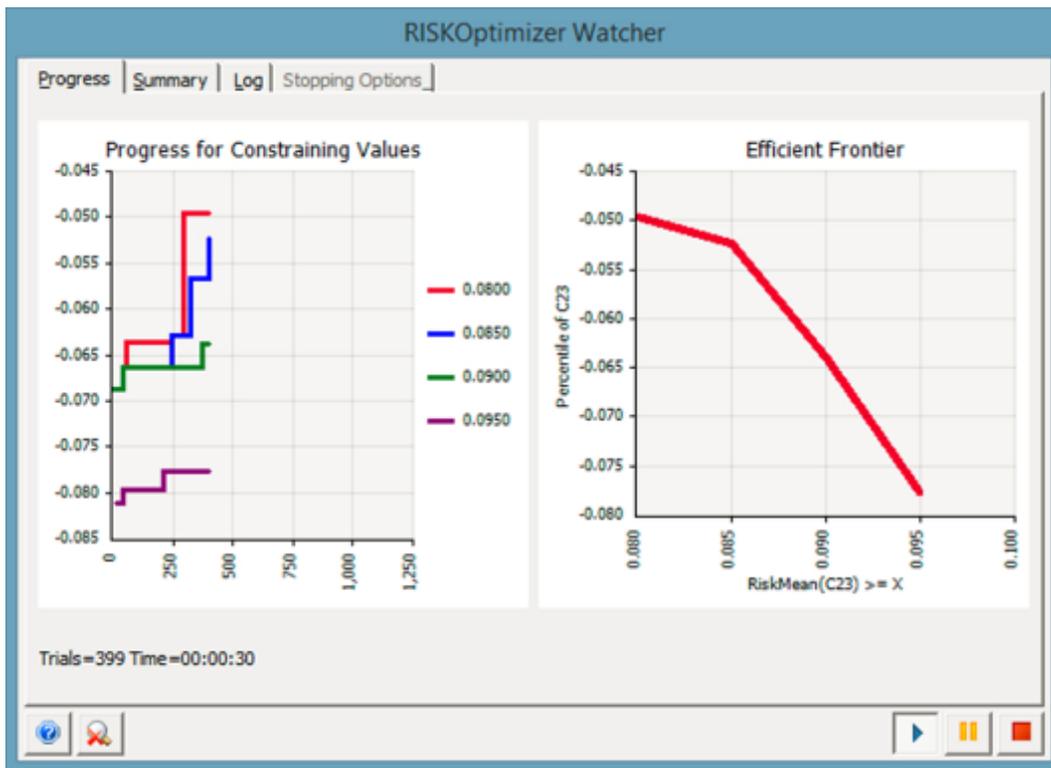
Copulas offer an alternative method of correlating two or more @RISK input distributions, offering you more flexibility in what correlation patterns are produced during a simulation.

Data Viewer

The @RISK Data Viewer provides a convenient interface for looking at the statistical properties of any set of Excel data using familiar @RISK graphs and tables.

RISKOptimizer Efficient Frontier Analysis

An efficient frontier analysis allows you to investigate the effects of a variable constraint on your optimization models.



Custom Reports

@RISK custom reports allow you to quickly create attractive, comprehensive reports that show exactly the information you want.

Thumbnail Graphs

Thumbnail graphs offer a quick, graphical view of the inputs and outputs directly in your spreadsheet model.

Other Changes of Note

- **Requires Excel 2007 or Higher:** @RISK now requires Excel 2007 or higher. Excel 2003, or earlier versions, are no longer supported.
- **Improved Support for High-DPI Monitors:** High-resolution monitors require special Windows settings that scale up the size of text and some elements of dialogs; otherwise, those items would be too small. Compatibility with this setup has been improved.
- **Reports in PDF Format:** @RISK reports can now be written in Portable Document Format (PDF).
- **New Layout of RISKOptimizer Constraint Settings Dialog:** The RISKOptimizer Constraint Settings dialog has been modified to make it easier and faster to specify the most frequently used settings.
- **Mini-Toolbar Replaced with Right-Click Context Menu:** The @RISK Mini-Toolbar has been replaced with a more complete and descriptive right-click context menu.
- **Checkboxes in RISKOptimizer Model Dialog:** Adjustable cell ranges and constraints can be de-activated and activated easily using checkboxes, to make it easy to experiment with different optimization setups.
- **Random Number Generator Options Added to Application Settings Dialog:** You can now specify defaults for the random number generation options in the @RISK Application Settings dialog.
- **Average Log-Likelihood Fit Statistic:** The average log-likelihood statistics (Av. LogL) is now included in the fitting report of the Fit Results Window.
- **Discrete Probability Distribution Graphs:** The Y-axis of discrete probability distribution graphs are now displayed using percentages instead of decimals.
- **Fit Results Window Can Be Minimized**
- **Maximum Number of Data Points in Scatter Plot Increased to 1,048,576:** This value matches the number of rows in Excel

*** A Selection of Significant Maintenance Fixes ***

11064 Protected Workbook dialog sometimes is displayed behind Excel 2013.

11090 Linking to .MPP file can fail if Excel workbook contains chart sheets.

11132 Chart in Excel crashes when "Number of Delimiters" option is set to zero.

11147 RiskCurrentSim function not always returning correct value.

11168 Incorrect description of 'a' and 'b' parameters for JohnsonSB distribution function.

11169 Goal Seek analysis with date values causes validation error.

11174 Added warning message indicating that Excel's "Disable all Application Add-ins" option prevents multiple-CPU simulations from being run.

11204 Unable to import inputs from MPP file created in @RISK for Project v4 for some models.

11213 "Walkthrough mode" of @RISK Data Window gives incorrect error message if input data was not collected.

11215 Tick labels cut off in histogram graphs.

11225 Copied graphs put in clipboard in both metafile and bitmap formats.

11232 @RISK Clear Data command not clearing Advanced Tools settings.

11239 @RISK uses single CPU when it should use multiple.

