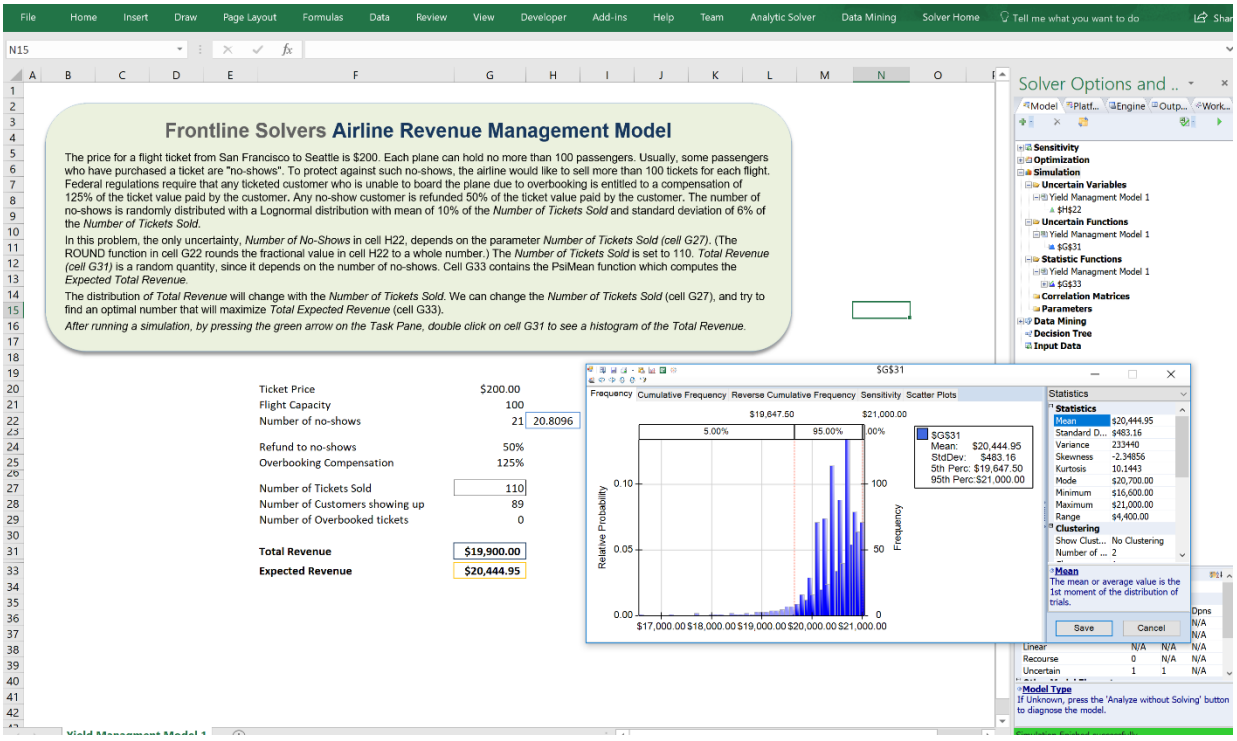
FRONTLINE solvers

Quick Start Guide

Excel Solver Upgrader Version



Upgrader Quick Start Guide Version 2018

Congratulations. As a user of the basic Excel Solver you already likely know the benefits of optimization. Since you're reading this, you probably have a problem that goes beyond what the basic Excel Solver was designed to handle:

1. You would like to solve larger optimization models, or solve them faster.
2. You would like to get better answers for more complex and challenging problems.
3. You would like to capture and manage uncertainty in your model.

You can rest assured that you are in good company, since Frontline Systems not only built the basic Excel Solver but offers powerful upgrades that are the leading optimization and simulation tools in Excel, preferred by over 7,000 businesses and universities around the world.

This Upgrader Quick Start Guide covers key pieces of information to help you get started quickly and successfully with our Solver upgrade products. You'll be able to use Analytic Solver Basic on a free trial basis. Everything discussed in this Quick Start Guide also applies to our most powerful product, Analytic Solver Comprehensive, and it's subset products: Analytic Solver Optimization, Analytic Solver Simulation, Analytic Solver Upgrade and Analytic Solver Basic.

For more information on any of these steps or topics, refer to the User Guide and Reference Guide, available in the Support section of Solver.com, or from within Excel by going to the **Help** menu on the **Analytic Solver** tab and selecting **User Guides**.

Key Enhancements from the Basic Excel Solver

Let's start with what **isn't** going to change when you upgrade:

1. ***You can instantly solve your existing models and continue to use any existing VBA code.*** Your existing optimization model built using the basic Excel Solver should work as-is without any changes.
2. ***You can continue to use an interface similar to the Excel Solver dialog if you want***. All our optimization Solver upgrades include an enhanced version of the basic Excel Solver dialog, so you can take advantage of the larger problem size limits and additional engines without even having to learn how to use the Ribbon and Task Pane interface (although after you do try it out, we think you'll never want to go back).

Now let's quickly summarize the features and benefits **you do get** when you upgrade:

1. ***The ability to solve much larger problems, much faster***. Our upgraded products allow you to solve problems anywhere from 10x to 40x larger than the basic Excel Solver, and solve them much faster than before. With optional plug-in Solver Engines, you can solve problems of virtually unlimited size.
2. ***The ability to solve a wider variety of problems***. With the new constraint types and Solver Engines we include, you can solve more types of problems.
3. ***Automatic guidance, giving you insight into your model and results***. Analytic Solver will analyze your formulas, determine the type of model you've created, provide ideas to help you get a better answer more easily, automatically choose the best available Engine to solve it, and then help you understand the results.
4. ***Instant connection to knowledgeable technical support***. Connect to a live person from right inside Excel, and skip the explanations you'd have to give by email or phone – our software will send diagnosis and error information automatically to the tech support rep.
5. ***A whole new way to model business situations with many dimensions***. Besides building "regular" models that are compatible with the basic Solver, with Analytic Solver you can use Dimensional Modeling to replace thousands of copied formulas with just a few cells.
6. ***The ability to capture and manage uncertainty***. Very rarely do we have perfect information. Rather than putting in a single value to represent factors such as the weather, stock prices, and interest rates, using Monte Carlo simulation techniques in Analytic Solver, you can include uncertainty in your model, see the full range of potential outcomes, and make better decisions.
7. ***Powerful Data Mining and Time Series Analysis tools within Excel.*** Analytic Solver Comprehensive includes Analytic Solver Data Mining which is the only comprehensive data mining add-in for Excel. Analytic Solver Data Mining may also be purchased as a stand-alone product. Analytic Solver Data Mining's capabilities include neural networks, classification and regression trees, logistic regression, linear regression, Bayes classifier, K-nearest neighbors, discriminant analysis, association rules, clustering, principal components and more.

