NAG Toolbox

nag_glopt_bnd_mcs_optget_int (e05jk)

1 Purpose

nag_glopt_bnd_mcs_optget_int (e05jk) is used to get the value of an integer nag_glopt_bnd_mcs_solve (e05jb) optional parameter. nag_glopt_bnd_mcs_optget_int (e05jk) can be used before or after calling nag_glopt_bnd_mcs_solve (e05jb), but the initialization function nag_glopt_bnd_mcs_init (e05ja) **must** have been called before calling nag_glopt_bnd_mcs_optget_int (e05jk).

2 Syntax

```
[ivalue, ifail] = nag_glopt_bnd_mcs_optget_int(optstr, comm)
[ivalue, ifail] = e05jk(optstr, comm)
```

3 Description

nag_glopt_bnd_mcs_optget_int (e05jk) obtains the current value of an integer-valued optional parameter. For example

```
[loclim, ifail] = e05jk('Local Searches Limit', comm);
```

will result in the value of the optional parameter **Local Searches Limit** being output in `loclim`.

The default values of the optional parameters **Function Evaluations Limit**, **Splits Limit** and **Static Limit** depend on the problem parameter n_r (the number of non-fixed variables). A default value for each of these optional parameters will be set in the first call to the solver nag_glopt_bnd_mcs_solve (e05jb): before that time, getting the value of any of these optional parameters using nag_glopt_bnd_mcs_optget_int (e05jk) will not return a meaningful result.

A complete list of optional parameters, their symbolic names and default values is given in Section 12 in nag_glopt_bnd_mcs_solve (e05jb).

4 References

None.

5 Parameters

5.1 Compulsory Input Parameters

1: **optstr** – CHARACTER(*)

A string identifying an integer-valued optional parameter (as described in Section 12 in nag_glopt_bnd_mcs_solve (e05jb)).

2: **comm**($lcomm$) – REAL (KIND=nag_wp) array

$lcomm$, the dimension of the array, must satisfy the constraint $lcomm \geq 100$.

Communication data as initialized by nag_glopt_bnd_mcs_init (e05ja).

5.2 Optional Input Parameters

None.

5.3 Output Parameters

1: **ivalue** – INTEGER

If **ifail** $= 0$ on exit, **ivalue** contains the integer value associated with the optional parameter in **optstr**.

2: **ifail** – INTEGER

ifail $= 0$ unless the function detects an error (see Section 5).

6 Error Indicators and Warnings

Errors or warnings detected by the function:

ifail $= 1$

Constraint: $lcomm \geq 100$.

Initialization function nag_glopt_bnd_mcs_init (e05ja) has not been called.

ifail $= 2$

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

ifail $= -99$

An unexpected error has been triggered by this routine. Please contact NAG.

ifail $= -399$

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

ifail $= -999$

Dynamic memory allocation failed.

7 Accuracy

Not applicable.

8 Further Comments

None.

9 Example

9.1 Program Text

```
function e05jk_example

fprintf('e05jk example results\n\n');

% Initialize comm array
[comm, ifail] = e05ja;

% See what the default values are for the various options
nf     = e05jk('Function Evaluations Limit', comm);
infbnd = e05jl('Infinite Bound Size', comm);
lcsrch = e05jj('Local Searches', comm);
loclim = e05jk('Local Searches Limit', comm);
loctol = e05jl('Local Searches Tolerance', comm);
repeat = e05jj('Repeatability', comm);
smax   = e05jk('Splits Limit', comm);
```

```
stclim = e05jk('Static Limit', comm);
objerr = e05jl('Target Objective Error', comm);
objsfg = e05jl('Target Objective Safeguard', comm);
objval = e05jl('Target Objective Value', comm);

disp('The default values are for various options are:');
fprintf('%-26s : %8d\n','Function Evaluations Limit', nf);
fprintf('%-26s : %8.2e\n','Infinite Bound Size', infbnd);
fprintf('%-26s : %8s\n','Local Searches', lcsrch);
fprintf('%-26s : %8d\n','Local Searches Limit', loclim);
fprintf('%-26s : %8.2e\n','Local Searches Tolerance', loctol);
fprintf('%-26s : %8s\n','Repeatability', repeat);
fprintf('%-26s : %8d\n','Splits Limit', smax);
fprintf('%-26s : %8d\n','Static Limit', stclim);
fprintf('%-26s : %8.2e\n','Target Objective Error', objerr);
fprintf('%-26s : %8.2e\n','Target Objective Safeguard', objsfg);
fprintf('%-26s : %8.2e\n','Target Objective Value', objval);
```

9.2 Program Results

```
     e05jk example results

The default values are for various options are:
Function Evaluations Limit :        0
Infinite Bound Size        : 1.16e+77
Local Searches             :      ON
Local Searches Limit       :      50
Local Searches Tolerance   : 2.22e-16
Repeatability              :      OFF
Splits Limit               :        0
Static Limit               :        0
Target Objective Error     : 1.03e-04
Target Objective Safeguard : 1.05e-08
Target Objective Value     : 0.00e+00
```