11242 Probabilistic calendar gets dates wrong with UK/English regional settings.

11244 Probabilistic calendars cause MS Project to flicker for a long time at the end of a simulation.

11264 Odd message, "The formula 'formula' could not be correctly parsed."

11294 Color Cells option interferes with Excel's undo capabilities.

11332 Multiple simulations use same seed for severity in RiskCompound, ignoring "Multiple simulations use different seeds" option.

11342 Precedents are not properly traced through RiskProject functions.

11357 @RISK for Project "Check engine" says accelerated engine OK, but simulation uses standard engine.

11390 The "pipe symbol" list separator '|' prevents @RISK from running properly. @RISK will now check this when the product launches.

11423 Batch fit results table not sorted.

11458 Cell formula erased by simulation if table reference name contains '#' character.

11510 Color cells dialog "Cancel" button not working correctly.

11533 Excel error "The specified dimension is not valid for the current chart type" when user has changed default Excel chart type to a complex chart type.

11557 Alternate parameter name of "m.likely" (without space) now allowed as alternative to "m. likely" (with space).

11576 Batch fit shows "Exception of type PalIndexOutOfRange" error message.

11583 @RISK for Project returns different results depending if "Show Excel recalculations" setting is checked.

@RISK 6

Version 6.3.1

September 2014

A Selection of Significant Maintenance Fixes

- 10203 Leading exclamation point in defined name causes “Found invalid formula” message.
- 10880 Spurious “not self-consistent” messages generated when using multiple RiskIndepC functions.
- 11033 @ character in structured references not recognized in Smart Sensitivity Analysis.
- 11080 'Type Mismatch' when using multiple CPUs and TopRank is selected as a startup Add-In.
- 11083 RiskCompound with a severity distribution that is a RiskSplice function causes errors.
- 11085 'Minimize Excel at Start of Simulation' option is not working in Excel 2010 and below.
- 11086 Simulation results don't match theoretical values when using a RiskTruncate function with references to empty cells.
- 11104 Fitting RiskLevy using RiskFitDistribution function doesn't respect fixed lower bound.
- 11108 Discrete fits using RiskFitDistribution function differ slightly from fit down in normal interface with small sample size.
- 11109 Scatterplot shown in the 'Define Correlation' window is incorrect for large correlation coefficients.
- 11124 VBA Macro warning displayed even if macros are enabled via a Group Policy.
- 11126 Certain models with error values can have formulas modified if @RISK is loaded after model is loaded.
- 11153 Spurious 'Not enough memory to run simulation' message is shown in 6.3.0.

Version 6.3.0

June 2014

A Selection of Significant Maintenance Fixes

- 10777 Template report puts up message asking to change simulation settings.
- 10933 Excel report causes Personal workbooks to be shown in Excel interface
- 10938 RISKOptimizer: the information in the "Goal Cell Statistics" section of the log was incorrect.
- 10942RISKOptimizer: optimizations with probabilistic constraints did not make any progress if the Genetic Algorithm was used as the optimization engine.
- 10949 Optimizations fail to run in certain non-US/English Excel configurations.
- 10948 Relative frequency histogram will sometimes omit data points that are in the right-most histogram bin boundary.
- 10960 XDK function GraphSummary restricts number of graph results to 10.
- 10961 Optimization results incorrectly state that there were errors in certain models.
- 10962 Improvements made to memory management in 64-bit, multiple CPU simulations.
- 10963 Personal Macro workbooks asking to save changes when Color Cells feature turned on.
- 10972 Statistic functions sometimes return errors when used in Project schedules.
- 10976 #REF! error appears in a Quick Report.
- 10980 Excel 2013 not working well with Color Cells feature.
- 10982 Nested RiskCompound functions crash Excel.
- 11016 Scatter plots in non-English versions sometimes contain English in legends.
- 11019 xScale factor not working correctly in RiskResultsGraph function when default setting overridden in Application Settings.
- 11035 Distribution fitting ignores a fixed mean of zero for the Normal distribution.
- 11042 RiskTruncate property function is not working correctly using the RiskRayleigh and RiskBetaSubj distributions.
- 11045 RiskTheoMean function not correct for RiskJohnsonMoments distribution with additional RiskShift property function.

Version 6.2.1

March 2014

A Selection of Significant Maintenance Fixes

10397 Mini-toolbar not appearing correctly in “Non-Aero” mode displays.

10830 Resource name is converted to formula after running a simulation using Probabilistic Branching.

10831 Smart Sensitivity Analysis misses inputs on Resources sheet.

10835 Theoretical statistics and graph of RiskCompound function not always correctly displayed.

10840 RiskProjectAddDelay uses project calendar instead of task calendar.

10859 Unable to review RiskFitDistribution function in complicated formula.

10865 Theoretical graph and statistic of the RiskVary function using wrong default if distribution parameter not specified.

10868 FitDistribution function returning different results from regular interface fitting for very small amounts of data.

10871 Filters not applied to spreadsheet function statistics.

10877 Critical index calculations return nonsensical results for particular model and large number of iterations.

10901 Smart Sensitivity Analysis misses inputs in linked subproject.

10926 @RISK incompatible with CapIQ addin.

Version 6.2.0

September 2013

Russian Language Support

Version 6.2 software now is localized for Russian, in addition to the previously available English, Chinese, French, German, Japanese, Portuguese, and Spanish.

Note: Only the Russian software and a subset of the examples have been localized. Help files and other documentation files are not available in Russian at this time.

New XDK Functionality and Documentation

The @RISK Excel Developer's Kit (XDK), which allows you to automate and customize @RISK within Excel using Excel's built-in VBA programming language, has been updated to include new functionality for the automation of @RISK graphs and simulation filters as well as several additional minor improvements. In addition, it includes a new "Automation Guide" and a large number of new examples to help you get started using this powerful @RISK feature.

Note: The XDK requires the Professional or Industrial version of @RISK.

Log-Scaled Graphs

The @RISK graphics engine now has the ability to display graphs using logarithmically scaled axes.

