NAG Library Routine Document

D01ZLF

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

D01ZLF is used to query the current value associated with an optional parameter for D01RAF.

2   Specification

```
SUBROUTINE D01ZLF (OPTSTR, IVALUE, RVALUE, CVALUE, OPTYPE, IOPTS, OPTS,         &
                   IFAIL)

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

3   Description

D01ZLF is used to query the current value associated with optional parameters. It is necessary to initialize optional parameter arrays, IOPTS and OPTS, using D01ZKF before any optional parameters are queried.

D01ZLF will normally return either an integer, real or character value dependent upon the type associated with the optional parameter being queried. Some real and integer optional parameters also return additional information in CVALUE. Whether the optional parameter queried is of integer, real or character type, and whether additional information is returned in CVALUE, 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 10 in D01RAF.

4   References

None.

5   Parameters

1:      OPTSTR – CHARACTER(*)   *Input*

   On entry: a string identifying the option whose current value is required. See Section 10 in D01RAF for information on valid optional parameters. In addition, the following is a valid option:

   Identify
          In which case D01ZLF returns in CVALUE the 6 character routine name supplied to
          D01ZKF 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 that 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 that 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 that value. CVALUE will also contain additional information for some integer and real valued parameters, as indicated by OPTYPE.

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.

OPTYPE = 4
    OPTSTR is an integer valued optional parameter; its current value has been returned in IVALUE. Additional information has been returned in CVALUE.

OPTYPE = 5
    OPTSTR is a real valued optional parameter; its current value has been returned in RVALUE. Additional information has been returned in CVALUE.

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

Note: the contents of IOPTS **must not** have been altered between calls to D01ZKF, D01ZLF and the selected problem solving routine.

7:      OPTS(∗) – REAL (KIND=nag_wp) array   *Communication Array*

Note: the contents of IOPTS **must not** have been altered between calls to D01ZKF, D01ZLF and the selected problem solving routine.

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 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 $= 61$

The arrays IOPTS and OPTS have either not been initialized, have become corrupted, or are not compatible with this option setting routine. The arrays IOPTS and OPTS have either not been initialized, have become corrupted, or are not compatible with this option setting routine. The arrays IOPTS and OPTS have either not been initialized, have become corrupted, or are not compatible with this option setting routine. The arrays IOPTS and OPTS have either not been initialized, have become corrupted, or are not compatible with this option setting routine. The arrays IOPTS and OPTS have either not been initialized, have become corrupted, or are not compatible with this option setting routine.

IFAIL $= -999$

Dynamic memory allocation failed.

7 Accuracy

Not applicable.

8 Further Comments

None.

9 Example

See the example programs associated with the problem solving routine you wish to use for a demonstration of how to use D01ZLF.

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