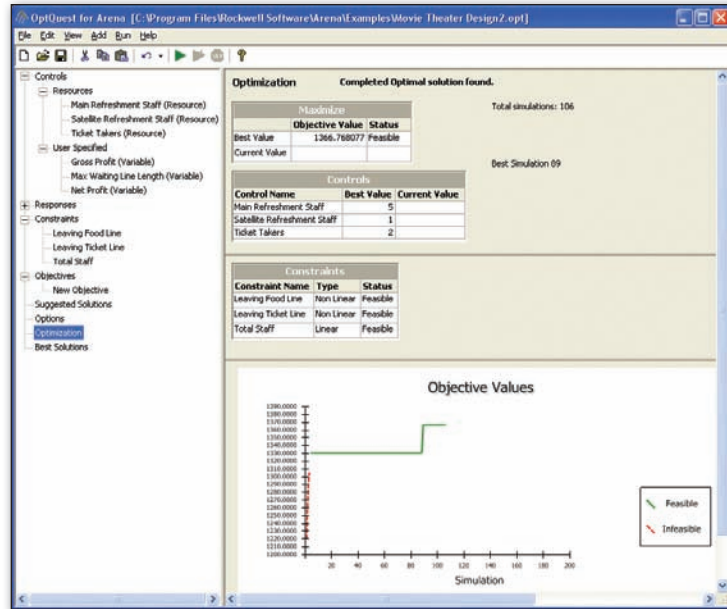


Advantages

- OptQuest® for Arena® allows you to model and experiment with several alternative scenarios so that you can select the one that best meets your objectives
- A complete separation of the model that represents the system and the procedure that solves optimization problems defined within this model provides maximum efficiency in identifying new scenarios
- Excellent search algorithms enhance the optimization responses
- Excellent analysis of solutions after an optimization has completed allows ranking, selection, and examination of solution details
- Advanced optimization techniques allow you to run additional replications for selected solutions

Speed your decision-making process by optimizing your modeling scenarios to find a better answer...faster and more efficiently.



Overview

The Arena® family of simulation software from Rockwell Automation includes (optional on some products) an optimization module called OptQuest® for Arena®. Developed by OptTek Systems, Inc., OptQuest employs state-of-the-art optimization techniques based on years of extensive research. Combining OptQuest’s optimization search technologies with the power of Arena’s leading-edge simulation technology, you will find quick answers to questions like these:

- *What’s the optimal inventory strategy to meet our delivery schedules?*
- *How should I allocate my buffers to maximize production under the space constraints in the new facility?*
- *How many service representatives do I need during non-peak hours to maintain an average customer response time of 20 seconds?*

Optimization: Turbo-Charge Your Decision-Making

Simulation is a powerful “what-if” technology that allows you to model and experiment with several alternative scenarios so that you can select the one that best meets your objectives. In most practical settings, however, there are numerous interrelated alternatives that should be considered in order to uncover the best course of action. Evaluating every such alternative can become extremely unwieldy and time-consuming. Optimization offers you an efficient way to search for and identify scenarios that merit further investigation.

Using OptQuest for Arena, you will spend your time simulating and analyzing only those scenarios that are likely to yield feasible solutions rather than wasting your time investigating dead ends.

Features

- Intuitive Explorer interface makes it easy to view and access components of your optimization model.
- Tree view with controls and responses organized by user-specified category makes it easy for you to browse and select candidate controls and responses in large models.
- Enhanced search algorithms, including improved solution combination algorithms and new solution analysis tools.
- Ability to select and edit multiple controls.
- Enhanced constraint definition, including combining controls and responses and allowing both linear and non-linear expressions.
- Enhanced objective definition, including combining controls and responses and allowing both linear and non-linear expressions.
- Suggested Solutions allows you to enter your own suggested solutions as well as save your solutions from an optimization and use them the next time the optimization is run.
- Enhanced analysis of solutions after an optimization has completed allows ranking, selection, and examination of solution details.
- Efficient Frontier graph displays the best objective value for each bound of a constraint, which may be varied during optimization. The grid at the top tells you the actual constraint value for the bound as well as the objective value.
- Advanced optimization techniques allow you to run additional replications for selected solutions.

Benefits

Arena and OptQuest: A Winning Combination
Fine-tuned to work with the suite of Arena products, OptQuest for Arena lets you define various system inputs (controls and constraints) and desired system outputs (objective functions). OptQuest guides the process of selection of system inputs, and then it executes the model by running several scenarios for each set of inputs in order to achieve the desired system outputs.

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Efficient

OptQuest is a generic optimizer that makes it possible to separate successfully the optimization solution procedure from the simulation model. This design adaptation of meta-heuristic methods lets you create a model of your system that includes as many elements as necessary to represent the “real thing” accurately. While the simulation model can change and evolve to incorporate additional elements, the optimization routines remain the same. Hence, there is a complete separation of the model that represents the system and the procedure that solves optimization problems defined within this model, which provides maximum efficiency in identifying new scenarios.

Intelligent

OptQuest uses search outputs as self-learning aids to seek the next set of alternatives intelligently. If an alternative in its search space does not fit the constraints you defined, it is automatically eliminated, and better alternatives that are more likely to match your needs are explored. The optimization procedure uses the outputs from the simulation model to evaluate the inputs to the model. The optimization procedure performs a special “non-monotonic search,” where the successively generated inputs produce varying evaluations, not all of them improving, but which over time provide a highly efficient path to the best solutions.

Flexible

OptQuest allows you to define explicitly integer and linear constraints (such as budget limits, space restrictions, and workforce allocations), as well as boundaries on your objective functions. You can even include logical conditions to better refine your search. OptQuest for Arena keeps you in complete control of your decision-making process.

Aggressive

OptQuest’s search techniques have been shown to be orders of magnitude faster than competing search techniques. The combination of efficiency in search methods, self-learning, and flexibility provides the most aggressive search toward the best solution.

More Information

For more information and pricing of Arena software, please contact the U.S. Rockwell Automation office at arena-info@ra.rockwell.com or contact your local Arena reseller. A listing of worldwide Arena resellers may be found at www.ArenaSimulation.com.