Other Changes of Note

@RISK Library Supports Remote SQL Databases without SQL Express Installed Locally

Previous versions of @RISK required SQL Server Express to be installed locally, even to make access to a remote SQL database. This is no longer required.

Simulation Startup Time Improved for @RISK for Project Models

The amount of startup time required to initialize a simulation for @RISK for Project models has been dramatically improved for most models. The improvement is most significant for large models with many tasks.

New Simulation Setting: “Show Simulation Progress Window”

This setting allows you to show or hide the progress window that normally appears during a simulation.

New Simulation Setting: “Default Simulation Number”

This setting allows you to control what simulation number is used (in cases where one is not explicitly specified) in @RISK functions. This setting only matters (and is only shown in the simulation settings dialog) in situations where you are running more than one simulation.

New Simulation Setting: “Excel Recalculations during Macros”

This setting allows you to control how @RISK distribution functions handle recalculations that occur inside macros.

Relative Frequency Histograms

The Y-axis of relative frequency histograms are now displayed using percentages instead of decimals.

Summary Graph Tick Labels

You can now format the x-axis of summary graphs to display months and/or years. Previously only month labels were allowed.

Check for Software Updates

This feature has been streamlined to no longer use the “FlexConnect” utility.

Support for IPv6

The Palisade licensing system now has support for networks running IPv6.

Localized Palisade Server Manager

The Palisade Server Manager, which is a utility for managing concurrent or enterprise licenses of Palisade software, can now be installed in English, French, German, Spanish, Portuguese, Chinese, Japanese, and Russian.

Controlling the Maximum Number of Cores

A new simulation setting that is not visible in the @RISK user interface has been added to allow control over the maximum number of cores used with the multiple CPU option. To use this setting, create a defined name in your simulation workbook called “_AtRisk_SimSetting_MaxCores” and set its value to the maximum number of cores you wish to allow. Note: If more than one workbook is open with different values for this name, the *minimum* of the values will actually be used.

OptQuest optimization engine upgraded

The OptQuest optimization engine was upgraded to version 6.6.1.3. As a result RISKOptimizer issues #10418 and #10676 were fixed.

A Selection of Significant Maintenance Fixes

10343 Enterprise network license incorrectly uses additional license when reinstalled on same machine.

10418 RISKOptimizer optimizations could get non-responsive, if there were many linear constraints and many integer or discrete adjustable cells.

10540 Inappropriate errors when INDIRECT function used with @RISK for Project functions.

10542 Reports show incorrect distribution type for cells containing multiple distributions.

10546 Time series chart using months as x-axis labels do not correctly display in Chart in Excel.

10544 First RISKOptimizer trial was sometimes declared invalid incorrectly.

10550 Specific model configuration causes @RISK for Project to freeze on opening file.

10560 Specific large project freezes @RISK for Project after simulation is completed.

- 10566 RiskLognormAlt with "loc", "mu", and a single percentile parameter can jump between two equally valid solutions. Now the solution with the smaller variance is always chosen.
- 10571 Simulation Data Excel report is missing input names.
- 10583 Workbook with strange characters in file name causes correlation adjustment weight matrix to be ignored.
- 10585 "Microsoft Excel is waiting for another application to complete an OLE operation" displayed repeatedly when performing @RISK for Project audit.
- 10589 Currency formatting in RISKOptimizer's Optimization Summary was sometimes inappropriate.
- 10608 Percentage formatting not used correctly in Chart in Excel graphs.
- 10627 Multiple simulation runs always show theoretical overlays for the first simulation in input graphs.
- 10634 RiskPertAlt with two percentile parameters and most likely parameter can sometimes fail when the most likely is the same value as one of the percentiles.
- 10635 Some RiskResultsGraphs appear slightly blurry in Excel 2013.
- 10646 Goal Seek does not handle dates properly if using German regional settings.
- 10651 XDK function Risk.WriteWorkbookInformation fails writing external file.
- 10655 Improved fitting of Gamma distributions with shape parameters less than 1.
- 10659 Odd error message "Arg 1 has flag 0001" when monitoring convergence of a percentile.
- 10675 Chart in Excel of Results Graph sometimes freezes Excel if Color Cells option is turned on.
- 10676 During a RISKOptimizer optimization with the Order solving method, optimization sometimes stopped before all the possible orderings were tried.
- 10677 During a RiskOptimizer optimization of a PrecisionTree linked model, @RISK can return incorrect results for statistic functions.
- 10684 Clearing @RISK data from a workbook can show spurious error message "@RISK for Project feature not available."
- 10700 Convergence monitoring of standard deviation running more iterations than necessary for specified convergence tolerance.

Version 6.1.2

April 2013

International Documentation Available

Localized documentation and example files are now available in Chinese, French, German, Japanese, Portuguese, and Spanish.

A Selection of Significant Maintenance Fixes

10334 RISKOptimizer - Output graph incorrectly indicates 50,000 iterations have been performed when #Iterations set to "Auto".

10393 Incorrect scatter graph shown when dragging from tornado graph with hidden bars.

10400 Descending percentiles application setting not respected in graph statistics grid.

10404 Multiple-CPU option suppressed for .xlsx file simulating in Excel 2003.

10411 Descending percentiles application setting not respected in quick reports.

10427 Excel 2003 not respecting code-page settings

10449 Large workbooks at the start of optimization sometimes appear frozen, displaying a message saying @RISK is processing precedents

10460 Excel Analysis Toolpak can interfere with Multiple-CPU simulations.

Version 6.1.0/6.1.1

Version 6.1.0 was a Preview Release (December 2012)

Version 6.1.1 was an Official Release (February 2013)

Support for Windows 8 and Excel 2013

The software has been made compatible with the latest Excel and Windows releases.

International Language Support

Version 6.x software now has been localized for Chinese, French, German, Japanese, Portuguese, and Spanish.

Note: The documentation and example files, however, are only available in English. Localized versions of these resources will be made available in Version 6.1.2.