Installing

Installing the Software

Run the SolverSetup.exe program to install the software – whether you are using Analytic Solver Comprehensive, or any of its subsets, with either 32- or 64-bit Excel. The User Guide chapter "Installation and Add-Ins" covers installation step-by-step, and explains how to activate and deactivate the Analytic Solver Excel add-in.

Logging in the First Time

The first time you run Analytic Solver V2018 after installing the software on a new computer, when you next start Excel and visit the Analytic Solver tab on the Ribbon, **you will be prompted to login**. Enter the **email address** and **password** that you used to register on Solver.com or AnalyticSolver.com. Once you've done this, your identity will be "remembered," so you won't have to login every time you start Excel and go to one of the Analytic Solver tabs.

Using Your Existing Models

Analytic Solver Comprehensive is a 100% compatible upgrade to the basic Excel Solver, as are its subset products Analytic Solver Optimization, Analytic Solver Simulation, Analytic Solver Upgrade and Analytic Solver Basic. This means you can solve your existing models immediately, taking advantage of Analytic Solver's faster speed, additional solving methods, and larger problem size limits, without having to make any changes to your model or existing VBA code.

> ***Online Resource:*** *You can see an overview video of a model built using the Excel Solver and how to solve it in Analytic Solver as-is. In addition, you can also see how to quickly and easily build the same model from scratch using the Ribbon and Task Pane interface by clicking here.*

Simply open the workbook containing the model and use the **Solver Parameters** dialog, or just click the **Optimize** button on the Ribbon (both described below).

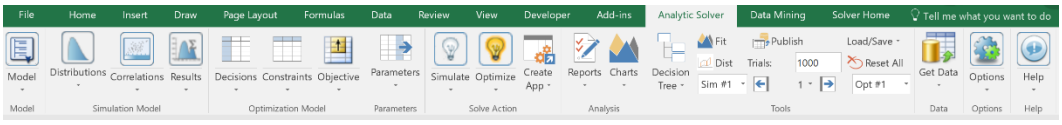
Using the Ribbon and Task Pane

This section contains an overview of the Ribbon and Task Pane interface, as well as the alternative Solver Parameters dialog (similar to what you've used in the basic Excel Solver).

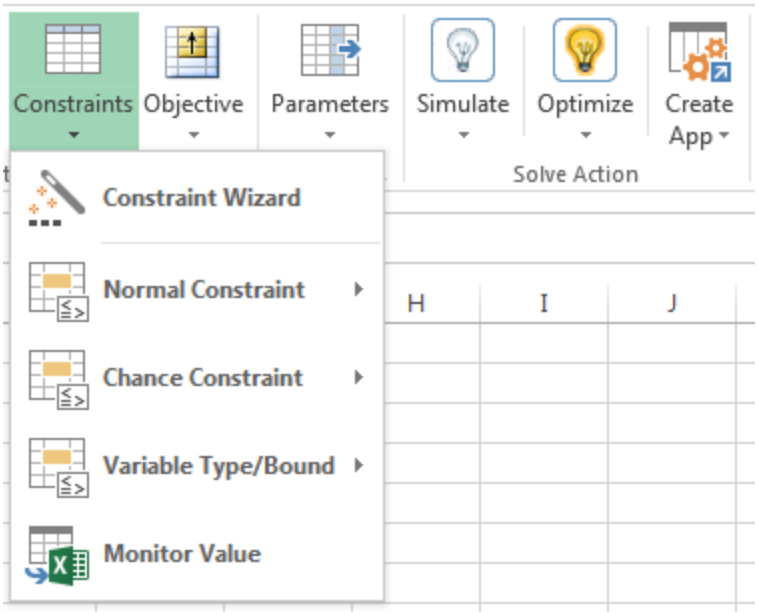
> ***Online Resource:*** *You can also see a short overview video of the Ribbon and Task Pane interface on our website by clicking here.*

The Ribbon is your 'gateway' to Analytic Solver's graphical user interface. Most often, you simply click on the arrow at the bottom of a button on the Ribbon to open a dropdown gallery with more buttons, and then you click one of these choices.

The Analytic Solver Ribbon appears as a tab on the standard Ribbon at the top of the Excel application window, and it stays in this position:



The small downward pointing arrow below each of the buttons indicates that you can open a **dropdown gallery** of options related to that button. For example, clicking the downward arrow for **Constraints** opens a gallery of further options for defining constraints:



Clicking **Normal Constraint** shows the traditional constraint relations, and clicking the remaining gallery choices will display new options that you haven't had in the basic Excel Solver.

The buttons on the Ribbon play the following roles:

- Clicking the **Model** button displays or hides the Task Pane (see more on this below). Click the down arrow to add Dimensional Modeling capability to your model.

- The *Simulation Model* group of buttons relate to setting up simulation models:
  - Clicking the **Distribution** button gives you a range of pre-defined probability distributions you may choose to represent uncertainty in your model and access to our new Distribution wizard.
  - Clicking the **Correlations** button brings up a dialog to allow you to easily create, edit or delete correlation matrices or fit a copula. The down-arrow allows you to turn the use of correlations on and off.
  - Clicking the **Results** button opens a gallery of options that allow you to designate a cell as an output cell for an uncertain function (to obtain statistics, charts or other simulation results), or insert calls to PSI Statistics functions to compute statistics, risk measures, or range values for uncertain functions.

- The *Optimization Model* group of buttons relate to setting up optimization models:
  - Clicking the **Decisions** button creates a new "normal" decision variable using the currently selected cell. Clicking the down arrow allows you to designate a cell as a decision variable, and in stochastic optimization, choose normal or recourse decisions.
  - Clicking the **Constraints** button opens the Add Constraint dialog which lets you easily define constraints, including bounds and integer restrictions on decision variables, and chance constraints in stochastic optimization. Clicking the down

arrow allows you to do all of the above plus gives you access to our new Constraints wizard.
    - Clicking the **Objective** button opens the Add Objective dialog which allows you to designate a cell as the objective function, and choose whether it should be maximized or minimized. Clicking the down arrow allows you to do all of the above plus "summarize" an objective containing uncertainty if solving a stochastic optimization model.

