Frontline Solvers Tools for Excel Comparison Chart

(We also have comparison charts available for our Academic products and our SDK products for developers.)

	Limited Size Products		Full Sized Products			
	Basic License for Solver Academy	**Analytic Solver Upgrade**	**Analytic Solver Simulation**	**Analytic Solver Optimization**	**Analytic Solver Data Science**	**Analytic Solver Comprehensive**
	Nearly All Features, Low Size Limits	**Expanded Size Limits for Optimization** Basic Size Limits for Simulation, Data Science	**Full Size Limits for Simulation** Basic Size Limits for Optimization, Data Science	**Full Size Limits for Optimization** Basic Size Limits for Simulation, Data Science	**Full Size Limits for Data Science** Basic Size Limits for Optimization, Simulation	**Full Size Limits for all Features**
Platform	Windows	Windows	Windows	Windows	Windows	Windows
Built-in Solver Engine Size Limits						
Evolutionary	Yes	Yes	Yes	Yes	Yes	Yes
Linear	Yes	Yes	Yes	Yes	Yes	Yes
Nonlinear	Yes	Yes	Yes	Yes (Upgraded Engine	Yes	Yes (Upgraded Engine
Interval Global	Yes	Yes	Yes	Yes	Yes	Yes
SOCP Barrier	Yes	Yes	Yes	Yes	Yes	Yes
Optimization Problem Types and Sizes						
Solvers LP, MIP, NLP, and NSP problem types	Yes	Yes	Yes	Yes	Yes	Yes
Special Solvers for QP, QCP, and SOCP problem types	Yes	Yes	Yes	Yes	Yes	Yes
Linear Variables x Constraints	200 x 100	2,000 x 8,000	200 x 100	8,000 x 8,000	200 x 100	8,000 x 8,000
Nonlinear Variables x Constraints	200 x 100	500 x 250	200 x 100	1,000 x 1,000	200 x 100	1,000 x 1,000
Non-Smooth Variables x Constraints	200 x 100	500 x 250	200 x 100	1,000 x 1,000	200 x 100	1,000 x 1,000
Integer Variables	Up to 200	Up to 1,000 for LP and 500 for NLP/NSP	Up to 200	Up to 2,000 for LP and 1,000 for NLP/NSP	Up to 200	Up to 2,000 for LP and 1,000 for NLP/NSP
Accepts optional plug-in Solver Engines (w/ unlimited Variables x Constraints)	No	No	No	Yes	No	Yes
Constraints						
Normal, Integer, Binary, semi-continuous, and AllDifferent Constraints	Yes	Yes	Yes	Yes	Yes	Yes
Second Order Cone Constraints	Yes	Yes	Yes	Yes	Yes	Yes
Probabilistic and Chance Constraints	Yes	Yes	Yes	Yes	Yes	Yes
Global Optimization						
Non-Smooth Problems (Evolutionary)	Yes	Yes	Yes	Yes	Yes	Yes
Nonlinear Problems (Multistart)	Yes	Yes	Yes	Yes	Yes	Yes
Nonlinear Problems (Interval Global)	Yes	Yes	Yes	Yes	Yes	Yes
Plug-in Solver Engines (Several Approaches)	No	No	No	Yes	No	Yes
Advanced Stochastic Optimization						
Solve stochastic programming deterministic equivalent model	Yes	Yes	Yes	Yes	Yes	Yes
Robust optimization for large scale models with uncertainty	Yes	Yes	Yes	Yes	Yes	Yes
Automatic adjustment of chance constraints in robust optimization	Yes	Yes	Yes	Yes	Yes	Yes
VaR/CVaR constraints with adjustable tolerances	Yes	Yes	Yes	Yes	Yes	Yes
Simulation and Simulation Optimization						
Fastest Monte Carlo simulation and simulation optimizations in Excel	Yes	Yes	Yes	Yes	Yes	Yes
Fastest simulation optimizations in Excel	Yes	Yes	Yes	Yes	Yes	Yes
State of the art simulation, optimization & sensitivity/scenario analysis	Yes	Yes	Yes	Yes	Yes	Yes
Simulation Optimization Variables and Constraints	50 x 25	50 x 25	Unlimited x Unlimited	50 x 25	50 x 25	Unlimited x Unlimited
Over 60 distributions and over 80 statistics and risk measures built-in	Yes	Yes	Yes	Yes	Yes	Yes
Full support for fitting distributions	Yes	Yes	Yes	Yes	Yes	Yes
Ability to correlate uncertain input distributions	Yes	Yes	Yes	Yes	Yes	Yes
Built-in chance constraints and risk measure objectives	Yes	Yes	Yes	Yes	Yes	Yes
Full support for recourse decisions under uncertainty	Yes	Yes	Yes	Yes	Yes	Yes
Decision Trees						
Easy to use decision trees with rollback values and sensitivity analysis	Yes	Yes	Yes	Yes	Yes	Yes