Accelerated @RISK for Project Engine

The @RISK for Project feature has a new accelerated simulation engine that can increase the speed of many models by a significant factor (x10 in many cases).

Support for 64-Bit Project

In previous versions, the @RISK for Project feature was only available for 32-bit versions of Microsoft Project 6.1 adds support for the 64-bit versions of Project 2010 and 2013.

Other Changes of Note

@RISK Ribbon Automatically Activated

When the product boots, the @RISK ribbon will be automatically activated.

Improved Mini-Toolbar

The @RISK Mini-Toolbar is now associated with the right-click context menu that appears when you right-click on an Excel range. Previously it required you to click and hold the left mouse button. This feature can be turned on or off in the @RISK Application Settings dialog.

Workbook Setting to Control Maximum Iterations for “Automatic” Mode

If the number of iterations in a model is set to automatic, @RISK runs a simulation until the whatever convergence criteria you have specified are reached up to a limit of 50,000 iterations. In very complicated models, however, this upper limit may not be adequate. You can now add a workbook name called “RiskMaxItrsForAutoStop” and set it to a numerical value, setting a different maximum.

New @RISK Functions

- RiskProjectResourceAdd allows you to add a new resource to a project task during a simulation.
- RiskProjectResourceRemove allows you to remove a resource from a project task during a simulation.
- RiskSensitivityStatChange allows you to calculate “stat change” style sensitivities directly from your spreadsheet.

Specification of Tornado Baseline

You now have the ability to change the baseline of a “change in statistic” tornado graph to be the current cell value in the output’s cell instead of the mean value of that statistic. This is specified in the tornado graph’s options dialog.

A Selection of Significant Maintenance Fixes

9875 Swapping functions not working correctly when both @RISK and TopRank are running.

9937 Time-series defined with very long name causes Excel to hang.

9946 Macro not executed when iterations set to ‘auto’.

9958 Problems adding long functions to @RISK library.

9960 Improved handling of fixed values in “Change in Statistic Tornado”.

9962 Time-series results not displayed correctly for files containing an apostrophe.

9985 Hidden protected sheets prevent simulation from running.

10006 RiskTheoMean function returning incorrect value for RiskVary function.

10112 "Not enough system resources to display completely" error with some models and Color Cells turned on.

10117 BatchFit live reports incorrectly calculating correlations when fit data contain blanks.

10180 Gantt chart not shown correctly if time scale is set to years.

Version 6.0.0

June 2012

New Examples

@RISK 6.0 includes a completely revised set of example files, designed and written by leading MBA professor and author Dr. Chris Albright of Indiana University. There are over 140 example files in all, organized by a range of industry types and applications. Each includes plain-language descriptions, and may be edited to suit your situation. In addition, many of the examples include a web link to a short video walk-through of the model.

New Video Tutorials

New video tutorials have also been added from Dr. Albright. A new, interactive Quick Start tutorial shows new users how to build and understand a simple simulation model in less than 30 minutes. In addition, other video tutorial resources have been developed to help experienced users get the most out of their software.

Project Simulation

The features of @RISK for Project are now integrated with the @RISK for Excel interface, allowing you to combine the flexibility of Excel modeling, project scheduling, cost modeling, and Monte-Carlo simulation.

Time Series

@RISK 6.0 has the new ability to create, fit, and simulate time series models, including ARIMA, G/ARCH, and GBM models.

New Fitting Functionality

@RISK contains several important new fitting features, including “Live” fitting functions, parametric bootstrapping for calculating confidence intervals, information criteria measures for model selection, batch fitting, and specification of fixed parameters.

Simplified Ribbon and Mini-Toolbar

The @RISK toolbar ribbon has been better organized to allow quicker access to common tasks, and to make it easier to find different analyses. @RISK also provides a context enabled mini-toolbar for quick access to graphs and functions.

Combined Graph and Statistics/Data View

@RISK graphs now have a sophisticated split view where both the graph and its corresponding statistics or data can be shown simultaneously.

Double Sided Tornado and Spider Graphs for Displaying Sensitivity Information

The new “double-sided” tornado graph shows an input’s positive and negative impact on actual output statistics, which will often be much easier to understand than regression or correlation coefficients typically used to display sensitivity information. This same information can also be displayed in a spider graph.

New Distribution Functions

New distribution functions have been added to @RISK, including RiskBernoulli, RiskDoubleTriang, RiskExtValueMin, RiskExtValueMinAlt, RiskF, RiskLaplace, RiskLaplaceAlt, RiskLevy, and RiskLevyAlt.

RISKOptimizer / @RISK Integration

Starting with version 6.0, RISKOptimizer is no longer a separate DecisionTools product, but rather an integrated tool of the @RISK product. @RISK settings are carried over to RISKOptimizer runs, and @RISK graphs and statistics are displayed with RISKOptimizer optimizations.

OptQuest Optimization Engine Added to RISKOptimizer

The OptQuest optimization engine has been added to RISKOptimizer, providing a powerful alternative to the existing Genetic Algorithm available in previous versions. RISKOptimizer is able to examine your model and automatically choose which of the engines is most appropriate to optimize it.

With the addition of the OptQuest optimization engine, constraints are often handled more efficiently. If a constraint is linear, RISKOptimizer will not even attempt solutions that fail the constraint, making optimizations faster. The handling of non-linear constraints is also improved. For example, the situation in which an optimization starts with adjustable cell values that do not meet the specified constraints presented a difficulty in previous versions (and required the use of the Constraint Solver utility). With OptQuest this type of situation no longer requires special handling.

Crystal Ball Converter

@RISK can convert Oracle Crystal Ball models into @RISK format. (Note this converter only works with 32-bit version of Excel, and only if you have an installed, English language version of Crystal Ball.)

New License Manager

A new License Manager has been created to help you view your license information, activate software you have purchased, help you move licenses from one machine to another, and other related tasks.

