

NAG Library Function Document

nag_glopt_bnd_mcs_optset_string (e05jdc)

1 Purpose

nag_glopt_bnd_mcs_optset_string (e05jdc) may be used to supply individual optional arguments to nag_glopt_bnd_mcs_solve (e05jbc). The initialization function nag_glopt_bnd_mcs_init (e05jac) **must** have been called before calling nag_glopt_bnd_mcs_optset_string (e05jdc).

2 Specification

```
#include <nag.h>
#include <nage05.h>

void nag_glopt_bnd_mcs_optset_string (const char *optstr,
    Nag_E05State *state, NagError *fail)
```

3 Description

nag_glopt_bnd_mcs_optset_string (e05jdc) may be used to supply values for optional arguments to nag_glopt_bnd_mcs_solve (e05jbc). It is only necessary to call nag_glopt_bnd_mcs_optset_string (e05jdc) for those arguments whose values are to be different from their default values. One call to nag_glopt_bnd_mcs_optset_string (e05jdc) sets one argument value.

Each optional argument is defined by a single character string, consisting of one or more items. The items associated with a given optional argument must be separated by spaces, or equals signs [=]. Alphabetic characters may be upper or lower case. The string

```
Static Limit = 100
```

is an example of a string used to set an optional argument. For each optional argument 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 real value. Such numbers may be up to 16 contiguous characters.

For nag_glopt_bnd_mcs_optset_string (e05jdc), each user-specified optional argument is not normally printed as it is defined, but this printing may be turned on using the keyword **List**. Thus the statement

```
e05jdc ("List", &state, &fail);
```

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

Optional argument settings are preserved following a call to nag_glopt_bnd_mcs_solve (e05jbc) and so the keyword **Defaults** is provided to allow you to reset all the optional arguments to their default values before a subsequent call to nag_glopt_bnd_mcs_solve (e05jbc).

A complete list of optional arguments, their symbolic names and default values is given in Section 12 in nag_glopt_bnd_mcs_solve (e05jbc).

4 References

None.

5 Arguments

- 1: **optstr** – const char * *Input*
On entry: a string defining a single optional argument (as described in Section 3 and in Section 12 in nag_glopt_bnd_mcs_solve (e05jbc)). The implied data type (character, integer or real) of each value to set **must** match that expected by the optional argument.
- 2: **state** – Nag_E05State * *Communication Structure*
state contains information required by other functions in this suite. You must not modify it directly in any way.
- 3: **fail** – NagError * *Input/Output*
 The NAG error argument (see Section 3.6 in the Essential Introduction).

6 Error Indicators and Warnings

NE_ALLOC_FAIL

Dynamic memory allocation failed.
 See Section 3.2.1.2 in the Essential Introduction for further information.

NE_BAD_PARAM

On entry, argument $\langle value \rangle$ had an illegal value.

NE_INTERNAL_ERROR

An internal error has occurred in this function. Check the function call and any array sizes. If the call is correct then please contact NAG for assistance.

An unexpected error has been triggered by this function. Please contact NAG.
 See Section 3.6.6 in the Essential Introduction for further information.

NE_NO_LICENCE

Your licence key may have expired or may not have been installed correctly.
 See Section 3.6.5 in the Essential Introduction for further information.

NE_NOT_INIT

Initialization function nag_glopt_bnd_mcs_init (e05jac) has not been called.

NE_NOT_PARSED

The value to be set could not be parsed. Check that it specifies a valid integer or real value.

NE_OPT_NOT_READ

The supplied optional argument is invalid. A keyword or keyword combination was not recognized.

NE_OUT_OF_RANGE

Attempt to assign an illegal value of **Local Searches** (*lscrch*): *lscrch* = $\langle value \rangle$.

Attempt to assign an illegal value of **Repeatability** (*repeat*): *repeat* = $\langle value \rangle$.

Attempt to assign a non-positive value of **Function Evaluations Limit** (*nf*): *nf* = $\langle value \rangle$.

Attempt to assign a non-positive value of **Local Searches Limit** (*loclim*): *loclim* = $\langle value \rangle$.

Attempt to assign a non-positive value of **Static Limit** (*stclim*): *stclim* = $\langle value \rangle$.

Attempt to assign an out-of-bounds value of **Infinite Bound Size** (*infbnd*): *infbnd* = $\langle value \rangle$.

Attempt to assign too small a value of **Local Searches Tolerance** (*loctol*): *loctol* = $\langle value \rangle$.

Attempt to assign too small a value of **Target Objective Error** (*objerr*): *objerr* = $\langle value \rangle$.

Attempt to assign too small a value of **Target Objective Safeguard** (*objsg*): *objsg* = $\langle value \rangle$.

7 Accuracy

Not applicable.

8 Parallelism and Performance

`nag_glopt_bnd_mcs_optset_string` (e05jdc) is threaded by NAG for parallel execution in multithreaded implementations of the NAG Library.

Please consult the X06 Chapter Introduction for information on how to control and interrogate the OpenMP environment used within this function. Please also consult the Users' Note for your implementation for any additional implementation-specific information.

9 Further Comments

`nag_glopt_bnd_mcs_optset_file` (e05jcc), `nag_glopt_bnd_mcs_optset_char` (e05jec), `nag_glopt_bnd_mcs_optset_int` (e05jfc) or `nag_glopt_bnd_mcs_optset_real` (e05jgc) may also be used to supply optional arguments to `nag_glopt_bnd_mcs_solve` (e05jbc).

10 Example

See Section 10 in `nag_glopt_bnd_mcs_optset_file` (e05jcc).
