Bruce McCarl's GAMS Newsletter Number 23

Expanded GAMS User's Guide by McCarl et al

The Expanded GAMS User's Guide by McCarl et al was recently updated to be compatible with version 22.6 of GAMS. This document will be distributed with GAMS systems 22.7 and newer. For the time being a pdf copy is available. All of the new GAMS and IDE features below are discussed in this document.

New language commands

GAMS as documented in the updated Expanded GAMS Users Guide now includes
- A major improvement for those who use the $IF syntax with addition of an $ENDIF so one does not need to use $GOTO when one wants multiple commands conditional on an control variable. Specifically there are **$IFTHEN, $IFTHENI, $ELSEIF and $ELSIFI, $ELSE, $ENDIF** statements.
  The syntax follows the $IF structure and allows nesting. The syntax for the condition are the same as for the $if statement. The $IFTHEN and $ELSEIF are case sensitive and the $IFTHENI and $ELSEIFI are **not** case sensitive. An example follows

        $setglobal aroundit
        $ifthen setglobal aroundit
                display "statement 1";
                display "statement 2";
        $else
                display "statement 3";
        $endif
- A new option Option **dispwidth**=n which can widen the allowed with of column labels in display statements where n can be as large as 20.
- Sets now have attributes where one can place the order, element name length and other attributes in computations using **.ord, .pos, .len** and others.
- A new put file option **.tn** that puts out the name of a parameter and all of its set element text.
- Minor changes to get license errors, redirect LST file output to standard error file, longer strings in $call and a model attribute to give number of bound projections.

Most of these are discussed in http://www.gams.com/docs/release/release.htm and the elaborated version http://www.gams.com/docs/release/rel_cmex226.htm.

Expanded labels and dimensions

GAMS has not fully released but has implemented features that allows items like parameters, variables, sets, and equations to have as many as 20 dimensions expanding this upwards from 10. Set labels and item names can now be 63 characters expanded from 31. They encourage experimentation with these features.

CPLEX MIP Solution and Tuning

A CPLEX update includes

- MIP option tuning -The CPLEX option file can now include the option TUNING that invokes a CPLEX tuning tool that adjusts CPLEX options to try to reduce model solution time (my impression is that this is mainly for MIP s) helping you discover parameter settings that lead to faster solves time.
- Improved Mixed Integer Programming (MIP) Performance – a new dynamic search approach is incorporated and is used by default that apparently finds feasible and optimal solutions more quickly than conventional branch & cut for many models.
- Enhanced Parallel MIP - automatic solutions procedures that run parallel jobs as controlled by option ParallelMode.
- Multiple MIP Solutions where you now can cause CPLEX?GAMS to generate and store multiple solutions to a problem collecting.
  - All solutions within a given tolerance of the optimal solution.
  - All solutions or all optimal solutions for a model

These are discussed in the CPLEX version 11 model release notes at
http://www.gams.com/docs/release/rel_cplex110.htm .

Mac Version

GAMS and most solver versions now run on the Mac (Power PC
and Intel 32). The release notes http://www.gams.com/docs/release/release.htm give a
solver capabilities matrix.

GAMSIDE

- The spell checker is now in the edit menu
- The GDXviewer now supports Excel 2007 format xlsx
- The GDXviewer has an integrated symbol search

Solvers

New versions are present for AlphaECP, BARON, COINCLP, COINGLPK,
COINIPOPT , COINBONMIN, CPLEX, LINDOGLOBAL, MOSEK, and XPRESS

Other

- GDXXRW now supports Excel 2007 format xlsx
- New library models are present as covered in the release notes

Courses offered

I teach

[Basic GAMS](#) June 10-13, 2008 (3 1/2 days) in the Colorado mountains at Frisco (near Breckenridge). The course is designed for those without GAMS usage experience but has also proved useful for those with up to a years experience.

[Advanced large scale GAMS modeling with an emphasis on agriculture, forestry and the environment](#) – May 5-8, 2008 (3 1/2 days) at the IIASA facility near Vienna (in Laxemburg), Austria . The course is designed for those interested in applying GAMS modeling to large scale modeling and will draw on case studies from my experiences in agricultural and forestry sectoral analysis largely in the climate change arena.

[Advanced GAMS class](#) Aug 5-8, 2008 (3 1/2 days) in the Colorado mountains at Frisco (near Breckenridge). The course covers such diverse topics as links to other programs like spreadsheets, speeding up GAMS, scaling, debugging, improving output and advanced basis use along with many other topics.

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

Unsubscribe to future issues of this newsletter

To remove your name, please send an email to mccarl-news-request@gams.com containing unsubscribe on the subject line or unsubscribe through the web form http://www.gams.com/maillist/newsletter.htm.

This newsletter is not a product of GAMS Corporation although it is distributed with their cooperation.

February 14, 2008