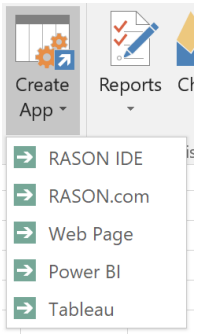
- Clicking the **Parameters** button allows you to designate a cell as a parameter to be varied across multiple optimization or simulation runs, or designate a cell range as input data for runtime use. You can even find *candidate* cells for parameters *automatically*, displaying a tornado chart that shows which cells have the greatest impact on your model results.

- The *Solve Action* group of buttons relate to *solving* your optimization or simulation model:
    - Clicking the **Simulate** button turns on *Interactive Simulation*, and lights up the bulb; clicking it again turns off *Interactive Simulation* and the bulb. The down-arrow allows you to run a single simulation at a time.
    - Clicking the **Optimize** button runs an optimization, while clicking the down-arrow gives you a list of choices for how to solve the model. You can use the Analyze Without Solving option to find out what type of model (linear, nonlinear, etc.) you've defined, and what Solver Engine can be used to solve it.
    - Clicking the **Create App** button drops down a menu with a list of choices that automatically convert your existing optimization, simulation or simulation optimization model into a model written in the new RASON Modeling Language. The converted model can be solved using either the RASON Desk IDE, the Web IDE on RASON.com or from within a customized Web application. Select **RASON IDE** or **RASON.com** to automatically open either the RASON Desk IDE or RASON Web IDE containing your model written in the RASON modeling language. Select **Web Page** to create a web application that will solve your model, which has been converted to a RASON model, by calling the RASON Interpreter from within a customized web app. This feature reduces months of development work to a single button click!

      The Power BI option allows users the ability to turn their Excel-based optimization or simulation model into a **Microsoft Power BI Custom Visual**, with just a few mouse clicks! Where others must learn JavaScript (or TypeScript) programming and a whole set of Web development tools to even begin to create a Custom Visual, Analytic Solver users are now able to create one right away. Users simply select rows or columns of data to serve as changeable parameters, then choose **Create App – Power BI**, and save the file created by Analytic Solver. Afterwards, users click the Load Custom Visual icon in Power BI, and select the file just saved. What you will see isn't just a chart – it's a *full optimization or simulation model*, ready to accept Power BI data**, run on demand** on the web, and display visual results in Power BI! See the chapter, "Creating

Power BI Custom Visuals" within the *Frontline Solvers User Guide* for more details.

Analytic Solver V2018 includes the ability to turn your Excel-based optimization or simulation model into a **Tableau Dashboard Extension**. Simply select rows or columns of data to serve as changeable parameters, then choose **Create App – Tableau**, and save the file created by Analytic Solver. In Tableau, you'll see the newly-created file under **Extensions** on the left side of the dashboard, where you can drag it onto your dashboard. You'll be prompted to match the parameters your model needs with data in Tableau. Much like with Power BI, what you get isn't just a chart – it's your *full optimization or simulation model*, ready to accept Tableau data**, run on demand** (using our **RASON** server), and display visual results in Tableau! Note: This new feature works (only) with Tableau version 2018.2 or later.



- The *Analysis* group of buttons relate to analyzing your results:
  - Clicking the **Reports** button gives you access to a full range of reports for optimization, simulation, sensitivity analysis, and discriminant analysis.
  - Clicking the **Charts** button lets you create and manipulate charts related to your optimization, simulation, or sensitivity analysis results – including charts that cover multiple optimization or simulation runs, with varying parameters.

- The *Tools* group of buttons is covered more fully in the User Guide: They allow you to set up decision trees, create probability distributions that fit historical data, see the results of specific simulations or optimization, manage results and publish an optimization or simulation model to the new Excel Online Solver app or Google Sheets Solver add-on.

- Compute summary measures (sum, average, standard deviation, minimum or maximum) for variables in a dataset with up to billions of rows, stored across many hard disks in an external compute cluster running Apache Spark (https://spark.apache.org/), by clicking the **Get Data** icon. This kind of summary data is often what you need as input parameters to an optimization or simulation model. See the Analytic Solver Data Mining User Guide for more help on this new feature.

- Clicking the **Options** button displays a dialog of options for controlling the optimization and simulation processes, as well as for formatting charts and graphs.

- Clicking the **Help** button displays online Help. The arrow allows you to open examples or an online tutorial, access the User and Reference Guides, check your version and license status, or enter a license code.

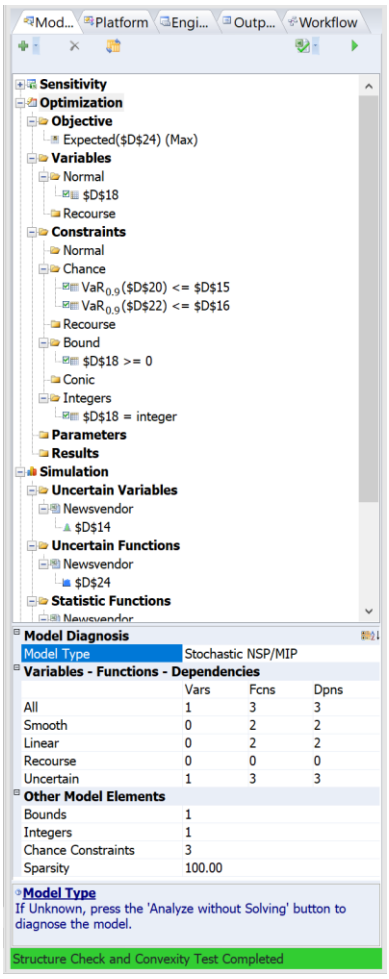
Each of these GUI functions is described more in depth in the Reference Guide chapter "Using the Ribbon and the Task Pane."

Alternatively, if you've used the basic Excel Solver we developed for Microsoft, you'll find the **Add-Ins** tab contains a **Premium Solver** button which displays a **Solver Parameters** dialog very similar to the one you've used before. Changes you make to a model here are reflected in the Task Pane, and vice versa.

You can easily switch between the Solver Parameters dialog, and the Ribbon and Task Pane as often as you wish, without having to restart Excel or close and re-open any open workbooks.

