

# NAG Library Routine Document

## E02ZLF

**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

E02ZLF is used to query the value of optional parameters available to supported problem solving routines in Chapter E02. Currently, only E02JDF is supported.

### 2 Specification

```
SUBROUTINE E02ZLF (OPTSTR, IVALUE, RVALUE, CVALUE, OPTYPE, IOPTS, OPTS, &
                  IFAIL)
```

```
INTEGER          IVALUE, OPTYPE, IOPTS(*), IFAIL
REAL (KIND=nag_wp) RVALUE, OPTS(*)
CHARACTER(*)     OPTSTR, CVALUE
```

### 3 Description

E02ZLF is used to query the current values of options. It is necessary to initialize optional parameter arrays using E02ZKF before any options are queried.

E02ZLF will normally return either an integer, real or character value dependent upon the type associated with the optional parameter being queried. Whether the option queried is of integer, real or character type is indicated by the returned value of OPTYPE.

Information on optional parameter names and whether these options are real, integer or character can be found in Section 11 in E02JDF.

### 4 References

None.

### 5 Arguments

1: OPTSTR – CHARACTER(\*) *Input*

*On entry:* a string identifying the option whose current value is required. See Section 11 in E02JDF for information on valid options. In addition, the following is a valid option:

**Identify**

E02ZLF returns in CVALUE the routine name supplied to E02ZKF when the optional parameter arrays IOPTS and OPTS were initialized.

2: IVALUE – INTEGER *Output*

*On exit:* if the optional parameter supplied in OPTSTR is an integer valued argument, IVALUE will hold its current value.

3: RVALUE – REAL (KIND=nag\_wp) *Output*

*On exit:* if the optional parameter supplied in OPTSTR is a real valued argument, RVALUE will hold its current value.

4: CVALUE – CHARACTER(\*) *Output*

**Note:** the maximum length of the string returned in CVALUE depends on the problem solving routine in use. See Section 11.1 of the relevant solver.

*On exit:* if the optional parameter supplied in OPTSTR is a character valued argument, CVALUE will hold its current value, unless **Identify** is specified (see OPTSTR).

5: OPTYPE – INTEGER *Output*

*On exit:* indicates whether the optional parameter supplied in OPTSTR is an integer, real or character valued argument and hence which of IVALUE, RVALUE or CVALUE holds the current value.

OPTYPE = 1

OPTSTR is an integer valued optional parameter, its current value has been returned in IVALUE.

OPTYPE = 2

OPTSTR is a real valued optional parameter, its current value has been returned in RVALUE.

OPTYPE = 3

OPTSTR is a character valued optional parameter, its current value has been returned in CVALUE.

6: IOPTS(\*) – INTEGER array *Communication Array*

**Note:** the dimension of this array is dictated by the requirements of associated functions that must have been previously called. This array **must** be the same array passed as argument IOPTS in the previous call to E02ZKF.

7: OPTS(\*) – REAL (KIND=nag\_wp) array *Communication Array*

**Note:** the dimension of this array is dictated by the requirements of associated functions that must have been previously called. This array **must** be the same array passed as argument OPTS in the previous call to E02ZKF.

8: IFAIL – INTEGER *Input/Output*

*On entry:* IFAIL must be set to 0, -1 or 1. If you are unfamiliar with this argument you should refer to Section 3.4 in How to Use the NAG Library and its Documentation 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 argument, 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 = 11

On entry, the optional parameter in OPTSTR was not recognized: OPTSTR =  $\langle value \rangle$ .

IFAIL = 41

On entry, OPTSTR indicates a character optional parameter, but CVALUE is too short to hold the stored value. The returned value will be truncated.

IFAIL = 61

On entry, either the option arrays have not been initialized or they have been corrupted.

IFAIL = -99

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

See Section 3.9 in *How to Use the NAG Library and its Documentation* for further information.

IFAIL = -399

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

See Section 3.8 in *How to Use the NAG Library and its Documentation* for further information.

IFAIL = -999

Dynamic memory allocation failed.

See Section 3.7 in *How to Use the NAG Library and its Documentation* for further information.

## **7 Accuracy**

Not applicable.

## **8 Parallelism and Performance**

E02ZLF is not threaded in any implementation.

## **9 Further Comments**

None.

## **10 Example**

See the example programs associated with the problem solving routine you wish to use for a demonstration of how to use E02ZLF to query options.

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