
DATAFORM is a comprehensive model management system for mathematical programming applications.

DATAFORM is a model database manager and a structured procedural language for data manipulation, matrix generation, optimization control, and report writing for mathematical programming models.

DATAFORM is the primary tool for the model builder. *DATAFORM* functionality allows the model builder to perform any required preprocessing of the data, generate the matrix, call a linear or mixed integer optimizer, analyze the solution, modify and re-optimize the model as necessary, and produce a set of reports which accurately portray the solution. *DATAFORM* allows all these tasks to be performed seamlessly within one program in an integrated and efficient manner.

FEATURES

DATABASE MANAGEMENT - *DATAFORM* provides an efficient hierarchical database for the organization of all data used in the mathematical modeling process. Data tables, matrices, optimal solutions, and solution bases are easily stored in and retrieved from the *DATAFORM* model database. The basic unit of data storage is a two-dimensional table with row and column names. Data may be logically accessed, viewed, and edited as multi-dimensional tables.

The hierarchical structure of the model database strongly supports case management. Multiple scenarios are easily established, exploited, and maintained.

COMMUNICATION - A primary ingredient in *DATAFORM*'s capability is that it has access to the entire model environment. This includes everything in *DATAFORM*'s workspace, on model databases, MPSIII's variables, control program variables, etc.

DATA MANIPULATION - *DATAFORM*'s matrix generation and report writing facilities are extremely powerful and easy to learn. The matrix is generated in any convenient order, not in an arbitrary fixed sequence dictated by the system. In addition, *DATAFORM* can take on the full data processing burden of your mathematical programming application. The data table structure and the virtual workspace support programs that automatically adjust to the size of data tables. LOOP-blocks and IF-blocks improve program quality with a corresponding decrease in programming effort.

MODULARITY - *DATAFORM*'s ability to incorporate subprograms in various languages, including *DATAFORM*, enhances its scope, encourages modular design, and allows the use of technology in pre-existing program libraries. *DATAFORM*'s workspace and model database are accessible to programs written in C, Basic, FORTRAN, etc., via the database manager or OML.

RECURSION CONTROL - *DATAFORM*'s full integration with MPSIII supports Successive Linear Programming (SLP) through direct access to the memory-resident optimal solution and all data on the model database; full arithmetic capability for solution analysis; direct revision of the memory-resident matrix; and high-speed optimization with restarts from previous solutions.

