

D03RZF – NAG Fortran Library Routine Document

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

D03RZF is designed to be used in conjunction with D03RBF. It can be called from the user-supplied MONITR subroutine to obtain the number of grid points and their (x, y) co-ordinates on a solution grid.

2 Specification

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SUBROUTINE D03RZF(LEVEL, NLEV, XMIN, YMIN, DXB, DYB, LGRID,
1                ISTRUC, NPTS, X, Y, LENXY, IFAIL)
  INTEGER        LEVEL, NLEV, LGRID(*), ISTRUC(*), NPTS, LENXY,
1                IFAIL
  real          XMIN, YMIN, DXB, DYB, X(LENXY), Y(LENXY)

```

3 Description

D03RZF extracts the number of grid points and their (x, y) co-ordinates on a specific solution grid produced by D03RBF. It must be called only from within the user-supplied subroutine MONITR. The parameters NLEV, XMIN, YMIN, DXB, DYB, LGRID and ISTRUC to MONITR must be passed unchanged to D03RZF.

4 References

None.

5 Parameters

- | | |
|-----------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| 1: LEVEL — INTEGER | <i>Input</i> |
| <i>On entry:</i> the grid level at which the co-ordinates are required. | |
| <i>Constraint:</i> $1 \leq \text{LEVEL} \leq \text{NLEV}$. | |
| 2: NLEV — INTEGER | <i>Input</i> |
| 3: XMIN — <i>real</i> | <i>Input</i> |
| 4: YMIN — <i>real</i> | <i>Input</i> |
| 5: DXB — <i>real</i> | <i>Input</i> |
| 6: DYB — <i>real</i> | <i>Input</i> |
| 7: LGRID(*) — INTEGER array | <i>Input</i> |
| 8: ISTRUC(*) — INTEGER array | <i>Input</i> |
| <i>On entry:</i> NLEV, XMIN, YMIN, DXB, DYB, LGRID and ISTRUC as supplied to MONITR must be passed unchanged to D03RZF. | |
| 9: NPTS — INTEGER | <i>Output</i> |
| <i>On exit:</i> the number of grid points in the grid level LEVEL. | |
| 10: X(LENXY) — <i>real</i> array | <i>Output</i> |
| 11: Y(LENXY) — <i>real</i> array | <i>Output</i> |
| <i>On exit:</i> X(i) and Y(i) contain the (x, y) co-ordinates respectively of the i th grid point, for $i = 1, 2, \dots, \text{NPTS}$. | |

12: LENXY — INTEGER*Input*

On entry: the dimension of the arrays X and Y as declared in MONITR.

Constraint: $\text{LENXY} \geq \text{NPTS}$.

13: IFAIL — INTEGER*Input/Output*

On entry: IFAIL must be set to 0, -1 or 1. For users not familiar with this parameter (described in Chapter P01) the recommended value is 0.

On exit: IFAIL = 0 unless the routine detects an error (see Section 6).

6 Error Indicators and Warnings

Errors detected by the routine:

IFAIL = 1

On entry, LEVEL < 1,
or LEVEL > NLEV.

IFAIL = 2

The dimension of the arrays X and Y is too small for the requested grid level, i.e., $\text{LENXY} < \text{NPTS}$.

7 Accuracy

Not applicable.

8 Further Comments

None.

9 Example

See Section 9 of the document for D03RBF.
