

GAMS Newsletter Number 3

by Bruce McCarl

GAMS Library expanded

GAMS using the new Library Manager discussed in the last newsletter and some internal developments has expanded the model library. Among other things, the new models illustrate use of some of new solver and GAMS capabilities (such as the use of constrained nonlinear system CNS: models as illustrated by korcns,gancnsx,gancns,camcns, as well as the use of MINLP models with integers:spring,pump,trimloss,gear) and some modeling tricks (ways to include discontinuous functions like abs, min, max, and sign using discrete variables as illustrated in absmip, and the importance of initial starting points in NLP models: circle). A complete list of the model library files including the new ones is on <http://www.gams.com/modlib/modlib.htm>.

Developments Regarding Solvers

GAMS continuously works on and updates the software it releases. Recent releases particularly the most recent (19.6) embody some developments on the solver front

Namely

1. CPLEX 7 is available and features a simplified licensing process plus improved (more compact) memory management for the branch and bound tree.
2. XPRESS is another choice for large LP and MIP problems and now runs on many platforms.
3. There is a new solver for solving MINLPs: SBB. An announcement on its capabilities and procedure to obtain an evaluation license are on http://www.conopt.com/sbb/SBB_announcement.htm A manual on it is in <http://www.gams.com/docs/solver/sbb.pdf>.
4. DICOPT can now solve models with integer variables even though the documentation says 0-1 only

The BDMLP solver which is included when you buy base GAMS now can solve mixed integer problems. Note however that this is not a highly capable solver and the other choices such as CPLEX, OSL, XPRESS, XA are generally better for extensive MIP work.

For more solver details see <http://www.gams.com/solvers/solvers.htm>.

Courses offered

I teach advanced GAMS in Texas in January 2001. Further information and other courses are listed on <http://www.gams.com/courses.htm>.

Conditional Compilation

Do you know that there is a command language in GAMS that permits substitutable parameters and you can write code that for example deals with a set if a set is sent to it or a parameter when it receives a parameter. For details see <http://www.gams.com/mccarl/control.pdf>

Change Options from Command line

You can specify many of the GAMS options by adding to the command line (or the command line box in the IDE)

```
gams copper mip=xpress limrow=10 optcr=0.01
```

Presentations and Additional Documentation

GAMS has introduced a new section on it's web server which features GAMS related presentations at <http://www.gams.com/presentations/>. Among others you find nine presentations from the Fall 2000 INFORMS meeting and my collection of GAMS documents.

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