

NAG Toolbox for MATLAB

e04ns

1 Purpose

e04ns may be used to supply individual optional parameters to e04nq. The initialization function e04np **must** have been called before calling e04ns.

2 Syntax

```
[cw, iw, rw, ifail] = e04ns(string, cw, iw, rw)
```

3 Description

e04ns may be used to supply values for optional parameters to e04nq. It is only necessary to call e04ns for those parameters whose values are to be different from their default values. One call to e04ns 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 double 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.

For e04ns, each user-specified option is not normally printed as it is defined, but this printing may be turned on using the keyword **List**. Thus the statement

```
[cw, iw, rw, ifail] = e04ns('List', cw, iw, rw);
```

turns on printing of this and subsequent options. Printing may be turned off again using the keyword **Nolist**.

Optional parameter settings are preserved following a call to e04nq 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 e04nq.

A complete list of optional parameters, their abbreviations, synonyms and default values is given in Section 11 of the document for e04nq.

4 References

None.

5 Parameters

5.1 Compulsory Input Parameters

1: **string** – **string**

A single valid option string (as described in Section 3 and in Section 11 of the document for e04nq).

2: **cw(*)** – **string array**

Note: the dimension of the array **cw** must be at least **len_{cw}** (see e04np).

3: **iw(*)** – **int32 array**

Note: the dimension of the array **iw** must be at least **len_{iw}** (see e04np).

4: **rw(*)** – **double array**

Note: the dimension of the array **rw** must be at least **len_{rw}** (see e04np).

5.2 Optional Input Parameters

None.

5.3 Input Parameters Omitted from the MATLAB Interface

None.

5.4 Output Parameters

1: **cw(*)** – **string array**

Note: the dimension of the array **cw** must be at least **len_{cw}** (see e04np).

2: **iw(*)** – **int32 array**

Note: the dimension of the array **iw** must be at least **len_{iw}** (see e04np).

3: **rw(*)** – **double array**

Note: the dimension of the array **rw** must be at least **len_{rw}** (see e04np).

4: **ifail** – **int32 scalar**

0 unless the function detects an error (see Section 6).

6 Error Indicators and Warnings

Errors or warnings detected by the function:

ifail = 1

The initialization function e04np has not been called.

ifail = 2

The supplied option is invalid. Check that the keywords are neither ambiguous nor misspelt.

7 Accuracy

Not applicable.

8 Further Comments

e04nt or e04nu may also be used to supply optional parameters to e04nq.

9 Example



```
string = 'Iterations limit 50';  
[cw, iw, rw, ifail] = e04np();  
[cw, iw, rw, ifail] = e04ns(string, cw, iw, rw);  
[ivalue, cw, iw, rw, ifail] = e04nx(string, cw, iw, rw)
```

```
ivalue =  
        50  
cw =  
    array elided  
iw =  
    array elided  
rw =  
    array elided  
ifail =  
        0
```