Other Changes of Note

@RISK Changes

- Color @RISK Function Cells. @RISK has had the ability to automatically apply color and formatting to the cells that contain @RISK input and output functions since version 5.0. This feature has been expanded to also include the formatting of @RISK statistic function cells, as well as RISKOptimizer adjustable cells. It also is now directly available from the @RISK ribbon (in Excel 2007 and higher) or @RISK toolbar (in Excel 2003). In previous versions, this setting could only be found in the @RISK Application Settings dialog.
- Detailed Statistic Reports. Excel reports with a large number of inputs and output used to fail with an error message "Report is too large to export to a formatted report - copy and paste data to Excel." These large reports now will be created in Excel in a "pivoted" form (rows interchanged with columns).
- Simulation Settings Dialog Defaults. You are now able to write the current settings in the simulation settings dialog directly into the application settings using the button at the bottom of the dialog.
- Copy From Range in the Simulation Names Dialog. The simulation names dialog, where you can supply names for multiple simulation runs, now has a button which allows you to copy these names from an Excel spreadsheet range.
- Fit Results Window "Back" Button. A new button is available on the Fit Results window to return you to the Fit Definition dialog that created it. This allows you quickly and easily change the parameters of the fitting process, and then refit.

- Fitting of RiskPert distributions. @RISK now can fit RiskPert functions to your data.
- Suppress Questionable Fits Option. The new "Suppress Questionable Fits" option controls whether fits that are mathematically valid, but fail one or more meta-mathematical "reality checks" are suppressed.
- Fitting Defaults in Application Settings. Default values for many of the options in the Fit Distributions to Data window are now available in the Application Settings dialog.
- Selectively Remove Tornado Bars. You can remove a bar from a sensitivity tornado graph by right clicking, and choosing the "Remove Bar" command.
- Spearman Rank-Order Correlation Coefficient in Scatter Graphs. @RISK scatter graphs in version 5.0 always displayed the Pearson correlation coefficients between the two variables. Now in @RISK 6.0, both the Pearson and Spearman Rank correlation coefficients are displayed.
- Default Target Percentiles for the Detailed Statistics Window in Application Settings. The bottom section of the @RISK Detailed Statistics Window contains a place where the user can specify one or more custom target percentiles. These percentiles can now be set by default for all models in the Application Settings window. This setting is called "Detailed Stats Window Targets" and is in the "Windows" section of the dialog.
- New API functions for getting model inputs and outputs. There are two new @RISK API functions, Risk.Model.GetInputFunctions and Risk.Model.GetOutputFunctions for getting a list of the inputs and output functions currently defined in any open Excel workbooks.
- Improved Support for Multiple CPUs. New handling of worker CPUs improves the startup and shutdown of multi-cpu simulations.
- RiskSimulationInfo function returns information about the simulation run, including the number of iterations run, the date and time the simulation was performed, etc.
- RiskTheoXtoY function returns the probability density or mass function for a theoretical probability distribution function.

RISKOptimizer Changes

- RISKOptimizer / @RISK Integration. Starting with version 6.0, RISKOptimizer is no longer a separate DecisionTools product, but rather an integrated tool of the @RISK product. RISKOptimizer can no longer be launched without launching @RISK. It no longer has its own Application Settings dialog: instead there is a RISKOptimizer section in @RISK Application Settings dialog. Also, in RISKOptimizer 5 some simulation settings to be used during optimization were defined in the RISKOptimizer Optimization Settings dialog (for example, the Number of Iterations or "Latin Hypercube" vs. "Monte Carlo" Sampling Type). In @RISK 6 the same simulation settings are used for simulations that run during a RISKOptimizer optimization and for other @RISK simulations: these are the settings found in @RISK Simulation Settings dialog.
- RISKOptimizer: "Discrete" adjustable cells. In previous versions of RISKOptimizer adjustable cells could be defined as taking "Integer" or "Any" values; this selection was performed in the Adjustable Cell Ranges section of the Model dialog in the Values column. In version 6 there is also an option to define adjustable cell values as "Discrete", and to specify the "Step". For example, suppose we want to only consider multiples of 10 between 100 and 1000; we can define a Discrete variable with these values as the minimum and the maximum, and 10 as the Step size. The use of "discrete" adjustable cells reduces dramatically the number of

possible solutions compared to adjustable cells for which "Any" values are allowed; this will often result in faster optimizations. "Discrete" variables are supported with OptQuest, but as of version 6.0.0 they are not supported with the Genetic Algorithm. With the Genetic Algorithm variables defined as discrete will be treated as non-discrete (after an appropriate warning is displayed).

- RISKOptimizer: Automatic Constraint Evaluation Time. When defining some constraints, the user had to specify whether they should be evaluated every iteration, or at the end of a simulation. Now the "Evaluation Time" can be left as "Automatic". In this case if values of constrained cells do not change during a simulation, the constraint will be treated as an iteration constraint; otherwise it will be treated as a simulation constraint.
- RISKOptimizer: Precision Parameter Added to Constraint Settings Dialog. The definition of a hard constraint now includes "Precision". This refers to violations of constraints that are so small that RISKOptimizer will disregard them, and will treat a solution as valid despite these small violations. This small imprecision in the handling of constraints relates to the fact that computers can only handle mathematical operations with finite precision. In vast majority of optimizations this setting can be left as "Automatic." With the automatic option, the optimization summary report includes the specific precision value that was selected automatically.
- RISKOptimizer: Numeric information about constraints provided in the log. In version 5 the log specified only whether a constraint was met on each trial; in version 6, additional numeric information is provided. For instance, if we have a constraint saying $B3 > 1000$, the log provides the value of cell B3 on each trial. Note it is not always possible to report the result of the evaluation of a constraint as single number. For example, consider a constraint saying $A1 < B1$, where both cells are adjusted during optimization; in such cases the program still reports only whether the constraint was met.
- RISKOptimizer: Reporting complex constraints as individual constraints. A constraint can be specified in terms of ranges of cells; for example, we may have a constraint saying that $A1:A3 < B1:B3$. In version 5 a constraint like that would be reported in one column in the log. In version 6 it is reported in 3 separate columns ($A1 < B1$, $A2 < B2$, $A3 < B3$), providing more detailed information as to which parts of the original constraint are met, and which ones are not.
- RISKOptimizer: Constraints with multiple cells and a statistic. In version 5 it was possible to specify a single constraint saying that $A1:A5 < B1:B5 < C1:C5$, which said that each cell in the B column was supposed to have a value between the values in the A and the C columns in the same row. But this method of defining constraints was not available when a statistic was to be constrained, for example when we were interested in the mean or the standard deviation of the cells in column B. Version 6 adds this functionality, as shown by the Capital Budgeting example.
- RISKOptimizer: With "Simple" Entry Style, constraint limits no longer need to be fixed values. In version 5, when defining a constraint with Simple entry style, constraint limits had to be fixed values. For instance, if $A1:C1$ were adjustable cells, one could not specify $A1 > B1 > C1$ using the "Simple" Entry Style. The Entry Style had to be changed to "Formula" before the constraint could be entered (and it had to be entered as two separate formulas). This limitation no longer exists.
- RISKOptimizer: Support for Excel-defined names. If a range of cells is named using Excel's interface, RISKOptimizer dialogs and reports will show this name instead of the range address (this applies to workbook-level names, not to worksheet-level names).

