

## NAG Toolbox

### nag\_mip\_optset (h02zk)

#### 1 Purpose

nag\_mip\_optset (h02zk) either initializes or resets the optional parameter arrays or sets a single optional parameter for supported problem solving functions in Chapter H.

Currently, only nag\_mip\_sqp (h02da) is supported.

#### 2 Syntax

```
[iopts, opts, ifail] = nag_mip_optset(optstr, iopts, opts, 'liopts', liopts, 'lopts', lopts)
```

```
[iopts, opts, ifail] = h02zk(optstr, iopts, opts, 'liopts', liopts, 'lopts', lopts)
```

#### 3 Description

nag\_mip\_optset (h02zk) has three purposes: to initialize optional parameter arrays; to reset all optional parameters to their default values; or to set a single optional parameter to a user-supplied value.

Optional parameters 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 parameters can take an *optval* DEFAULT which resets the optional parameter to its default value.

It is imperative that optional parameter 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\_optget (h02zl). To initialize the optional parameter 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 parameter arrays to be passed to nag\_mip\_sqp (h02da), nag\_mip\_optset (h02zk) is called as follows:

```
[iopts, opts, ifail] = h02zk('Initialize = h02da', iopts, opts);
```

Information relating to available option names and their corresponding valid values is given in Section 11 in nag\_mip\_sqp (h02da).

#### 4 References

None.

## 5 Parameters

### 5.1 Compulsory Input Parameters

1: **optstr** – CHARACTER(\*)

A string identifying the option to be set.

**Initialize** = *function name*

Initialize the optional parameter arrays **iopts** and **opts** for use with function *function name*, where *function name* is the short name associated with the function of interest.

**Defaults**

Resets all options to their default values.

*option* = *optval*

See Section 11 in nag\_mip\_sqp (h02da) for details of valid values for *option* and *optval*. The equals sign (=) delimiter must be used to separate the *option* from its *optval* value.

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

2: **iopts(iopts)** – INTEGER array

3: **opts(opts)** – REAL (KIND=nag\_wp) array

### 5.2 Optional Input Parameters

1: **liopts** – INTEGER

*Default*: the dimension of the array **iopts**.

The length of the array **iopts**.

*Constraint*: unless otherwise stated in the documentation for a specific, supported, problem solving function, **liopts**  $\geq$  200.

2: **lopts** – INTEGER

*Default*: the dimension of the array **opts**.

The length of the array **opts**.

*Constraint*: unless otherwise stated in the documentation for a specific, supported, problem solving function, **lopts**  $\geq$  100.

### 5.3 Output Parameters

1: **iopts(iopts)** – INTEGER array

2: **opts(opts)** – REAL (KIND=nag\_wp) array

3: **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** = 11

On entry, the optional parameter in **optstr** was not recognized.

**ifail** = 12

On entry, the expected delimiter '=' was not found in **optstr**.

**ifail** = 13

On entry, could not convert the specified *optval* to an integer.

On entry, could not convert the specified *optval* to a real.

**ifail** = 14

On entry, attempting to initialize the optional parameter arrays but specified function name was not valid.

**ifail** = 15

On entry, the *optval* supplied for the integer optional parameter is not valid.

**ifail** = 16

On entry, the *optval* supplied for the real optional parameter is not valid.

**ifail** = 17

On entry, the *optval* supplied for the character optional parameter is not valid.

**ifail** = 21

On entry, either the option arrays have not been initialized or they have been corrupted.

**ifail** = 31

**liopts** is too small.

**ifail** = 51

**lopts** is too small.

**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

See the example programs associated with the problem solving function you wish to use for a demonstration of how to use `nag_mip_optset` (h02zk) to initialize option arrays and set options.

---