# NAG Library Routine Document

# G02ZLF

**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

G02ZLF is used to query the value of optional parameters available to supported problem solving routines in Chapter G02. Currently, only G02QGF is supported.

## 2    Specification

```
SUBROUTINE G02ZLF (OPTSTR, IVALUE, RVALUE, CVALUE, OPTYPE, IOPTS, OPTS,   &
                   IFAIL)

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

## 3    Description

G02ZLF is used to query the current values of options. It is necessary to initalize optional parameter arrays using G02ZKF before any options are queried.

G02ZLF 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 12 in G02QGF.

## 4    References

None.

## 5    Parameters

1:    OPTSTR – CHARACTER(*)                                                                                        *Input*

*On entry*: a string identifying the option whose current value is required. See Section 12 in G02QGF for information on valid options. In addition, the following is a valid option:

**Identify**
>   G02ZLF returns in CVALUE the routine name supplied to G02ZKF 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 parameter, 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 parameter, RVALUE will hold its current value.

4:    CVALUE – CHARACTER(*)                                                                                         *Output*

**Note**: the string returned in CVALUE will never exceed 40 characters in length.

*On exit*: if the optional parameter supplied in OPTSTR is a character valued parameter, 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 parameter 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 G02ZKF.

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 G02ZKF.

8:    IFAIL – INTEGER                                                                             *Input/Output*

*On entry*: IFAIL must be set to $0$, $-1$ or $1$. If you are unfamiliar with this parameter you should refer to Section 3.3 in the Essential Introduction 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 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.**

*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 *option* 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 3.8 in the Essential Introduction for further information.

IFAIL = −399

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

See Section 3.7 in the Essential Introduction for further information.

IFAIL = −999

Dynamic memory allocation failed.

See Section 3.6 in the Essential Introduction for further information.

## 7   Accuracy

Not applicable.

## 8   Parallelism and Performance

Not applicable.

## 9   Further Comments

Not applicable.

## 10   Example

See the example programs associated with the problem solving routine you wish to use for a demonstration of how to use G02ZLF to query options.