Modeling for the Real World

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.

Multiple Model Types

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

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

Global Optimization Applications

Many real world applications require global solutions. Such problems may arise in:

- Engineering Design
- Molecular Design and Bioinformatics
- Parameter Estimation
- Supply Chain Design and Operation

where global optimality is vital. The GAMS model library at http://www.gams.com/modlib/ includes over 250 sample models of all supported model types, including global optimization applications.

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 a range of global solvers (nonlinear and mixed integer nonlinear). Our portfolio of global solvers uses diverse approaches, such as:

- Convexification and Deterministic Bounds (BARON)
- Lipschitz-Continuous Partition and Search (LGO)
- Multi-Start Using the OptTek Search Technology (OQNLP)