

# NAG Library Function Document

## nag\_glopt\_bnd\_mcs\_init (e05jac)

### 1 Purpose

nag\_glopt\_bnd\_mcs\_init (e05jac) is used to initialize communication data for the suite of multi-level coordinate search functions: nag\_glopt\_bnd\_mcs\_solve (e05jbc), nag\_glopt\_bnd\_mcs\_optset\_file (e05jcc), nag\_glopt\_bnd\_mcs\_optset\_string (e05jdc), nag\_glopt\_bnd\_mcs\_optset\_char (e05jec), nag\_glopt\_bnd\_mcs\_optset\_int (e05jfc), nag\_glopt\_bnd\_mcs\_optset\_real (e05jgc), nag\_glopt\_bnd\_mcs\_option\_check (e05jhc), nag\_glopt\_bnd\_mcs\_optget\_int (e05jkc) and nag\_glopt\_bnd\_mcs\_optget\_real (e05jlc).

### 2 Specification

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

void nag_glopt_bnd_mcs_init (Integer n_r, Nag_E05State *state,
                             NagError *fail)
```

### 3 Description

nag\_glopt\_bnd\_mcs\_init (e05jac) initializes the structure **state** for the solver nag\_glopt\_bnd\_mcs\_solve (e05jbc) and the optional-argument handlers nag\_glopt\_bnd\_mcs\_optset\_file (e05jcc), nag\_glopt\_bnd\_mcs\_optset\_string (e05jdc), nag\_glopt\_bnd\_mcs\_optset\_char (e05jec), nag\_glopt\_bnd\_mcs\_optset\_int (e05jfc), nag\_glopt\_bnd\_mcs\_optset\_real (e05jgc), nag\_glopt\_bnd\_mcs\_option\_check (e05jhc), nag\_glopt\_bnd\_mcs\_optget\_int (e05jkc) and nag\_glopt\_bnd\_mcs\_optget\_real (e05jlc).

### 4 References

None.

### 5 Arguments

- 1: **n\_r** – Integer  
This argument is no longer accessed by nag\_glopt\_bnd\_mcs\_init (e05jac).
- 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 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 *<value>* 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.

**7 Accuracy**

Not applicable.

**8 Parallelism and Performance**

nag\_glopt\_bnd\_mcs\_init (e05jac) 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**

The time taken by nag\_glopt\_bnd\_mcs\_init (e05jac) is negligible.

**10 Example**

See Section 10 in nag\_glopt\_bnd\_mcs\_solve (e05jbc) and nag\_glopt\_bnd\_mcs\_optset\_file (e05jcc).

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