

# NAG Library Routine Document

## E04NEF/E04NEA

**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 optional parameters to E04NCF/E04NCA. More precisely, E04NEF must be used to supply optional parameters to E04NCF and E04NEA must be used to supply optional parameters to E04NCA.

E04NEA is a version of E04NEF that has additional arguments in order to make it safe for use in multithreaded applications (see Section 5). The initialization routine E04WBF **must** have been called before calling E04NEA.

### 2 Specification

#### 2.1 Specification for E04NEF

```
SUBROUTINE E04NEF (STR)
CHARACTER(*) STR
```

#### 2.2 Specification for E04NEA

```
SUBROUTINE E04NEA (STR, LWSAV, IWSAV, RWSAV, INFORM)
INTEGER          IWSAV(610), INFORM
REAL (KIND=nag_wp) RWSAV(475)
LOGICAL          LWSAV(120)
CHARACTER(*)     STR
```

### 3 Description

E04NEF/E04NEA may be used to supply values for optional parameters to E04NCF/E04NCA. It is only necessary to call E04NEF/E04NEA for those arguments whose values are to be different from their default values. One call to E04NEF/E04NEA sets one argument value.

Each optional parameter is defined by a single character string, of up to 72 characters, consisting of one or more items. The items associated with a given option must be separated by spaces, or equals signs [=]. Alphabetic characters may be upper or lower case. The string

```
Print Level = 1
```

is an example of a string used to set an optional parameter. For each option the string contains one or more of the following items:

- a mandatory keyword;
- a phrase that qualifies the keyword;
- a number that specifies an integer or real value. Such numbers may be up to 40 contiguous characters in Fortran's I, F, E or D formats, terminated by a space if this is not the last item on the line.

Blank strings and comments are ignored. A comment begins with an asterisk (\*) and all subsequent characters in the string are regarded as part of the comment.

For E04NEF, each user-specified option is normally printed as it is defined, on the current advisory message unit (see X04ABF), but this printing may be suppressed using the keyword **Nolist**. Thus the statement

```
CALL E04NEF ('Nolist')
```

suppresses printing of this and subsequent options. Printing will automatically be turned on again after a call to E04NCF and may be turned on again at any time using the keyword **List**.

For E04NEA printing is turned off by default, but may be turned on at any time using the keyword **List**.

Optional parameter settings are preserved following a call to E04NCF/E04NCA and so the keyword **Defaults** is provided to allow you to reset all the optional parameters to their default values before a subsequent call to E04NCF/E04NCA.

A complete list of optional parameters, their abbreviations, synonyms and default values is given in Section 12 in E04NCF/E04NCA.

## 4 References

None.

## 5 Arguments

- 1: STR – CHARACTER(\*) *Input*  
*On entry:* a single valid option string (as described in Section 3 and in Section 12 in E04NCF/E04NCA).

**Note:** *the following are additional arguments for specific use with E04NEA. Users of E04NEF therefore need not read the remainder of this description.*

- 2: LWSAV(120) – LOGICAL array *Communication Array*  
 3: IWSAV(610) – INTEGER array *Communication Array*  
 4: RWSAV(475) – REAL (KIND=nag\_wp) array *Communication Array*

The arrays LWSAV, IWSAV and RWSAV **must not** be altered between calls to any of the routines E04NEA, E04NCA, E04NDA or E04WBF.

- 5: INFORM – INTEGER *Output*  
*On exit:* contains zero if a valid option string has been supplied and a value > 0 otherwise (see Section 6).

## 6 Error Indicators and Warnings

INFORM = 5

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

## 7 Accuracy

Not applicable.

## 8 Parallelism and Performance

E04NEF/E04NEA is not threaded in any implementation.

## 9 Further Comments

E04NDF/E04NDA may also be used to supply optional parameters to E04NCF/E04NCA.

## **10 Example**

See Section 10 in E04NDF/E04NDA.

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