NAG Toolbox

nag_mip_iqp_dense_optstr (h02cd)

1 Purpose

To supply individual optional parameters to nag_mip_iqp_dense (h02cb).

2 Syntax

```
nag_mip_iqp_dense_optstr(str)
h02cd(str)
```

3 Description

nag_mip_iqp_dense_optstr (h02cd) may be used to supply values for optional parameters to nag_mip_iqp_dense (h02cb). It is only necessary to call nag_mip_iqp_dense_optstr (h02cd) for those arguments whose values are to be different from their default values. One call to nag_mip_iqp_dense_optstr (h02cd) sets one argument value.

Each optional parameter is defined by a single character string of up to 72 characters, consisting of one or more items. The items associated with a given option must be separated by spaces, or equal signs [=]. Alphabetic characters may be upper or lower case. The string

```
Print level = 1
```

is an example of a string used to set an optional parameter. For each option the string contains one or more of the following items:

– a mandatory keyword;

– a phrase that qualifies the keyword;

– a number that specifies an integer or double value. Such numbers may be up to 16 contiguous characters in Fortran 77's I, F, E or D formats, terminated by a space if this is not the last item on the line.

Blank strings and comments are ignored. A comment begins with an asterisk (*) and all subsequent characters in the string are regarded as part of the comment.

Normally, each user-specified option is printed as it is defined, on the current advisory message unit (see nag_file_set_unit_advisory (x04ab)), but this printing may be suppressed using the keyword **Nolist**. Thus the statement

```
h02cd('Nolist')
```

suppresses printing of this and subsequent options. Printing will automatically be turned on again after a call to nag_mip_iqp_dense (h02cb), and may be turned on again at any time by you, by using the keyword **List**.

Optional parameter settings are preserved following a call to nag_mip_iqp_dense (h02cb), and so the keyword **Defaults** is provided to allow you to reset all the optional parameters to their default values by the statement,

```
h02cd('Defaults')
```

prior to a subsequent call to nag_mip_iqp_dense (h02cb).

A complete list of optional parameters, their abbreviations, synonyms and default values is given in Section 12 in nag_mip_iqp_dense (h02cb).

4 References

None.

5 Parameters

5.1 Compulsory Input Parameters

1: **str** – CHARACTER(*)

A single valid option string (as described in Section 3 above and in Section 12 in nag_mip_iqp_dense (h02cb)).

5.2 Optional Input Parameters

None.

5.3 Output Parameters

None.

6 Error Indicators and Warnings

7 Accuracy

Not applicable.

8 Further Comments

None.

9 Example

9.1 Program Text

```
function h02cd_example

fprintf('h02cd example results\n\n');

big = 1e25;
a    = [ 1,     1,      1,      1,      1,      1,       1;
         0.15,  0.04,   0.02,   0.04,   0.02,   0.01,    0.03;
         0.03,  0.05,   0.08,   0.02,   0.06,   0.01,    0.00;
         0.02,  0.04,   0.01,   0.02,   0.02,   0.00,    0.00;
         0.02,  0.03,   0.00,   0.00,   0.01,   0.00,    0.00;
         0.70,  0.75,   0.80,   0.75,   0.80,   0.97,    0.00;
         0.02,  0.06,   0.08,   0.12,   0.02,   0.01,    0.97];
cvec = [-0.02, -0.20,  -0.20,  -0.20,  -0.20,   0.04,    0.04];
bl   = [-0.01, -0.10,  -0.01,  -0.04,  -0.10,  -0.01,   -0.01, ...
        -0.13, -big,   -big,   -big,   -big,   -0.0992, -0.003];
bu   = [ 0.01,  0.15,   0.03,   0.02,   0.05,   big,     big,  ...
        -0.13, -0.0049,-0.0064,-0.0037,-0.0012, big,     0.002];
h    = [ 2,     0,      0,      0,      0,      0,       0;
         0,     2,      0,      0,      0,      0,       0;
         0,     0,      2,      2,      0,      0,       0;
         0,     0,      2,      2,      0,      0,       0;
         0,     0,      0,      0,      2,      0,       0;
         0,     0,      0,      0,      0,     -2,      -2;
         0,     0,      0,      0,      0,     -2,      -2];
xs   = [-0.01,  0.03,   0,     -0.01,  -0.1,    0.02,    0.01];
intvar = [nag_int(4)];
istate = zeros(14, 1, nag_int_name);
strtgy = nag_int(2);
```

```
h02cd('Nolist');
h02cd('Print Level = 0');

[istate, xs, obj, ax, clamda, ifail] = ...
h02cb( ...
       a, bl, bu, cvec, h, @qphess, intvar, istate, xs, strtgy, @monit);

fprintf('Optimal Integer Value is = %20.8e\n',obj);
disp('Components are:');
for j=1:7
  fprintf('x(%2d) = %12.8f\n',j,xs(j));
end

function [hx] = qphess(n, jthcol, h, ldh, x)
  hx = h*x;

function [bstval, halt, count] = monit(intfnd, nodes, depth, obj, x, ...
                                       bstval, bstsol, bl, bu, n, halt, count)
```

9.2 Program Results

```
     h02cd example results

Optimal Integer Value is =       3.74696620e-02
Components are:
x( 1) =  -0.01000000
x( 2) =  -0.07332830
x( 3) =  -0.00025809
x( 4) =   0.00000000
x( 5) =  -0.06335433
x( 6) =   0.01410944
x( 7) =   0.00283128
```