- RISKOptimizer: Single set of genetic algorithm parameters. This change only affects users with models created with versions of software released before version 6, and only if multiple groups of adjustable cells were defined in the model. In version 5 it was possible to specify a different mutation rate, crossover rate and genetic operators for each group of adjustable cells. In version 6 there is one mutation rate, crossover rate and one selection of genetic operators for all adjustable cells. Models created with version 5 or earlier versions are automatically converted to the new format by version 6. For example, if different mutation rates are specified for different groups of adjustable cells, after opening with version 6 the same mutation rate will be used for all adjustable cells (and it will be the mutation rate specified for the first group of adjustable cells). If the workbook is saved and subsequently used with version 5 of the software (or older), then the mutation rate will be set to the same value for all the groups of adjustable cells.

Licensing Changes

- Ability to Select From Multiple Software Licenses. In some cases, you may have more than one license for a Palisade product. For example, if you are employed by a company that gave you a professional license, but also have a student license from a university you attend, there is more than one possible license that could be used. In version 5.x you were given no choice in this matter; the software would choose one of the licenses for you and proceed to run. In version 6.x, the Activate License Dialog now allows you to look at all your existing licenses, and choose which one to use.
- Improved Support for SSD Installations. New licensing capabilities ease installation and licensing when SSD drives are used.

Important Changes from the @RISK 6.0 Beta

Parameterization of Time-Series AR1, AR2, and ARMA11 Changed From Beta Versions

The parameterization of the new @RISK time-series functions RiskAR1, RiskAR2, and RiskARMA11 have changed slightly since the @RISK beta, so that the parameter μ is now the mean of the (untransformed) process. If you generated time-series models with the previous beta version, be aware that you may need to adjust your models.

Batch Fit Correlation Calculations

The new @RISK 6.0 batch fitting tools (for both standard distribution fitting and for the fitting of time-series) have been changed from previous beta versions to use Spearman rank-order correlation instead of Pearson coefficients.

@RISK 5

Version 5.7.1

June 2011

Maximum Number of Data Points in Fits

The maximum number of data points in a fit has been increased to 10 million.

A Selection of Significant Maintenance Fixes

7637 Graphs using Chinese currency display incorrect currency symbol.

7749 Linked fits ranked using A-D statistics instead use Chi-Sq statistic.

7754 Example models opened via welcome screen may have incorrect simulation settings.

7757 Errors in RiskTheo functions in 64-bit Excel 2010.

7760 Setting Risk.DisplayAlerts off suppresses some dialogs permanently, even when it is turned back on.

7768 Statistics functions referencing cell by name fail in Russian locale.

7783 RiskSensitivity function with analysisType of correlation doesn't return correct returnValueType

7806 During manual (F9) recalc, multiple distributions will sometimes return same sample values in 64 bit Excel 2010.

7847 Macro control calls for advanced tools fail in 64-bit Excel 2010.

7912 Distribution artist window fails to recognize RiskDuniform functions.

8030 Problems displaying dates in detailed statistics and data windows with discrete distributions in German regional settings.

8040 Simulation results saved to truncated file name in some cases.

Version 5.7.0

September 2010

Support for 64-bit Excel

Starting with version 5.7, @RISK is compatible with the 64-bit version of Microsoft Excel. The "Insert Function Graph Window" feature is not available in 64-bit.

Support for Simplified Chinese

Starting with version 5.7 @RISK is available in Simplified Chinese.

Batch Fit Macro Example

A new example model, called BatchFitMacro.xls, is now available (English language only) to demonstrate both the flexibility of the @RISK Developer's Kit and the ability to perform a large number of fits quickly and easily.

Graphing Display Improvements

@RISK graphs have been improved to handle percentage and currency number formats more smoothly. The fonts in the graphs now, by default, automatically scale in size based on the size of the graphing window.

A Selection of Significant Maintenance Fixes

7020 Installer ignoring custom destination path.

7052 Triangular distributions with large maximum truncation limits have incorrect theoretical statistics.

7059 PrecisionTree models should not be allowed to simulate using multiple CPUs.

7060 Quick Report tornado graph lose currency formatting.

7077 Advanced Sensitivity Analysis base-value calculations incorrect when output not on active sheet.

7080 Define Distribution window gives incorrect default distribution for cell containing DATE function.

7111 Summary Box-Plot native graph different from Excel chart.

7146 Incorrect RiskTheoMean calculation for RiskCompound distribution.

7147 Multiple CPU option causes errors in some correlated distributions.

7158 Cannot browse results in merged cells.

7162 Saving file after clearing settings erroneously resaves settings in file.

7164 Distributions in cells with hidden formulas not being found by @RISK.

7237 Application switching Excel calculation to manual.

7271 Output names with combined references not working in some cases.

7284 "Multiple Simulations Use Different Seeds" option combined with fixed seed can cause change in first simulation results.

