NAG Library Routine Document

E05JGF

Note: before using this routine, please read the Users' Note for your implementation to check the interpretation of ***bold italicised*** terms and other implementation-dependent details.

1 Purpose

E05JGF may be used to supply individual real optional parameters to E05JBF. The initialization routine E05JAF **must** have been called before calling E05JGF.

2 Specification

```
SUBROUTINE E05JGF (OPTSTR, RVALUE, COMM, LCOMM, IFAIL)
INTEGER            LCOMM, IFAIL
REAL (KIND=nag_wp) RVALUE, COMM(LCOMM)
CHARACTER(*)       OPTSTR
```

3 Description

E05JGF may be used to supply values for real optional parameters to E05JBF. It is only necessary to call E05JGF for those parameters whose values are to be different from their default values. One call to E05JGF sets one parameter value.

Each real optional parameter is defined by a single character string in OPTSTR and the corresponding value in RVALUE. For example the following illustrates how the local searches tolerance could be defined:

```
LOCTOL = 1.0E-10
CALL E05JGF ('Local Searches Tolerance', LOCTOL, COMM, LCOMM, IFAIL)
```

A complete list of optional parameters, their symbolic names and default values is given in Section 12 in E05JBF.

4 References

None.

5 Parameters

1: OPTSTR – CHARACTER(*) *Input*

On entry: a string identifying a real-valued optional parameter (as described in Section 12 in E05JBF).

2: RVALUE – REAL (KIND=nag_wp) *Input*

On entry: the value associated with the optional parameter in OPTSTR.

3: COMM(LCOMM) – REAL (KIND=nag_wp) array *Communication Array*

On exit: COMM **must not** be altered between calls to any of the routines E05JBF, E05JCF, E05JDF, E05JEF, E05JFF, E05JGF, E05JHF, E05JJF, E05JKF and E05JLF.

4: LCOMM – INTEGER *Input*

On entry: the dimension of the array COMM as declared in the (sub)program from which E05JGF is called.

Constraint: LCOMM ≥ 100.

5: IFAIL – INTEGER *Input/Output*

On entry: IFAIL must be set to 0, -1 or 1. If you are unfamiliar with this parameter you should refer to Section 3.3 in the Essential Introduction for details.

For environments where it might be inappropriate to halt program execution when an error is detected, the value -1 or 1 is recommended. If the output of error messages is undesirable, then the value 1 is recommended. Otherwise, if you are not familiar with this parameter, the recommended value is 0. **When the value -1 or 1 is used it is essential to test the value of IFAIL on exit.**

On exit: IFAIL $= 0$ unless the routine detects an error or a warning has been flagged (see Section 6).

6 Error Indicators and Warnings

If on entry IFAIL $= 0$ or -1, explanatory error messages are output on the current error message unit (as defined by X04AAF).

Errors or warnings detected by the routine:

IFAIL $= 1$

Initialization routine E05JAF has not been called.

On entry, LCOMM $= \langle value \rangle$.
Constraint: LCOMM ≥ 100.

IFAIL $= 2$

The supplied optional parameter is invalid. A keyword or keyword combination was not recognized.

IFAIL $= 3$

Attempt to assign an out-of-bounds value of **Infinite Bound Size** ($infbnd$): $infbnd = \langle value \rangle$.

Attempt to assign too small a value of **Local Searches Tolerance** ($loctol$): $loctol = \langle value \rangle$.

Attempt to assign too small a value of **Target Objective Error** ($objerr$): $objerr = \langle value \rangle$.

Attempt to assign too small a value of **Target Objective Safeguard** ($objsfg$): $objsfg = \langle value \rangle$.

IFAIL $= -99$

An unexpected error has been triggered by this routine. Please contact NAG.

See Section 3.8 in the Essential Introduction for further information.

IFAIL $= -399$

Your licence key may have expired or may not have been installed correctly.

See Section 3.7 in the Essential Introduction for further information.

IFAIL $= -999$

Dynamic memory allocation failed.

See Section 3.6 in the Essential Introduction for further information.

7 Accuracy

Not applicable.

8 Parallelism and Performance

E05JGF is threaded by NAG for parallel execution in multithreaded implementations of the NAG Library.

Please consult the X06 Chapter Introduction for information on how to control and interrogate the OpenMP environment used within this routine. Please also consult the Users' Note for your implementation for any additional implementation-specific information.

9 Further Comments

E05JCF or E05JDF may also be used to supply real optional parameters to E05JBF.

10 Example

See Section 10 in E05JCF.