# NAG Fortran Library Routine Document

# E04NUF

**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

To supply individual ***double precision*** optional parameters to E04NQF. The initialization routine E04NPF **must** have been called prior to called E04NUF.

## 2 Specification

```
SUBROUTINE E04NUF (STRING, RVALUE, CW, IW, RW, IFAIL)
INTEGER             IW(*), IFAIL
double precision    RVALUE, RW(*)
CHARACTER*(*)       STRING
CHARACTER*8         CW(*)
```

## 3 Description

E04NUF may be used to supply values for ***double precision*** optional parameters to E04NQF. It is only necessary to call E04NUF for those parameters whose values are to be different from their default values. One call to E04NUF sets one parameter value.

Each ***double precision*** optional parameter is defined by a single character string in STRING and the corresponding value in RVALUE. For example the following illustrates how the *LU* stability tolerance could be defined:

```
FACTOL = 100.0D0
IF (ILLCON) FACTOL = 5.0D0
CALL E04NUF ('LU Factor Tolerance', FACTOL, CW, IW, RW, IFAIL)
```

Optional parameter settings are preserved following a call to E04NQF and so the keyword **Defaults** is provided to allow you to reset all the optional parameters to their default values prior to a subsequent call to E04NQF.

A complete list of optional parameters, their abbreviations, synonyms and default values is given in Section 11 of the document for E04NQF.

## 4 References

None.

## 5 Parameters

1: STRING – CHARACTER*(*) *Input*

*On entry*: a single valid keyword of an ***double precision*** optional parameter (as described in Section 11 of the document for E04NQF).

2: RVALUE – ***double precision*** *Input*

*On entry*: the value associated with the keyword in STRING.

3: CW(∗) – CHARACTER*8 array *Communication Array*
4: IW(∗) – INTEGER array *Communication Array*
5: RW(∗) – ***double precision*** array *Communication Array*

The arrays CW, IW and RW are defined in the document for E04NPF and **must not** be altered between calls to any of the routines E04NPF, E04NQF, E04NRF, E04NSF, E04NTF, E04NUF, E04NXF and E04NYF.

6: IFAIL – INTEGER *Input/Output*

*On entry*: IFAIL must be set to 0, −1 or 1. Users who are unfamiliar with this parameter should refer to Chapter P01 for details.

*On exit*: IFAIL = 0 unless the routine detects an error (see Section 6).

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, for users 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.**

## 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

The initialization routine E04NPF has not been called.

IFAIL = 2

The supplied option is invalid. Check that the keywords are neither ambiguous nor misspelt.

## 7 Accuracy

Not applicable.

## 8 Further Comments

E04NRF or E04NSF may also be used to supply ***double precision*** optional parameters to E04NQF.

## 9 Example

See Section 9 of the document for E04NRF.