7341 Using output name as parameter to statistic function can cause problems when simulating.

Version 5.5.1

January 2010

Merged RISKOptimizer/@RISK Ribbon

To better support the integration of @RISK and RISKOptimizer, the two products can use a "merged" Ribbon in Excel 2007 or above. This can be turned off in @RISK's Application Settings dialog.

Simulation of Password Protected Sheets

@RISK now allows you to simulate worksheets that have been password protected in Excel. When you first simulate such a worksheet, you will be asked to supply @RISK with the password which it will encrypt and store so you are not repeatedly asked for it.

Loading Other DecisionTools Suite Add-ins

A new menu item in the Utilities menu allows you to load other Palisade DecisionTools products from within @RISK.

@RISK Now Appears in Excel's Add-in List

You have always been allowed to add @RISK's add-in (Risk.xla) to the Excel add-ins list so it will automatically load every time Excel starts. However, this process was difficult because it required you to browse for the correct file. Now, @RISK will automatically appear in the add-ins list (unchecked) the first time you launch it, making it easier to access.

Language Switching Does Not Require Administrator Permissions

If you have installed more than one language version of @RISK on a machine, you can now switch the active language (via the Application Settings) even if you do not have administrator rights.

New @RISK VBA Control Methods

The new RiskResultsGraph method of the RiskSimResultsCollection object allows you to make graphs with the same syntax as the RiskResultsGraph Excel function.

A Selection of Significant Maintenance Fixes

5484 Inputs in date format are not swapped out correctly.

5776 RiskCurrentIter() and RiskCurrentSim() functions return zero when data window "Footprint Mode" is activated.

5784 RiskSixSigma property function with missing target parameter causes output graph to not be drawn.

5789 Launching @RISK with Euro-Currency Tool add-in loaded causes run-time error.

5804 Lowest data-point not being displayed correctly in some histograms of fitted input data.

5835 LognormAlt fails to converge with unusual parameterization.

5861 Histogram Minimum and Maximum options in Graph Options dialog now support dates.

5871 Trouble overlaying discrete distributions with Spanish regional settings.

5932 Advanced Sensitivity Analysis fails when only Quick Report option is selected.

6213 RiskAutoVary function simulating incorrectly with multiple CPUs option.

6224 Non-integral percentiles not stored properly in Results Window for non-US/English regional settings.

6269 RiskTruncate with missing second argument fails to calculate properly when data window "Footprint Mode" is activated.

6366 After running a simulation, you are prompted to save changes to Excel's Personal Macro workbook when shutting down Excel.

Version 5.5.0

May 2009

Localized Language Versions

@RISK is now available in six localized languages: English, French, German, Japanese, Portuguese, and Spanish.

Speed Improvements

- @RISK's core simulation engine now runs significantly (approximately 25%) faster than @RISK 5.0.
- @RISK's multiple CPU capability is now enabled by default.
- @RISK Standard and Professional Editions now will use up to 2 CPUs simultaneously. The Industrial Edition still uses all available CPUs in the machine.
- Models which use @RISK's statistics functions will show major increases in speed. A new simulation setting, "Update Statistics Functions" controls at what point during the simulation statistics functions are updated, either each iteration or the end of the simulation.

Support for Dates

@RISK now supports date formatting for defining distributions, fitting data, displaying graphs, and results.

Invalid Matrix Correction and Coefficient Adjustment Weights Matrices

@RISK has always corrected invalid correlation matrices by finding the 'closest' legal matrix to the one entered. Now, however, @RISK allows the adjustability of each coefficient in the source matrix to be specified. This is done with an Adjustment Weights Matrix.

Artist Distribution Window

The Artist Distribution Window has been added for defining custom distributions interactively.

Insert Function Menu and Graph

- @RISK has a new Insert Function command which allows one to quickly insert any available @RISK function (distribution, statistic, etc.) using Excel's standard function wizard.
- This menu includes a favorites list for quick access to commonly used @RISK functions.
- Input distribution graphs are displayed automatically when the Excel function wizard is displayed.

New Graphing Features

- Two new graphs are available in @RISK's Scenario Analysis: scatter plots of each scenario input vs. output (overlaid with a plot for the whole simulation) and a tornado summary of the key inputs in the scenario.
- Scatter plots now have movable X and Y delimiters, which show probabilities of values falling in the four delimited quadrants.
- @RISK results can now be displayed on a graph with two y-axes, showing simultaneously both probability density and cumulative probability.
- Interesting regions of @RISK graphs can now be investigated using the new "Zooming" feature.
- @RISK's ability to display currency symbols in graphs has been improved.
- X-Axis tick labels can now be forced to be horizontal.

New Define Distribution Window Features

- Alternate Parameter distributions are now in the Distribution Palette (default argument types for ALT distributions can be specified in Application Settings)
- New favorites tab.
- Overlays may be added and removed quickly from a new small palette

New Spreadsheet Functions

- **RiskCorrectCorrmat**: Returns a corrected correlation matrix, if the input matrix is not mathematically valid.
- **RiskCorrel**: Returns the correlation that returns the desired correlation coefficient (Pearson or Rank) between two simulated inputs or outputs.
- **RisksDate**: A property function used to control date formatting for @RISK inputs and outputs.
- **RiskJohnsonSB**: A bounded Johnson distribution.
- **RiskJohnsonSU**: An unbounded Johnson distribution.
- **RiskJohnsonMoments**: A useful distribution for modeling a distribution with a known set of moments (mean, standard deviation, skewness, and kurtosis).

- **RiskResample:** Among other uses, this distribution allows a simulation output stored in the @RISK Library to be placed in Excel and sampled from in a new simulation.
- **RiskSplice:** Allows the "splicing" of two different distributions together.

