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.

A Wide Range of Model Types

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

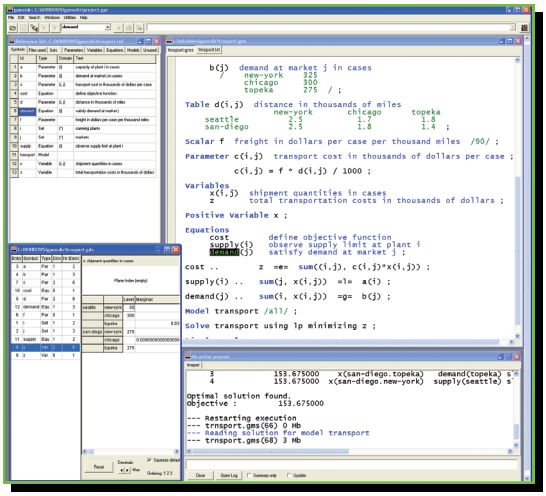
- Linear (LP) and Mixed Integer Linear (MIP)
- Quadratic Programming (QCP) and Mixed Integer QCP (MIQCP)
- Nonlinear (NLP) and Mixed Integer NLP (MINLP)
- Constrained Nonlinear Systems (CNS)
- Mixed Complementary (MCP)
- Programs with Equilibrium Constraints (MPEC)
- Conic Programming Problems
- Stochastic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

Performance of NLP Solver Portfolio

Below we show performance profile plots of **GAMS** local **NLP** slovers on three different subsets of models of the **GLOBALLib** library of **NLP** models. Each profile plot shows a subset of models where one solver performs best (in terms of solver time), illustrating the advantage of having a portfolio of solvers.



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

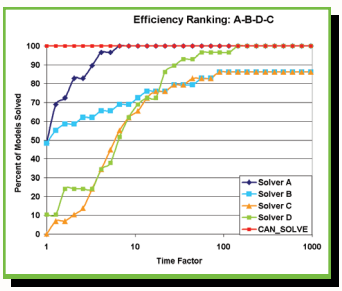
Nonlinear Programming in GAMS

GAMS offers a portfolio of diverse **local nonlinear programming solvers** using a variety of approaches suitable for almost any situation, including:

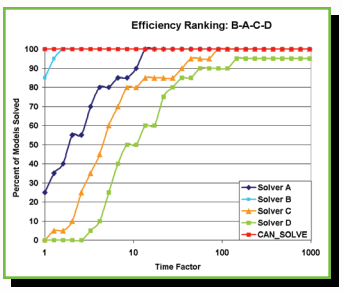
- CONOPT (GRG, SQP, SLP)
- KNITRO—***NEW (Interior Point)***
- MINOS (Augmented Lagrangian)
- SNOPT (SQP)

We also have a suite of **global optimization solvers** for nonlinear and mixed integer nonlinear programs:

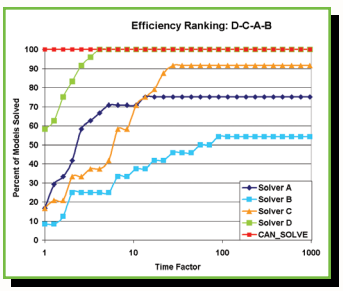
- BARON (Branch and reduce)
- LGO (Branch and bound based global search)
- MSNLP (Multistart)
- OQNLP (Multistart using OptQuest scatter search)



Subset 1



Subset 2



Subset 3

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