

# NAG Library Routine Document

## E04NHF/E04NHA

**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 E04NFF/E04NFA. More precisely, E04NHF must be used to supply optional parameters to E04NFF and E04NHA must be used to supply optional parameters to E04NFA.

E04NHA is a version of E04NHF that has additional parameters in order to make it safe for use in multithreaded applications (see Section 5). The initialization routine E04WBF **must** have been called before calling E04NHA.

### 2 Specification

#### 2.1 Specification for E04NHF

```
SUBROUTINE E04NHF (STR)
```

```
CHARACTER(*) STR
```

#### 2.2 Specification for E04NHA

```
SUBROUTINE E04NHA (STR, LWSAV, IWSAV, RWSAV, INFORM)
```

```
INTEGER IWSAV(610), INFORM
```

```
REAL (KIND=nag_wp) RWSAV(475)
```

```
LOGICAL LWSAV(120)
```

```
CHARACTER(*) STR
```

### 3 Description

E04NHF/E04NHA may be used to supply values for optional parameters to E04NFF/E04NFA. It is only necessary to call E04NHF/E04NHA for those parameters whose values are to be different from their default values. One call to E04NHF/E04NHA 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 mandatory keyword;
- a phrase that qualifies the keyword;
- 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 E04NHF, 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 E04NHF ('NoList')
```

suppresses printing of this and subsequent options. Printing will automatically be turned on again after a call to E04NFF and may be turned on again at any time using the keyword **List**.

For E04NHA 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 E04NFF/E04NFA 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 E04NFF/E04NFA.

A complete list of optional parameters, their abbreviations, synonyms and default values is given in Section 11 in E04NFF/E04NFA.

## 4 References

None.

## 5 Parameters

1: STR – CHARACTER(\*) *Input*

*On entry:* a single valid option string (as described in Section 3 and in Section 11 in E04NFF/E04NFA).

**Note:** *the following are additional parameters for specific use with E04NHA. Users of E04NHF 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 E04NHA, E04NKA, E04NLA 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

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

E04NGF/E04NGA may also be used to supply optional parameters to E04NFF/E04NFA.

## **9 Example**

See Section 9 in E04NGF/E04NGA.

---