The Task Pane

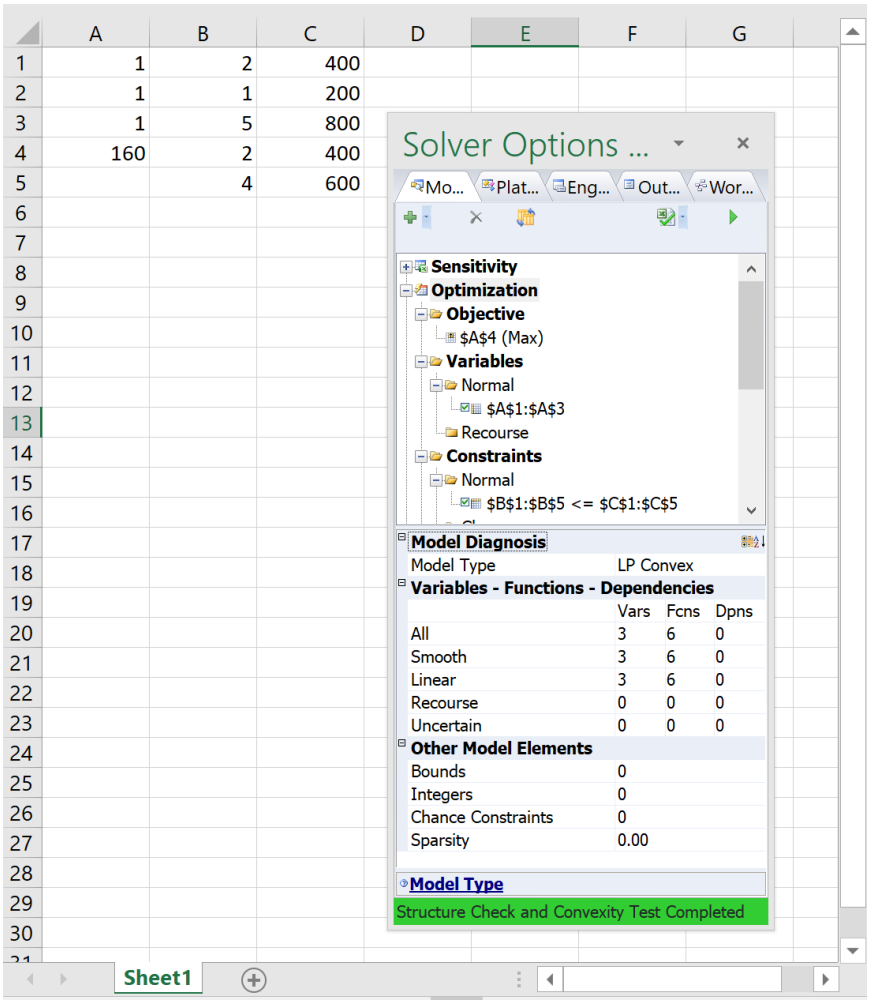
Clicking the **Model** button displays or hides the Task Pane, normally docked at the right edge of the Excel window. On the Task Pane **Model tab**, you'll see an outlined list of all the elements of your model: (i) objective, decision variables, and constraints for optimization models, (ii) uncertain variables, uncertain functions, statistics, and correlations for simulation models, (iii) parameters for both kinds of models and (iv) datasets and results for data mining, text mining, and time series models. As explained below, other tabs on the Task Pane provide quick access to option settings, a log of events that happen during an optimization or simulation, and for long-running optimization models, a continually updated status report plus a dynamic chart of the objective.



As you can see, the Task Pane Model tab and the Solver Parameters dialog contain the same information. But where the basic Excel Solver Parameters dialog is *modal* (moving the mouse outside the dialog displays a wait cursor – you must close the dialog to do anything else), the Task Pane is *modeless*: You can move the mouse outside the pane, edit formulas on the worksheet, or use other commands.

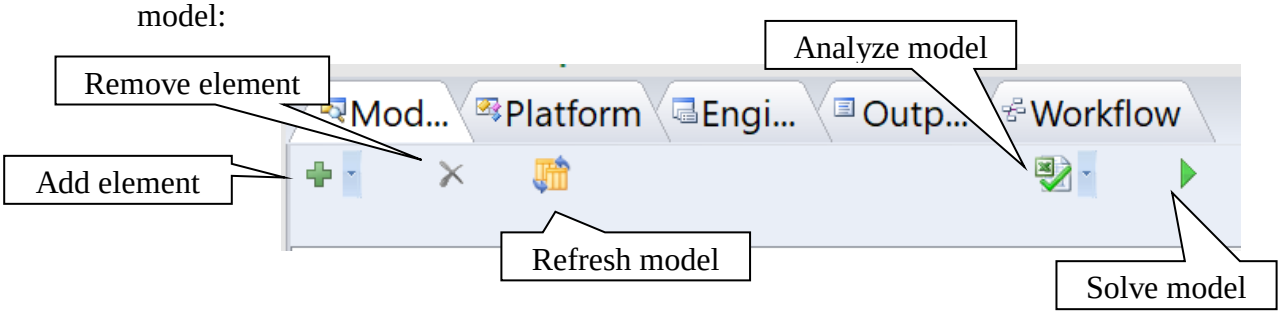
The Task Pane is initially docked to the right side of the Excel window, but you can select its title bar with your mouse, **drag** it to another position, and **resize** it, as shown on the next page. To "re-dock" the Task Pane, select its title bar with the mouse, drag to a position just beyond the right edge of the Excel window, then release the mouse.

Use the **Model tab** to view your model in outline form, and optionally edit model elements in-place. Use the **Platform tab** to view or change Platform options, such as the number of optimizations or simulations to run, or default bounds on decision variables or uncertain variables. Use the **Engine tab** to select a Solver Engine and view or change its options. Use the **Output tab** to view a log of solution messages, or a chart of the objective values.

