

## NAG Library Function Document

### nag\_glopt\_bnd\_mcs\_optset\_real (e05jgc)

#### 1 Purpose

nag\_glopt\_bnd\_mcs\_optset\_real (e05jgc) may be used to supply individual real optional parameters 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\_real (e05jgc).

#### 2 Specification

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

void nag_glopt_bnd_mcs_optset_real (const char *optstr, double rvalue,
    Nag_E05State *state, NagError *fail)
```

#### 3 Description

nag\_glopt\_bnd\_mcs\_optset\_real (e05jgc) may be used to supply values for real optional parameters to nag\_glopt\_bnd\_mcs\_solve (e05jbc). It is only necessary to call nag\_glopt\_bnd\_mcs\_optset\_real (e05jgc) for those arguments whose values are to be different from their default values. One call to nag\_glopt\_bnd\_mcs\_optset\_real (e05jgc) sets one argument value.

Each real optional parameter is defined by a single character string in **optstr** and the corresponding value in **rvalue**. For example the following illustrates how the local searches tolerance could be defined:

```
loctol = 1.0e-10;
e05jgc ('Local Searches Tolerance', loctol, &state, &fail);
```

A complete list of optional parameters, 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 identifying a real-valued optional parameter (as described in Section 12 in nag\_glopt\_bnd\_mcs\_solve (e05jbc)).
- 2: **rvalue** – double *Input*  
*On entry:* the value associated with the optional parameter in **optstr**.
- 3: **state** – Nag\_E05State \* *Communication Structure*  
**state** contains information required by other functions in this suite. You must not modify it directly in any way.
- 4: **fail** – NagError \* *Input/Output*  
The NAG error argument (see Section 2.7 in How to Use the NAG Library and its Documentation).

## 6 Error Indicators and Warnings

### NE\_ALLOC\_FAIL

Dynamic memory allocation failed.

See Section 2.3.1.2 in How to Use the NAG Library and its Documentation 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 2.7.6 in How to Use the NAG Library and its Documentation for further information.

### NE\_NO\_LICENCE

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

See Section 2.7.5 in How to Use the NAG Library and its Documentation for further information.

### NE\_NOT\_INIT

Initialization function `nag_glopt_bnd_mcs_init` (e05jac) has not been called.

### NE\_OPT\_NOT\_READ

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

### NE\_OUT\_OF\_RANGE

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_real` (e05jgc) 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) or `nag_glopt_bnd_mcs_optset_string` (e05jdc) may also be used to supply real optional parameters to `nag_glopt_bnd_mcs_solve` (e05jbc).

## **10 Example**

See Section 10 in nag\_glopt\_bnd\_mcs\_optset\_file (e05jcc).

---