1 Purpose

nag_g02_opt_get (g02zlc) is used to query the value of optional arguments available to supported
problem solving functions in Chapter g02. Currently, only nag_regsn_quant_linear (g02qgc) is
supported.

2 Specification

```c
#include <nag.h>
#include <nagg02.h>

void nag_g02_opt_get (const char *optstr, Integer *ivalue, double *rvalue,
                     char *cvalue, Integer lcvalue, Nag_VariableType *optype,
                     const Integer iopts[], const double opts[], NagError *fail)
```

3 Description

nag_g02_opt_get (g02zlc) is used to query the current values of options. It is necessary to initialize
optional argument arrays using nag_g02_opt_set (g02zkc) before any options are queried.

nag_g02_opt_get (g02zlc) will normally return either an integer, real or character value dependent upon
the type associated with the optional argument being queried. Whether the option queried is of integer,
real or character type is indicated by the returned value of optype.

Information on optional argument names and whether these options are real, integer or character can be
found in Section 12 in nag_regsn_quant_linear (g02qgc).

4 References

None.

5 Arguments

1: optstr – const char *

   Input

   On entry: a string identifying the option whose current value is required. See Section 12 in
   nag_regsn_quant_linear (g02qgc) for information on valid options. In addition, the following is a
   valid option:

   Identify

   nag_g02_opt_get (g02zlc) returns in cvalue the function name supplied to nag_g02_opt_set
   (g02zkc) when the optional argument arrays iopts and opts were initialized.

2: ivalue – Integer *

   Output

   On exit: if the optional argument supplied in optstr is an integer valued argument, ivalue will hold
   its current value.

3: rvalue – double *

   Output

   On exit: if the optional argument supplied in optstr is a real valued argument, rvalue will hold its
   current value.
4: `cvalue - char *` 
   Output
   Note: the string returned in `cvalue` will never exceed \( \min(\text{lcvalue}, 41) \) characters in length (including the null terminator).
   On exit: if the optional argument supplied in `optstr` is a character valued argument, `cvalue` will hold its current value, unless `Identify` is specified, see `optstr`.

5: `lcvalue - Integer` 
   Input
   On entry: length of `cvalue`. At most \( \min(\text{lcvalue} - 1, 40) \) non-null characters will be written into `cvalue`.
   Constraint: \( \text{lcvalue} > 1 \).

6: `optype - Nag_VariableType *` 
   Output
   On exit: indicates whether the optional argument supplied in `optstr` is an integer, real or character valued argument and hence which of `ivalue`, `rvalue` or `cvalue` holds the current value.
   \( \text{optype} = \text{Nag_Integer} \)
   `optstr` is an integer valued optional argument, its current value has been returned in `ivalue`.
   \( \text{optype} = \text{Nag_Real} \)
   `optstr` is a real valued optional argument, its current value has been returned in `rvalue`.
   \( \text{optype} = \text{Nag_Character} \)
   `optstr` is a character valued optional argument, its current value has been returned in `cvalue`.

7: `iopts[dim] - const Integer` 
   Communication Array
   Note: the dimension, `dim`, of this array is dictated by the requirements of associated functions that must have been previously called. This array MUST be the same array passed as argument `iopts` in the previous call to nag_g02_opt_set (g02zkc).

8: `opts[dim] - const double` 
   Communication Array
   Note: the dimension, `dim`, of this array is dictated by the requirements of associated functions that must have been previously called. This array MUST be the same array passed as argument `opts` in the previous call to nag_g02_opt_set (g02zkc).

9: `fail - NagError *` 
   Input/Output
   The NAG error argument (see Section 3.6 in the Essential Introduction).

6 Error Indicators and Warnings

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

**NE_BAD_PARAM**
On entry, argument \( \langle \text{value} \rangle \) had an illegal value.

**NE_INT**
On entry, \( \text{lcvalue} = \langle \text{value} \rangle \).
Constraint: \( \text{lcvalue} > 1 \).
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_OPTION
On entry, either the option arrays have not been initialized or they have been corrupted.
On entry, the option in optstr was not recognized: optstr = (value).

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.

NW_TRUNCATED
On entry, optstr indicates a character optional argument, but cvalue is too short to hold the stored value. The returned value will be truncated.

7 Accuracy
Not applicable.

8 Parallelism and Performance
Not applicable.

9 Further Comments
Not applicable.

10 Example
See the example programs associated with the problem solving function you wish to use for a demonstration of how to use nag_g02_opt_get (g02zlc) to query options.