New @RISK VBA Control Methods

- The new property Risk.InterfaceHidden allows the @RISK ribbon, menus, and toolbars to be hidden.
- The @RISK Advanced Analyses can now be controlled via VBA macros.
- The @RISK Defined Distribution Window and Browse Results Window can now be displayed via macro code.
- The "swapping" in and out of @RISK functions can now be performed via code.
- Many other minor additions

Expected Value during Standard Recalc Modified for Distributions with No Statistical Mean

The default "standard recalc" setting for @RISK (that is, what distribution functions will return when a simulation is *not* in progress) is "Expected Value." This setting returns the expected value of each distribution function, except for a few cases where it modifies the expected value to make it more convenient for normal spreadsheet recalculation. For example, discrete distributions will return the closest integer value to the expected value instead of the possibly non-integer true mean of the distribution. This is done because likely the subsequent spreadsheet calculations require an integer value to work correctly. It is possible to always return the exact expected value using the alternate standard recalc setting "True Expected Value".

In previous versions of @RISK, the following distributions would return #VALUE! for their standard recalculation expected value under certain conditions, because their mean was ill-defined or divergent:

- Loglogistic ($\alpha < 1$)
- Pareto ($\theta \leq 1$)
- Pareto2 ($q \leq 1$)
- Pearson5 ($\alpha \leq 1$)
- Pearson6 ($\alpha \leq 1$)
- Student ($\nu < 2$)

In @RISK 5.5, these distributions will return the statistical median in those cases where the mean does not exist. This will only occur when the standard recalculation setting is "Expected Value". If that setting is "True Expected Value", these distributions will again display #VALUE!.

A Selection of Significant Maintenance Fixes

3731 Swapping out a distribution function that contains OFFSET function does not work correctly.

4009 Truncated RiskBinomial distribution returns incorrect 'True' EV value in spreadsheet when simulation not running.

4011 Fit report chi-squared input and fit binning labels are reversed.

4018 Auto detection of discrete vs. continuous outputs failing in some cases.

4058 Axes in thumbnails are reversed from the full-size graphs in Define Correlations Window.

4175 Lognormal MLE for certain datasets finding local maximum instead of global maximum.

4233 RiskTheoMin(RiskGamma(2,3)) returns #VALUE! instead of zero.

4325 Cumulative descending percentiles option ignored by Results Summary Window.

4333 Percentile markers on graph displayed incorrectly with cumulative descending percentiles.

4335 Quick Reports don't honor default graph formats specified in Application Settings.

4515 Summary Trend and Boxplots not displaying properly with manual number formatting in Application Settings.

4798 Cut and paste of linked fit data to another sheet causes simulation error.

4851 @RISK can not launch when Euro Currency Tool add-in is installed.

4935 CDF graph's x-axis scaling factor incorrect for Stress Analysis graphs when multiple inputs are simultaneously stressed.

5034 @RISK interferes with copy and paste between Excel and PowerPoint.

5209 Multiple simulation labels in Summary Trend Graph not displayed correct when Chart in Excel option used.

5431 Left delimiter of "Chart In Excel" graph incorrect with Excel 2007 SR2.

Version 5.0.1

April 2008

Fitting From Output Results Graph

It is now much easier to fit output results by clicking on the new fit button at the bottom of an output graph window.

Multiple CPU Option in Demo Mode

If the Multiple CPU option was selected and the automation results display was set to 'Demo' mode, @RISK would freeze Excel. This behavior has been blocked. Multiple CPUs are no longer allowed to be used in Demo mode.

@RISK Information not Loaded When Update Links dialog displayed

When opening an Excel spreadsheet that displays the Update Links dialog, @RISK settings, results, and fitting information were not properly loaded. This has been fixed.

Enable Smart Sensitivity Analysis Option Added

Both the Simulation Settings dialog and the Application Settings dialog now have an option to enable or disable @RISK 5.0's new 'Smart Sensitivity Analysis'. If this option is enabled, at the beginning of each simulation @RISK will scan your model's structure to determine which outputs depend on which inputs. This process is called precedence tracing. Later, when you perform sensitivity analysis on the results of this model, only those inputs which have a functional relationship with the output will be included in the results. @RISK 5.0.0 always had this option enabled. @RISK 5.0.1 now lets you turn the option off if you want to mimic the way @RISK 4.0/4.5 performed sensitivity analysis.

A Selection of Significant Maintenance Fixes

3047 Parsing error when SUMPRODUCT range boundary has parentheses.

3051 Saving File in English Regional Settings with simulation data, then opening @RISK in German Regional Settings causes crash.

3057 RiskProgress Window crash after hitting Cancel on Linked Fit and stop on progress window window after running simulation.

3063 Mutli-Simulation Run yields graphs with wrong total and error sample counts.

3070 Problem with updating of FitLink Progress Windows.

3114 Using German Regional Settings: run a simulation, open and close Model Window, re-reun the simulation Then Add Results to Library does nothing.

3160 RiskTheoMin and RiskTheoMode incorrect for RiskPearson5 when first argument is less than one.

3171 Two last items in the Define Distribution under the library category do not have a bitmap thumbnail.

3219 Manual activation, then close, then automatic activation causes error.

3230 Quick Report does not fit on one page in Chinese Office and Excel 2003.

3239 Advanced Analyses graph watermarks have extra "box" character in Spanish Windows trial version.

3289 Course license version has different serial numbers on Help and License Activation screens.

3383 Demo mode with multiple CPU freezes Excel.

3449 @RISK and Excel crash in simulation for particular model.

3482 Extra template sheet created.

3546 Open @RISK model window crashes Excel with a particular model.

3548 Stress Analysis comparison graphs missing %difference plot values.

3637 Excel crashes when chart exported and workbook is saved.

3638 Graphs always print to default printer, regardless of selected printer.

3641 Parsing Error with particular model.

3644 Bars outside delimiters don't always print correctly.

3653 Outputs and inputs not found, "could not be parsed" error in particular model.

3697 Issues with placement of delimiter labels using RiskResultsGraph in Excel native format and Excel 2007.