

Bruce McCarl's GAMS Newsletter Number 7

GAMS 20.2 a new release

GAMS Corporation has recently released version 20.1 and then followed it with version 20.2. These contain a number of new features that merit discussion. This version even has associated release notes <http://www.gams.com/docs/release/release.htm>. The new release contains:

New Solvers

CPLEX 7.5. The latest version of CPLEX has a number of features to facilitate improved memory performance on large models. This includes a version of barrier that can go out of core, presolve problem compression and improved node file memory management under mixed integer programming. For elaboration see the GAMS/Cplex release notes http://www.gams.com/release/docs/rel_cplex.html PATHNLP a version of PATH that can solve NLP's. It automatically forms the first order conditions and then does a normal PATH solve. It performs well as long as the problem has proper convexity characteristics, and is not unbounded or infeasible. It's forte is large problems with many (10-100K) degrees of freedom and nonlinear variables, as many other solvers will hit a superbasics limit on these. Typically second-order convergence is observed. More on this in the release notes <http://www.gams.com/docs/release/release.htm>. New MCP/MPSGE solvers are available -- PATHC and MILESE. PATHC does problem preprocessing. More on this in the release notes <http://www.gams.com/docs/release/release.htm>, and the PATH solver manual. BARON a global optimizing non linear programming solver that finds all solutions for non convex problems is available in Beta form. Other global solvers are being brought in. The web site <http://gamsworld.org/global/solvers.htm#BARON> provides details and the site <http://gamsworld.org/global/globalib.htm> provides examples. OSL3 <http://www-3.ibm.com/software/data/bi/osl/index.html> and XPRESS (to version 12.5 in 20.1 and 13.01 in 20.2) <http://dashoptimization.com/> are updated to make new libraries available. CONOPT3 is available in Beta form. No real details available but you might check <http://www.conopt.com>.

Security features

Access to displays, limrow, limcol on marked items can be limited to those with particular types of license files. Access is implemented through new commands that allow one to identify the security status of particular objects (equations, variables, parameters) using a set of new commands. The new commands are \$protect, \$purge, \$hide and \$expose associated with either the name of the item in GAMS or may include the word all. This security feature will only allow items to be displayed by individuals with a particular license file. An extra fee will likely be involved to obtain such a license file. Security may be invoked prohibiting or limiting the directories to which one can gain disc or whether programs can be executed in the context of the commands \$call, \$execute, \$echo, \$put and \$include, \$batinclude and \$libinclude. For details see the documentation <http://www.gams.com/docs/privacy.pdf>.

Converter Program

The GAMS CD now contains a converter program which provides a translator of GAMS files to other modeling languages such as AMPL. A GAMS model can be translated and run under the solvers available on the other systems. Capabilities may also be developed to import back the solution into GAMS. This system is also available over the internet at <http://www.gamsworld.org/translate.htm>.

New Model Library Entries

The model library has several new files including the COPS nonlinear test problems and a number of new MINLP problems.

Courses offered

I teach [Advanced GAMS](#) in College Station, Texas January 7-10, 2002 and [Basic GAMS](#) in May 13-16, 2002. Further

information and other courses are listed on <http://www.gams.com/courses.htm>.

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November 27, 2001