Support for simulation with probability distributions in the tree	Yes	Yes	Yes	Yes	Yes	Yes
Support for optimization of values in the tree	Yes	Yes	Yes	Yes	Yes	Yes
Ease of Use and Guidance						
Context sensitive help and included example models	Yes	Yes	Yes	Yes	Yes	Yes
Comprehensive charting, reporting, and sensitivity/scenario analysis	Yes	Yes	Yes	Yes	Yes	Yes
Constraint wizard for easily specifying needed constraints	Yes	Yes	Yes	Yes	Yes	Yes
Distribution wizard to help you select the right probability distribution	Yes	Yes	Yes	Yes	Yes	Yes
Built-in Guided Mode assistance	Yes	Yes	Yes	Yes	Yes	Yes
Automatic diagnosis of model type and selection of best engine	Yes	Yes	Yes	Yes	Yes	Yes
Solution Speed and Accuracy						
Directly access all available processor cores	Yes	Yes	Yes	Yes	Yes	Yes
Find linear, nonlinear, non-smooth formulas	Yes	Yes	Yes	Yes	Yes	Yes
Determine whether model is convex	Yes	Yes	Yes	Yes	Yes	Yes
Determine if and how objective and constraints depend on uncertainty to enable stochastic transformation	Yes	Yes	Yes	Yes	Yes	Yes
Use vectorized calculations to speed Monte Carlo trials	Yes	Yes	Yes	Yes	Yes	Yes
"Linearize" IF, MIN, MAX, ABS, logical formulas for faster solution times and probable optimal solutions	Yes	Yes	Yes	Yes	Yes	Yes
Psi Interpreter for fastest, most accurate, optimization solves	Yes	Yes	Yes	Yes	Yes	Yes
Psi Interpreter for fastest, most accurate, simulations	Yes	Yes	Yes	Yes	Yes	Yes
Use Stochastic Programming for Recourse constraints	Yes	Yes	Yes	Yes	Yes	Yes
Use Robust Optimization for Chance constraints	Yes	Yes	Yes	Yes	Yes	Yes
Speed (approximate vs. the basic Excel Solver)						
Problem Setup	2-100X	2-100X	2-100X	2-100X	2-100X	2-100X
Linear Problems	40X	40X	40X	40x	40X	40X
Nonlinear Problems	7-15X	7-15X	7-15X	7-15x	7-15X	7-15X
Mixed-Integer Problems	10-200X	10-200X	10-200X	10-200x	10-200X	10-200X
Non-Smooth Problems	1-10X	1-10X	1-10X	1-10x	1-10X	1-10X
Plug-in Solver Engines				10-1000x		10-1000x
Solver Reports						
Answer Report	Yes	Yes	Yes	Yes	Yes	Yes
Solutions Report	Yes	Yes	Yes	Yes	Yes	Yes
Population Report	Yes	Yes	Yes	Yes	Yes	Yes
Limits Report	Yes	Yes	Yes	Yes	Yes	Yes
Linearity Report	Yes	Yes	Yes	Yes	Yes	Yes
Feasibility Report	Yes	Yes	Yes	Yes	Yes	Yes
Sensitivity Report	Yes	Yes	Yes	Yes	Yes	Yes
Simulation Report	Yes	Yes	Yes	Yes	Yes	Yes
Simulation Parameter Sensitivity Report	Yes	Yes	Yes	Yes	Yes	Yes
Uncertainty Report	Yes	Yes	Yes	Yes	Yes	Yes
Scaling Report	Yes	Yes	Yes	Yes	Yes	Yes
Structure/Convexity Report	Yes	Yes	Yes	Yes	Yes	Yes
Transformation Report	Yes	Yes	Yes	Yes	Yes	Yes
Charting Capabilities						
Comprehensive chart customization including type (line, area, bar), headings, axis, and legend labels, cutoffs, and markers	Yes	Yes	Yes	Yes	Yes	Yes
Sensitivity charting including Tornado and Parameter Analysis	Yes	Yes	Yes	Yes	Yes	Yes
Multiple Optimization charts including Monitored Cell and Parameter Analysis	Yes	Yes	Yes	Yes	Yes	Yes
Multiple Simulation charting including Overlay Trend, Box-Whisker, Parameter Analysis and Statistics charts	Yes	Yes	Yes	Yes	Yes	Yes
Multiple Simulation Results charting including Overlay, Trend, and Box Whisker	Yes	Yes	Yes	Yes	Yes	Yes

	Limited Size Products		Full Sized Products			
	Basic License for Solver Academy	**Analytic Solver Upgrade**	**Analytic Solver Simulation**	**Analytic Solver Optimization**	**Analytic Solver Data Science**	**Analytic Solver Comprehensive**
Uncertain Functions charts including Frequency, Cumulative, Reverse Cumulative, Sensitivity, and Scatter Plots	Yes	Yes	Yes	Yes	Yes	Yes
Data Science Capabilities						
Partitioning	Original Data: 65,000 Records Output: 50 Variables	Original Data: 65,000 Records Output: 50 Variables	Original Data: 65,000 Records Output: 50 Variables	Original Data: 65,000 Records Output: 50 Variables	Original Data: Unlimited Records Output: Unlimited Variables	Original Data: Unlimited Records Output: Unlimited Variables
