GAMS

Optimization

www.gams.com

Support

Sales

Solvers

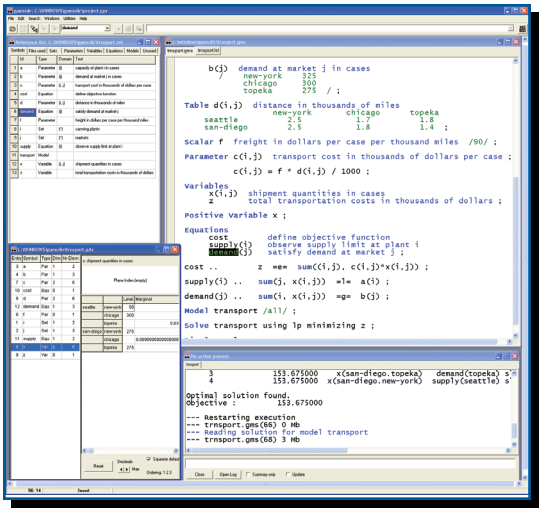
Documentation

Model Library

gamsworld.org

High-Level Modeling

The General Algebraic Modeling System (GAMS) is a **high-level modeling system** for mathematical programming problems. GAMS is tailored for complex, large-scale modeling applications, and allows you to build large maintainable models that can be adapted quickly to new situations. Models are **fully portable** from one computer platform to another.



GAMS Integrated Developer Environment for editing, debugging and solving models and viewing data.

Wide Range of Model Types

GAMS allows the formulation of models in **many different problem classes**, including

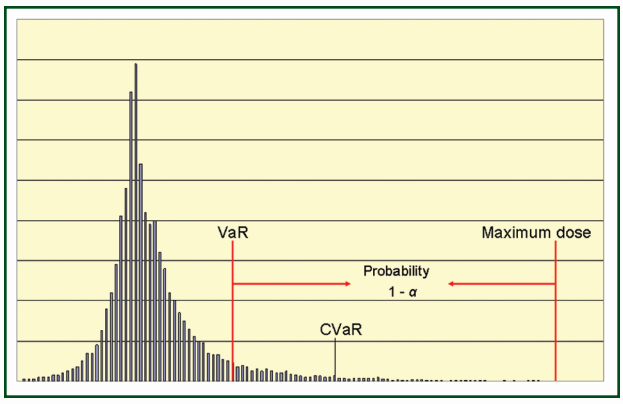
- Linear (LP) and Mixed Integer Linear (MIP)
- Quadratic Programming (QCP) and Mixed Integer QCP (MIQCP)
- Nonlinear (NLP) and Mixed Integer NLP (MINLP)
- Constrained Nonlinear Systems (CNS)
- Mixed Complementarity (MCP)
- Programs with Equilibrium Constraints (MPEC)
- Conic Programming Problems
- Stochastic Linear Problems

State-of-the-Art Solvers

GAMS incorporates all major commercial and academic **state-of-the-art solution technologies** for a broad range of problem types, including global nonlinear optimization solvers.

Framework for Novel Mathematical Programming Reformulations

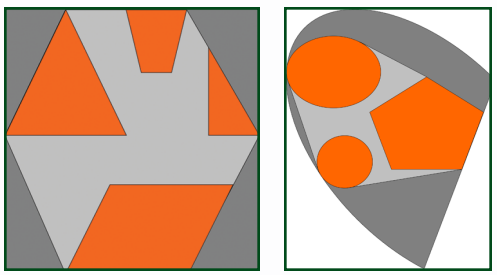
GAMS supports representation of a wide collection of established mathematical programming problems. New trends in research lead to models that have outgrown the traditional algebraic representation. GAMS provides new facilities for seamless integration of these new model types by means of an automatic reformulation framework.



CVaR Constraints: Mean Excess Dose (Radiotherapy)

Models with constructs listed below benefit from the new reformulation framework:

- **conditional value at risk (CVaR)**
- **disjunctions**
- **extended non-linear programs**
- **indicator constraints**
- **stochasticity**
- **logic based optimization**



Convex Hull and Big-M Relaxation

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