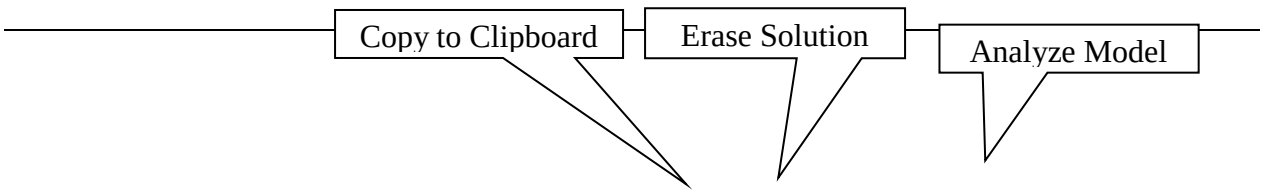


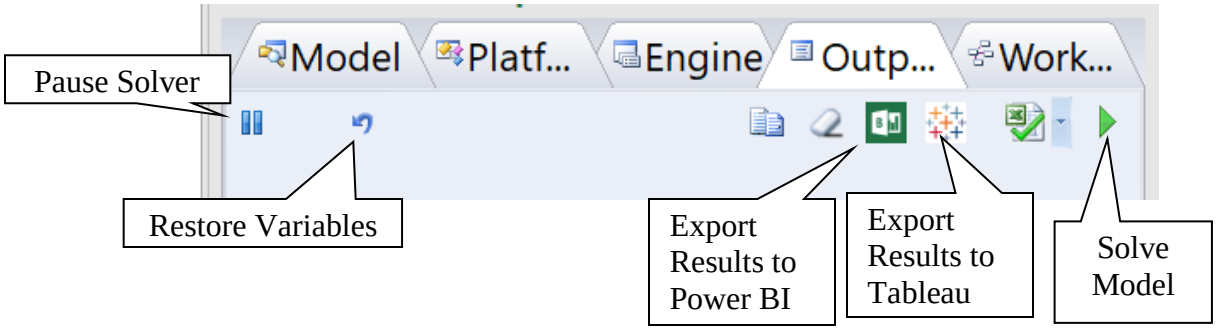
Using Buttons on the Task Pane

Use the **buttons** at the top of the **Model tab** to add or remove model elements (you can also use the Ribbon options to do this), refresh the model outline when you've made unusual changes to the worksheet, **analyze** the structure of your model, or **solve** (run) the optimization or simulation model:



Use the **buttons** at the top of the **Output tab** to pause or stop the Solver, **restore** the original values of the decision variables, **copy** the solution message log to the Windows Clipboard (so you can paste it into another application), **erase** the solution log, **export** the Solver Results to **Microsoft's Power BI** or **Tableau**, **analyze** or **solve** the model.





Building an Optimization Model

While you likely already know how to build a basic optimization model, in the User Guide there is a chapter called "Examples: Conventional Optimization" which contains a section on building your first optimization model, as well as an overview of examples included with Analytic Solver. These examples will be useful for ideas as you look to build more ambitious models that better capture the business challenges you face.

> ***Online Resource:*** *You can see an overview video on our website of how to build an optimization model from scratch by clicking here.*

You can access the User Guide from within Excel by clicking on **Help** on the Analytic Solver Ribbon and choosing **User Guide**. In addition, see below for links to helpful introductory videos in addition to the one above.

Building Your First Simulation Model

Better *understanding* the range of potential outcomes in a situation, and *optimizing* your decision given that range, can be a very powerful way to make even better decisions. In the User Guide there is a chapter called "Examples: Simulation and Risk Analysis" which contains a section on building your first simulation models as well as an overview of examples included with Analytic Solver.

> ***Online Resource:*** *You can see an overview video on our website of how to build a simulation model from scratch by clicking here.*

Again, you can access the User Guide from within Excel by clicking on **Help** on the Analytic Solver Ribbon and choosing **User Guide**. In addition, see below for links to helpful introductory videos in addition to the one above.

Exploring Example Models

Finding the Examples

Use **Help – Examples** on the Ribbon to open optimization, simulation, forecasting/data mining, stochastic optimization, simulation optimization and decision tree example workbooks with a list of examples you can open by clicking hyperlinks.

Using the Example Models and User Guide

The Frontline Solvers and Analytic Solver Data Mining User Guides provide more detail on building your first optimization or simulation model, as well as step – by – step instructions for Analytic Solver Data Mining. Example models used in these guides can be found by clicking **Help – Examples** and relate to:

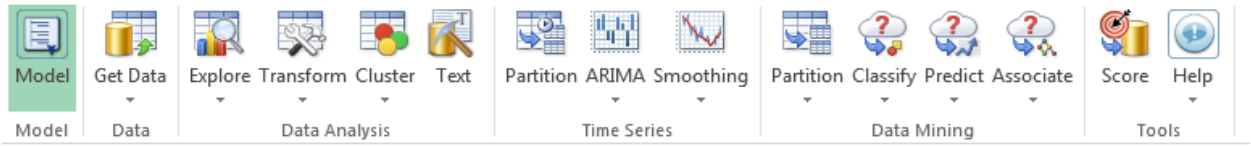
- Conventional Optimization
- Simulation and Risk Analysis
- Forecasting / Data Mining
- Stochastic Optimization
- Sensitivity Analysis
- Decision Trees

Mastering Optimization and Simulation Concepts

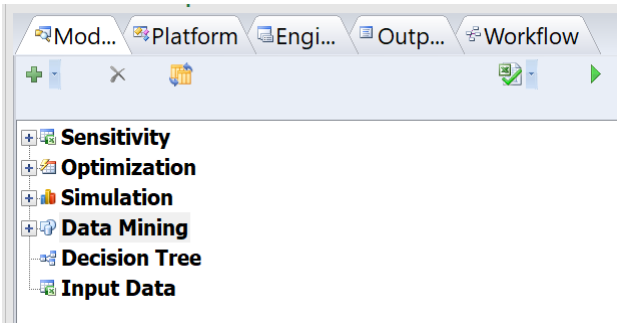
Go from beginner to expert, and learn how to fully exploit the software by reading the **Mastering Concepts** chapters in the Frontline Solvers User Guide.

New Features for Forecasting and Data Mining

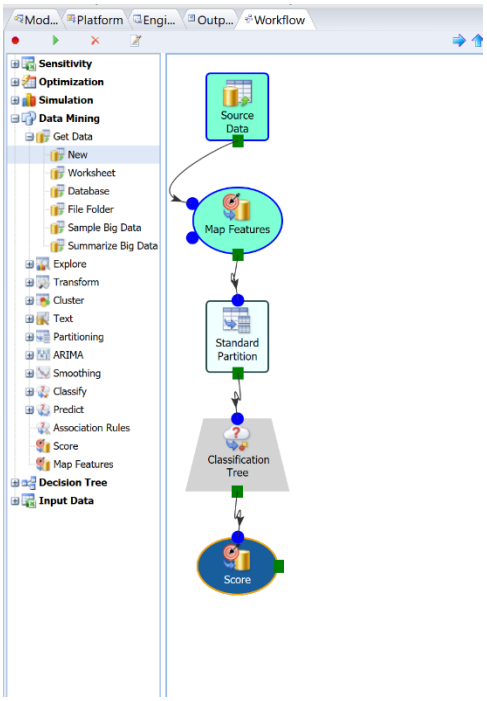
Analytic Solver Comprehensive (and the subset Analytic Solver Data Mining) include powerful features for forecasting and data mining, based on the popular XLMiner add-in - renamed in V2017 to Analytic Solver Data Mining. You can explore these features during your free trial by clicking the **Data Mining** tab on the Excel Ribbon:



- Click the Model button to display the Solver Task Pane to quickly and easily navigate through your datasets and results. Raw datasets will be inserted into the Data folder while results can be found within the Reports and Transformations folders.