Sample from Worksheet	Original Data: 65,000 Records Output: 50 Variables (Stratified: 30)	Original Data: 65,000 Records Output: 50 Variables (Stratified: 30)	Original Data: 65,000 Records Output: 50 Variables (Stratified: 30)	Original Data: 65,000 Records Output: 50 Variables (Stratified: 30)	Original Data: Unlimited Records Output: Unlimited Variables	Original Data: Unlimited Records Output: Unlimited Variables
Sample from Database	Original Data: 1,000,000 Records Output: 50 Variables (Stratified: 30)	Original Data: 1,000,000 Records Output: 50 Variables (Stratified: 30)	Original Data: 1,000,000 Records Output: 50 Variables (Stratified: 30)	Original Data: 1,000,000 Records Output: 50 Variables (Stratified: 30)	Original Data: Unlimited Records Output: Unlimited Variables	Original Data: Unlimited Records Output: Unlimited Variables
Text Mining	100 Documents, 5,000 Characters, 50 Terms, 1 Text Variable	100 Documents, 5,000 Characters, 50 Terms, 1 Text Variable	100 Documents, 5,000 Characters, 50 Terms, 1 Text Variable	100 Documents, 5,000 Characters, 50 Terms, 1 Text Variable	Unlimited Documents, Unlimited Characters, Unlimited Terms, Unlimited Text Variables	Unlimited Documents, Unlimited Characters, Unlimited Terms, Unlimited Text Variables
Feature Selection	10,000 Records, 50 Variables, 30 Distinct Classes	10,000 Records, 50 Variables, 30 Distinct Classes	10,000 Records, 50 Variables, 30 Distinct Classes	10,000 Records, 50 Variables, 30 Distinct Classes	Unlimited Records, Unlimited Variables, Unlimited Distinct Classes	Unlimited Records, Unlimited Variables, Unlimited Distinct Classes
Handling Missing Values (#Rows x #Missing Values to be treated at one time)	65,000 Records, 50 Variables	65,000 Records, 50 Variables	65,000 Records, 50 Variables	65,000 Records, 50 Variables	Unlimited Records, Unlimited Variables	Unlimited Records, Unlimited Variables
Bin Continuous Data (#Rows x #Columns in output)	65,000 Records	65,000 Records, 50 Variables	65,000 Records, 50 Variables	65,000 Records, 50 Variables	Unlimited Records, Unlimited Variables	Unlimited Records, Unlimited Variables
Transform Categorical Data (#Rows x #Columns)	65,000 Records, 50 Variables, 30 Distinct Values	65,000 Records, 50 Variables, 30 Distinct Values	65,000 Records, 50 Variables, 30 Distinct Values	65,000 Records, 50 Variables, 30 Distinct Values	Unlimited Records, Unlimited Variables, Unlimited Distinct Values	Unlimited Records, Unlimited Variables, Unlimited Distinct Values
Time Series (#Rows)	1,000 Rows	1,000 Rows	1,000 Rows	1,000 Rows	Unlimited Rows	Unlimited Rows
Classification and Prediction (#Rows)	Training: 10,000 Training + Validation: 65,000 Scoring 65,000	Training: 10,000 Training + Validation: 65,000 Scoring 10,000	Training: 10,000 Training + Validation: 65,000 Scoring 10,000	Training: 10,000 Training + Validation: 65,000 Scoring 10,000	Training: Unlimited Records Training + Validation: Unlimited Scoring Unlimited	Training: Unlimited Records Training + Validation: Unlimited Scoring Unlimited
Affinity - Association Rules (#Transactions)	65000, 100 Distinct Items	65,000	65,000	Transactions: 65000, #Distinct Items: 100	Transactions: Unlimited #Distinct Items: 5,000	Transactions: Unlimited #Distinct Items: 5,000
Data Exploration & Reduction (#Rows x #Columns)	65,000 x 50	65,000 x 50	65,000 x 50	65000 x 50	Unlimited x Unlimited	Unlimited x Unlimited
# Clusters displayed in Dendrogram	10	10	10	10	Unlimited	Unlimited
Charts (#Rows x #Columns)	65,000 x 100	65,000 x 50	65,000 x 50	65,000 x 50	Unlimited x Unlimited	Unlimited x Unlimited