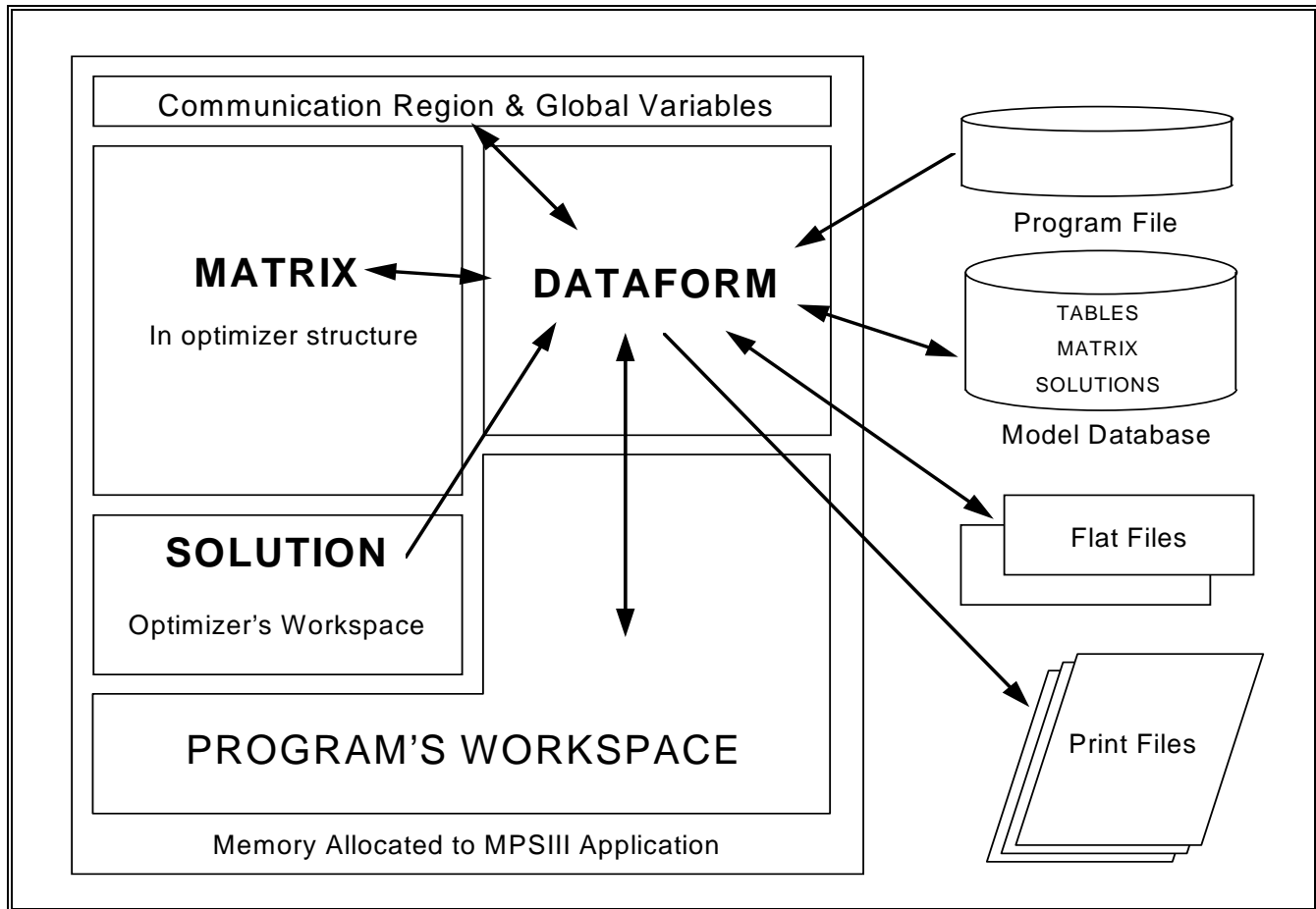
HOST LANGUAGE INTERFACE - *OML* provides read and write access to tables in the *DATAFORM* model database from programs written in other languages. *OML* directly transfers data between corporate databases and the *DATAFORM* modeling environment without using intermediate transfer files.

EXECUTION CONTROL - *DATAFORM* has the ability to take over the entire MPSIII model run. The use of *DATAFORM* as the execution control language has several advantages including access to all model-related data and a full-featured language for decision-making and control sequences.

DATAFORM, A Model Management System from KMS Optimization Products

DATAFORM is one component of MPSIII. It supports the use of all other MPSIII components including: *WHIZARD*, the high-performance scalar simplex optimizer on IBM and compatible mainframe systems; *C-WHIZ*, the portable optimizer for use on personal computers and workstations; and *MIPIII*, the mixed-integer optimizer.

SUPPORT: Technical support for *DATAFORM* users includes training, consulting services, and a telephone hotline. One of the regularly scheduled KMS Optimization Products seminars is the *DATAFORM* Workshop. Consulting services comprise model formulation, prototyping, and development of complete applications.



DATAFORM Gives You Immediate Access to the Entire Model Environment

The matrix generated by *DATAFORM* is stored on the model database in an internal form that is ready to be set up for optimization. An important advantage is execution speed; since the sequential MPS standard input file does not exist, the CONVERT step is no longer necessary.

The traditional problem file is completely replaced by the MPSIII model database, an extended problem file that contains all relevant model data, not just the matrix. The model database is a hierarchically organized, balanced binary, random access file.

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