The Workflow tab, *new in V2018*, allows the combination of all available data mining techniques into a single, all-inclusive workflow, or pipeline. Once the pipeline is created, either manually or simply by recording your actions, each data mining method included in the workflow will be executed sequentially.



- Use the **Get Data** button to draw a random sample of data, or summarize data from a (i) an Excel worksheet, (ii) the PowerPivot "spreadsheet data model" which can hold 10 to 100 million rows of data in Excel, (iii) an external SQL database such as Oracle, DB2 or SQL Server, or (iv) a dataset with up to billions of rows, stored across many hard disks in an external compute cluster running Apache Spark (https://spark.apache.org/), using the newly added **Big Data** feature.

- You can use the **Data Analysis** group of buttons to draw a sample of data from a spreadsheet, external SQL database, or from PowerPivot, explore your data, both visually and through methods like cluster analysis, and transform your data with methods like Principal Components, Missing Value imputation, Binning continuous data, and Transforming categorical data. Text Miner, Analytic Solver's text mining feature, analyzes a collection of text documents, extracts their meanings, and calculates any patterns or trends that might appear in the collection. The Feature Selection tool, under Explore, gives insights on which variables are the most important or

relevant, and will provide the most information when included in a classification or production model.

- Use the **Time Series** group of buttons for time series forecasting, using both Exponential Smoothing (including Holt-Winters) and ARIMA (Auto-Regressive Integrated Moving Average) models, the two most popular time series forecasting methods from classical statistics. These methods forecast a single data series forward in time.

- The **Data Mining** group of buttons give you access to a broad range of methods for prediction, classification, and affinity analysis, from both classical statistics and data mining. These methods use multiple input variables to predict an outcome variable, or classify the outcome into one of several categories.
  - Use the **Predict** button to build prediction models using Multiple Linear Regression (with variable subset selection and diagnostics), k-Nearest Neighbors, Regression Trees, and Neural Networks.
  - Use the **Classify** button to build classification models with Discriminant Analysis, Logistic Regression, k-Nearest Neighbors, Classification Trees, Naïve Bayes, and Neural Networks.
  - Use the **Associate** button to perform affinity analysis ("what goes with what" or market basket analysis) using Association Rules.

If forecasting and data mining are new for you, don't worry – you can learn a lot about them by consulting our extensive in-product Help. Click **Help – Help Text** on the Data Mining tab, or click **Help – Help Text – Forecasting/Data Mining** on the Analytic Solver tab (these open the same Help file).

If you'd like to learn more and get started as a 'data scientist,' consult the excellent book *Data Mining for Business Intelligence*, which was written by the original XLMiner designers and early academic users. You'll be able to run all the Forecasting/Data Mining examples and exercises in Analytic Solver.

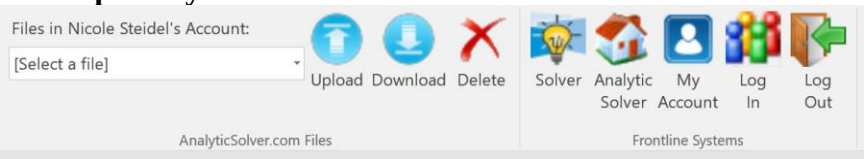
Cloud Version and Solver Home Tab

With your free trial or paid license, you can use *both* Analytic Solver in desktop Excel, and its cloud-based counterpart: AnalyticSolver.com is a comprehensive, cloud-based SaaS (Software as a Service) toolkit for predictive and prescriptive analytics. It shares technology with Analytic Solver desktop version. Both platforms offer a Ribbon user interface with three tabs featuring nearly-identical buttons and menus, and a Task Pane that summarizes models and provides access to Platform and Engine options. Both platforms use the same modeling languages (Excel formulas and our RASON® modeling language, handled by our PSI Interpreter), and use the same algorithmic "engines" for mathematical optimization, Monte Carlo simulation and risk analysis, forecasting, data mining and text mining. Nearly all optimization, simulation, and data mining related functions available in Analytic Solver desktop version are also available in AnalyticSolver.com.

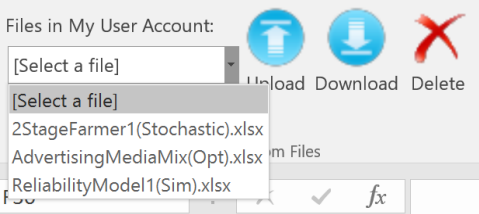
Analytic Solver features a new *Solver Home* tab. This tab allows you to **login** and **logout**, and easily **upload** and **download** files to/from Analytic Solver in Excel and AnalyticSolver.com. You can also navigate to Frontline Solvers Website at www.solver.com

and the AnalyticSolver.com Home page as well as access your AnalyticSolver.com account by clicking the appropriate icons on this tab.

Desktop Analytic Solver Home Tab

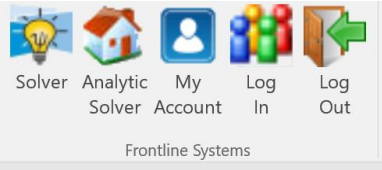


Using the icons in the *AnalyticSolver.com Files* section of the **Solver Home** tab, you have the ability to upload files to your AnalyticSolver.com account – subject to certain size limits or storage charges, depending on your account type.



The icons in the Frontline Systems portion of the Solver Home Ribbon allow you to access Frontline's website at www.solver.com, the AnalyticSolver.com home page, and your AnalyticSolver.com account settings

To switch users, click **Log In**. Enter the **email address** and **password** that you used to register on Solver.com or AnalyticSolver.com. After this, your user identity is "persisted" so you don't have to log in again every time you start Excel. If you are on a shared-use computer, we strongly recommend that you click **Log Out** when finished using Analytic Solver. Then, the next time Analytic Solver is accessed, the new user will be asked to Log in.



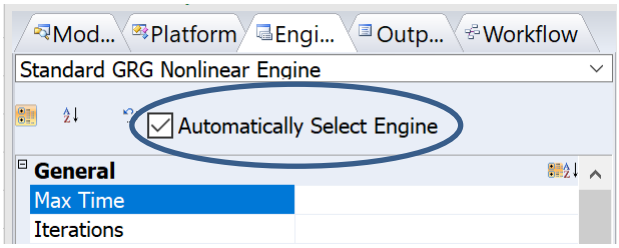
For more information on the Solver Home tab, please see the section "Solver Home Tab" within the Frontline Solvers User Guide.

