NAG Library Function Document

nag_mip_opt_set (h02zkc)

1 Purpose

nag_mip_opt_set (h02zkc) either initializes or resets the optional argument arrays or sets a single optional argument for supported problem solving functions in Chapter h. Currently, only nag_mip_sqp (h02dac) is supported.

2 Specification

```c
#include <nag.h>
#include <nag.h>
void nag_mip_opt_set (const char *optstr, Integer iopts[], Integer liopts,
                      double opts[], Integer lopts, NagError *fail)
```

3 Description

nag_mip_opt_set (h02zkc) has three purposes: to initialize optional argument arrays; to reset all optional arguments to their default values; or to set a single optional argument to a user-supplied value.

Optional arguments and their values are, in general, presented as a character string, optstr, of the form 'option = optval'; alphabetic characters can be supplied in either upper or lower case. Both option and optval may consist of one or more tokens separated by white space. The tokens that comprise optval will normally be either an integer, real or character value as defined in the description of the specific optional argument. In addition all optional arguments can take an optval DEFAULT which resets the optional argument to its default value.

It is imperative that optional argument arrays are initialized before any options are set, before the relevant problem solving function is called and before any options are queried using nag_mip_opt_get (h02zlc). To initialize the optional argument arrays iopts and opts for a specific problem solving function, the option Initialize is used with optval identifying the problem solving function to be called, via its short name. For example, to initialize optional argument arrays to be passed to nag_mip_sqp (h02dac), nag_mip_opt_set (h02zkc) is called as follows:

```c
nag_mip_opt_set("Initialize = h02dac", iopts, liopts, opts, lopts, &fail)
```

Information relating to available option names and their corresponding valid values is given in Section 11 in nag_mip_sqp (h02dac).

4 References

None.
5 Arguments

1: \texttt{optstr} – const char * \hspace{2cm} \textit{Input}

\textit{On entry}: a string identifying the option to be set.

\textbf{Initialize} = \textit{function name}

Initialize the optional argument arrays iopts and opts for use with function \textit{function name},
where \textit{function name} is the short name associated with the function of interest.

\textbf{Defaults}

\textit{option} = \textit{optval}

See Section 11 in nag_mip_sqp (h02dac) for details of valid values for \textit{option} and \textit{optval}.

The equals sign (=) delimiter must be used to separate the \textit{option} from its \textit{optval} value.

\textit{optstr} is case insensitive. Each token in the \textit{option} and \textit{optval} component must be separated by at least one space.

2: iopts[liopts] – Integer \hspace{2cm} \textit{Communication Array}

3: liopts – Integer \hspace{2cm} \textit{Input}

\textit{On entry}: the length of the array \texttt{iopts}.

\textbf{Constraint}: unless otherwise stated in the documentation for a specific, supported, problem solving function, \texttt{liopts} \geq 200.

4: opts[lopts] – double \hspace{2cm} \textit{Communication Array}

5: lopts – Integer \hspace{2cm} \textit{Input}

\textit{On entry}: the length of the array \texttt{opts}.

\textbf{Constraint}: unless otherwise stated in the documentation for a specific, supported, problem solving function, \texttt{lopts} \geq 100.

6: fail – NagError * \hspace{2cm} \textit{Input/Output}

The NAG error argument (see Section 3.6 in the Essential Introduction).

6 Error Indicators and Warnings

\textbf{NE_ALLOC_FAIL}

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

\textbf{NE_BAD_PARAM}

On entry, argument \textit{\langle value\rangle} had an illegal value.

\textbf{NE_INT}

On entry, \texttt{liopts} = \textit{\langle value\rangle}.

\textbf{Constraint}: \texttt{liopts} \geq \textit{\langle value\rangle}.

On entry, \texttt{lopts} = \textit{\langle value\rangle}.

\textbf{Constraint}: \texttt{lopts} \geq \textit{\langle value\rangle}.

\textbf{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_INVALID_FORMAT**
On entry, could not convert the specified `optval` to an integer: `optstr = \langle value \rangle`.
On entry, could not convert the specified `optval` to a real: `optstr = \langle value \rangle`.
On entry, the expected delimiter ‘=’ was not found in `optstr`: `optstr = \langle value \rangle`.

**NE_INVALID_OPTION**
On entry, either the option arrays have not been initialized or they have been corrupted.
On entry, the optional argument in `optstr` was not recognized: `optstr = \langle value \rangle`.

**NE_INVALID_VALUE**
On entry, the `optval` supplied for the character optional argument is not valid.
`optstr = \langle value \rangle`.
On entry, the `optval` supplied for the integer optional argument is not valid.
`optstr = \langle value \rangle`.
On entry, the `optval` supplied for the real optional argument is not valid.
`optstr = \langle value \rangle`.

**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_FUN_NAME**
On entry, attempting to initialize the optional argument arrays but specified function name was not valid: name = `\langle value \rangle`.

7 **Accuracy**
Not applicable.

8 **Parallelism and Performance**
nag_mip_opt_set (h02zkc) 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**
None.

10 **Example**
See the example programs associated with the problem solving function you wish to use for a demonstration of how to use nag_mip_opt_set (h02zkc) to initialize option arrays and set options.