

# NAG Fortran 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 parameters in order to make it safe for use in multithreaded applications (see Section 5 below). The initialisation routine E04WBF **must** have been called prior to calling E04NEA.

### 2 Specifications

#### 2.1 Specification for E04NEF

```
SUBROUTINE E04NEF (STRING)
CHARACTER*(*)    STRING
```

#### 2.2 Specification for E04NEA

```
SUBROUTINE E04NEA (STRING, LWSAV, IWSAV, RWSAV, INFORM)
INTEGER          IWSAV(610), INFORM
real           RWSAV(475)
LOGICAL          LWSAV(120)
CHARACTER*(*)    STRING
```

### 3 Description

E04NEF/E04NEA may be used to supply values for optional parameters to the corresponding routines E04NCF/E04NCA. It is only necessary to call E04NEF/E04NEA for those parameters whose values are to be different from their default values. One call to E04NEF/E04NEA sets one parameter 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) A mandatory keyword.
- (b) A phrase that qualifies the keyword.
- (c) A number that specifies an INTEGER or *real* value. Such numbers may be up to 16 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 prior to a subsequent call to E04NCF/E04NCA.

A complete list of optional parameters, their abbreviations, synonyms and default values is given in Section 11 of the document for E04NCF/E04NCA.

## 4 References

None.

## 5 Parameters

1: STRING – CHARACTER\*(\*) *Input*

*On entry:* a single valid option string (as described in Section 3 above and in Section 11 of the document for E04NCF/E04NCA).

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

2: LWSAV(120) – LOGICAL array *Workspace*

3: IWSAV(610) – INTEGER array *Workspace*

4: RWSAV(475) – *real* array *Workspace*

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

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

Errors or warnings detected by the routine:

INFORM = 5

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

## 7 Accuracy

Not applicable.

## 8 Further Comments

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

## 9 Example

See Section 9 of the document for E04NDF/E04NDA.