Solver Engines for Optimization

Using the Included Solver Engines

Your trial of Analytic Solver includes a comprehensive set of built-in Solver Engines which can be used to solve the entire range of problems you are likely to face including linear, non-linear, quadratic, non-smooth, and mixed integer problems, among others. Each Solver Engine has different strengths, making it better suited to solving a particular class or range of problems. You can choose which one you want to use by going to the **Engines tab** in the Task Pane, clicking on the drop down menu at the top, and selecting a Solver Engine.

Don't worry if you aren't sure what type of problem you have or which Engine would be best suited to solve it. If you wish, our "Automatic Mode" will analyze your model for you and automatically select the best choice from the available Engines to get you the best results. Simply go to the **Engines tab** in the Task Pane and make sure the "Automatically Select Engine" box is checked:



In addition, the Solver Engine Option Reference chapter in the Reference Guide includes details for each Solver Engine bundled in Analytic Solver Comprehensive, Analytic Solver Optimization, Analytic Solver Upgrade and Analytic Solver Basic. It also briefly describes how these options may be examined or set using VBA, or in another programming language using Frontline's Solver SDK Platform.

Using Large-Scale Solver Engines

In addition to the included Solver Engines Analytic Solver Comprehensive and Analytic Solver Optimization and Solver SDK Platform allow you to install additional plug-in Solver Engines.

The installation program SolverSetup.exe installs the following optional plug-in Solver Engines: Gurobi, MOSEK, OptQuest, XPRESS, and KNITRO, as well as our own Large Scale SQP, Large Scale GRG, and Large Scale LP solvers for use with both Excel 32- and 64-bit. These Solver Engines allow you to solve virtually unlimited sized models at amazing speeds. Again, our Automatic Mode can automatically choose the best one for your particular problem. You can learn more about each Engine here. The new Solver Engine(s) will appear in the dropdown engine list shown at the top of the Task Pane Engine tab.

Using VBA Code in your workbooks

You don't have to know or use VBA to use Analytic Solver. But if you are familiar with the power of VBA, the User Guide includes two very useful chapters: "Automating Optimization in VBA" and "Automating Simulation in VBA." These chapters explain how to use the Object Oriented API in Analytic Solver to create, modify, and solve optimization and simulation models under the control of a custom application you've written in VBA.

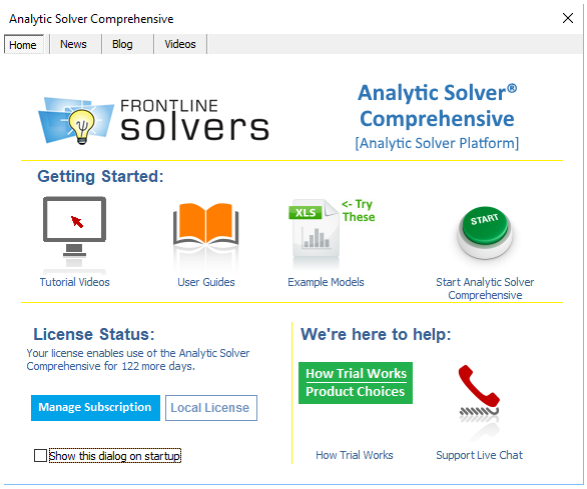
Getting Help

Installation Help

Should you run into any problems downloading or installing any of our products, we're happy to help. Call us at 775-831-0300 or email us at support@solver.com.

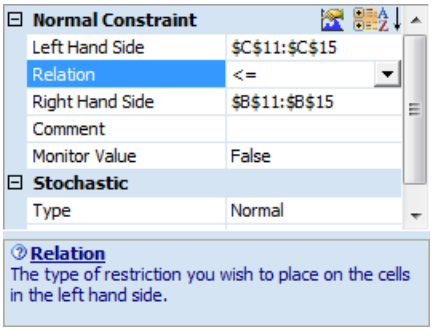
Accessing Resources

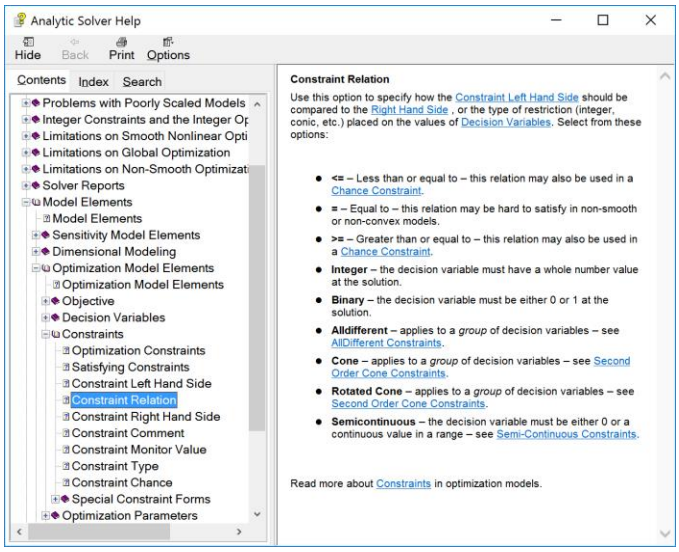
By going to **Help – Welcome Screen** you can easily access a range of support and training resources.



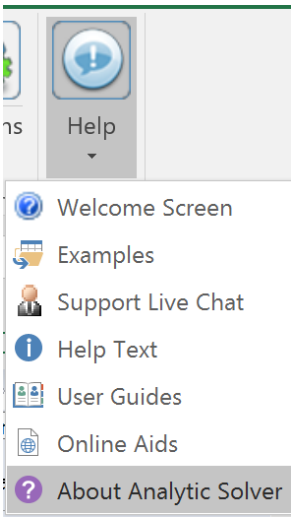
Using Online Help available In-Product

Analytic Solver's online Help appears when you click the Help button in the Ribbon. More Help options appear on the dropdown menu below the Help button. You can also get help on Solver Result messages, Platform options, or any element of your model, by clicking the hyperlink that appears at the bottom of the Task Pane. For example, clicking the **Relation** hyperlink displays the Help window shown below.





As with other buttons on the Ribbon, clicking the first menu choice has the same effect as clicking the main button: It opens the online Help viewer.



Click the **Examples** menu choice to open a workbook with a range of optimization, simulation, and decision tree examples. Opening and working with these examples is a great way to learn more about Analytic Solver and both optimization and simulation modeling techniques and approaches.

Click **Support Live Chat** to connect to Frontline Systems technical support, from right inside Excel. Read more about this below under "Technical Support."

Click **Help Text** to access Help on any Platform option, Engine option, or Model element or you can quickly access Help on any Solver Result message that appears in the Task Pane Output tab, any option that appears on the Engine tab or Platform tab, or any element of your model that appears on the Model tab by clicking the underlined hyperlink.
Click the **User Guides** to open PDF files of our Quick Start Guide, Excel Solver Guide, User Guide, Reference Guide, Engine User Guide, or Data Mining User Guide.

