READ MATRIX

PURPOSE

Reads data into a matrix:

1. from a mass storage file;

2. from within a CALLed DATAPLOT sub-program;

3. from the terminal.

DESCRIPTION

The rules regarding READ MATRIX are as follows:

1. Only one matrix is read for a given READ MATRIX command (additional matrices on the READ MATRIX line are ignored).

2. In scanning for the matrix, the full line image is scanned (for reading from a mass storage file, the full line image is 132 columns; for reading from within a sub-program and for reading from the terminal, the full line image is 80 columns). For variations on this, see the COLUMN LIMITS command.

3. Data values on a line image must be separated by at least one blank.

4. Data values can be free format. They need not be aligned in specific columns.

5. The format of individual data values is general. It can be integer, floating point, or exponential. It is stored internally as a single precision real number.

6. By default, all reads start from the beginning of the file (to override this, see the SKIP and ROW LIMITS commands).

7. The size of the matrix is automatically determined by DATAPLOT based on the number of rows and the number of columns that are encountered in the READ. DATAPLOT reports these values at the end of the read.

8. The read terminates when a line image is encountered which consists of

   END OF DATA (or END DATA)

or when the end of the file is reached.

9. The individual columns of the matrix are available as variables (e.g., for matrix M, the columns are M1, M2, and so on). In choosing a name for the matrix, make sure that M1, M2, etc. have not already been used as variables, parameters, functions, or strings.

SYNTAX 1

READ MATRIX <mat>
where <mat> is the name for the matrix.

This syntax is used to read a matrix from the terminal or from within a DATAPLOT sub-program. For example, READ MATRIX M.

SYNTAX 2

READ MATRIX <file> <mat>
where <file> is the name of the mass storage file where the data resides;
and   <mat> is the name for the matrix.

This syntax is used to read a matrix from a file. For example, READ MATRIX CALIB.DAT M.

EXAMPLES

READ MATRIX CALIB. M

NOTE 1

By default, DATAPLOT does free format reads. However, it has the capability for supporting Fortran style formats. Formatted reads can be about 10 times faster on many systems. This can be helpful for large data files. See the documentation for READ FORMAT for more details.

NOTE 2

Blank lines in data files are ignored.

NOTE 3

DATAPLOT supports the ability to embed comment lines within the data file. See the documentation for COMMENT CHECK for details.

NOTE 4

> In order to determine whether the first argument is a file name or a variable name, it looks for a period in the name. If it finds one, it assumes a file name. If it does not, it assumes a variable name. If your file name does not contain a period, attach a trailing period (no spaces) to the file name on the READ command.

NOTE 5

> DATAPLOT has no restrictions on the file name other than it be a valid file name on the local operating system and that it contain a period "." in the file name itself or as a trailing character. DATAPLOT strips off trailing periods on those systems where it is appropriate to do so. On systems where trailing periods can be a valid file name (e.g., Unix), DATAPLOT tries to open the file with the trailing period. If this fails, it then tries to open the file with the trailing period stripped off.

> Some users prefer to give all data files a ".DAT" or ".dat" extension. Although this is a useful method for keeping track of data files, it is strictly a user convention and is not enforced by DATAPLOT in any way.

NOTE 6

> File names are case sensitive on Unix file systems. For Unix, DATAPLOT attempts to open the file as given. If this fails, it attempts to open the file as all upper case characters. If this fails, it attempts to open the file as all lower case characters. All other currently supported systems are not case sensitive regarding file names.

> As a further caution for Unix hosts, certain expansion characters (specifically ~ to refer to your home directory) are interpreted by the shell and are not recognized by the Fortran compiler. These expansion characters are interpreted as literal characters and do not yield the intended file name.

DEFAULT

> **1.** If no file name in the READ MATRIX command is specified and a CALL is being executed, then the data values should be listed directly in the DATAPLOT sub-program immediately after the READ MATRIX command (do not forget the END OF DATA statement).

> **2.** If no file name in the READ MATRIX command is specified and commands are being manually entered/executed one at a time from the terminal, then the data should be entered directly from the terminal immediately after the READ MATRIX command (also terminated by an END OF DATA statement).

SYNONYMS

> None

RELATED COMMANDS

> | MATRIX DEFINITION | = | Copy variables into a matrix. |
> |---|---|---|
> | SERIAL READ | = | Perform a serial read. |
> | SET READ FORMAT | = | Define a FORTRAN style format for reads. |
> | READ | = | Read variables. |
> | READ PARAMETER | = | Read a parameter. |
> | READ STRING | = | Read a string. |

APPLICATIONS

> Data input

IMPLEMENTATION DATE

> 87/4

PROGRAM

> READ MATRIX M
> 1 3 2
> 7 3 1
> 8 1 2
> END OF DATA
> PRINT M
> PRINT M1 M2 M3