Click the **Online Aids** menu choice to open a Web browser to the right point on Frontline's Website www.solver.com:

- **Online Aids – Support Online:** Here you'll find the latest news, hints, frequently asked questions and more example workbooks that you can download.

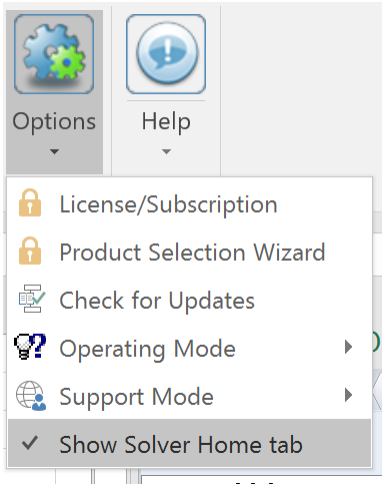
- **Online Aids – Video Demos Online:** You'll find a range of useful video overviews from building your first model to an overview of key optimization and simulation concepts.

- **Online Aids – Tutorial Online:** Read our optimization and simulation tutorials. This is another great way to get started with Analytic Solver whether you are focused on optimization, simulation, or both.

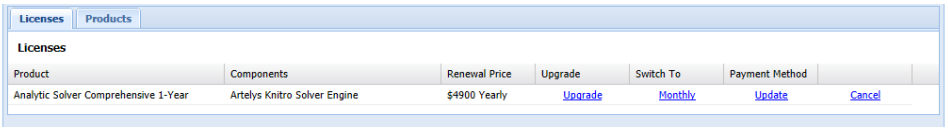
Click the **About Analytic Solver** menu choice to display copyright and trademark information, and Frontline Systems contact information.

Using the Options Menu

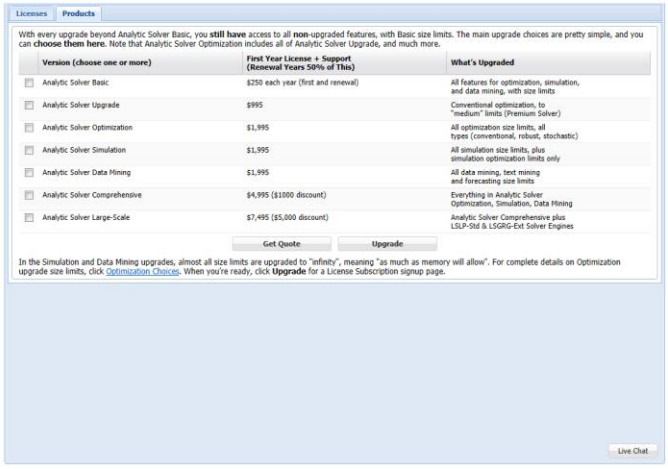
The Options menu appears when you click the down arrow under the Options icon on the Analytic Solver Ribbon.



Click **License/Subscription** to login to Frontline Systems Web Subscription Manager. Login using your AnalyticSolver.com credentials to view the status of your license. With Frontline Solvers V2018, purchasing has been *automated*: You can review your subscription status, renew, upgrade or downgrade your subscription, or add plug-in Solver Engines, all 'self-service' using the License / Subscription Manager – accessible via the blue button in the Welcome Screen, **or Options - License / Subscription** on the Analytic Solver Ribbon. The next page shows an example of the License / Subscription Manager dialog.

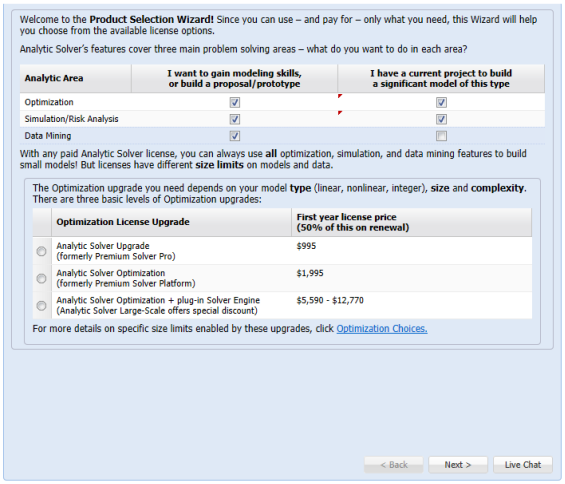


Click the Products tab to upgrade your existing Analytic Solver product or purchase a new one.

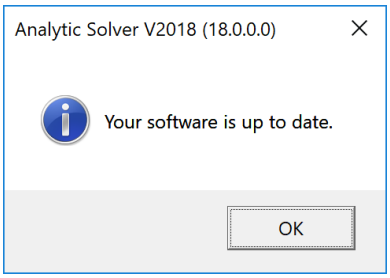


Click **Product Selection Wizard** to open a series of dialogs that will help you determine which product will best meet your needs based on past and predicted future performance. On the final

dialog, the Product Selection Wizard will recommend a product or products based on your answers on the previous screens. To purchase the recommended product(s) click **Upgrade**. If at any time you'd like to chat with a member of our Technical Support staff, click **Live Chat**. For more information on the Product Selection Wizard, see the Frontline Solvers User Guide.



Click **Check for Updates** to verify that you are using the latest release of Analytic Solver. If not, you'll be redirected to www.solver.com to download the latest version. Otherwise, you'll receive a dialog as shown below.



Click the **Operating Mode** menu choice to switch between Guided Mode, Auto-Help Mode and Expert Mode. We highly recommend starting out with Guided Mode, and leaving Auto-Help Mode on all the time.

Click the **Support Mode** menu choice to switch between Active Support, Standard Support and Basic Support. We highly recommend Active Support for most users.

Click **Show Solver Home tab** to remove or add the Solver Home tab to the ribbon.

Technical Support

If you run into any issues with the product itself we're here to help. When you're using the software, the *best way* to get help is to choose **Support Live Chat** from the **Help menu**. This will start a Live Chat during our business hours (or send us a message at other hours), just as if you were to start a Live Chat on www.solver.com, but it saves you and our tech support rep a lot of time – because the software reports your latest error message, model diagnosis, license issue or other problem, without you having to type anything or explain verbally what's happened.

You can also call us at 775-831-0300, or email us at support@solver.com.

Help Building Models

We also offer consulting assistance, from helping you define the problem, to building and solving the model, to interpreting and communicating results. You can learn more online on our Consulting Assistance Page.