NAG Library Routine Document

g22znf

Note: please be advised that this routine is classed as 'experimental' and its interface may be developed further in the future. Please see Section 3.1.1 in How to Use the NAG Library and its Documentation for further information.

1 Purpose

g22znf is a general option getting routine for Chapter G22. It is used to query the value of optional parameters.

2 Specification

```
Subroutine g22znf (handle, optstr, ivalue, rvalue, cvalue, optype,          &
                   ifail)

Integer, Intent (Inout)          :: ifail
Integer, Intent (Out)            :: ivalue, optype
Real (Kind=nag_wp), Intent (Out) :: rvalue
Character (*), Intent (In)       :: optstr
Character (*), Intent (Out)      :: cvalue
Type (c_ptr), Intent (In)        :: handle
```

3 Description

g22znf can only be called on G22 handles. It can be used to query the current values of optional parameters and will return either an integer, real or character value dependent upon the type associated with the optional parameter being queried.

The optional parameter of interest is presented as a character string of the form '*option*'

In cases where an optional parameter may have multiple instances in a particular G22 handle an *instance identifier* can be specified. This is presented using the form '$option : instance\ identifier$'. In such cases, if the instance identifier is omitted, the value of the first instance is returned. If the value of optional parameter is not the same for all instances and an instance identifier is omitted, a warning is raised.

Information relating to available option names, their corresponding valid values, whether the use of an instance identifier may be appropriate and what form it can take is given in the individual routine documents.

4 References

None.

5 Arguments

1: **handle** – Type (c_ptr) *Input*

On entry: the G22 handle which **must** have been initialized by one of Chapter G22 initialization routines.

2: **optstr** – Character(*) *Input*

On entry: a string identifying the option and, where required, the instance identifier.

identify
Returns a string description of the G22 handle supplied in **handle**. See Section 9 for more details.

option
Returns the value of *option*. If there are multiple instances of *option*, the value of the first is returned. If not all instances of *option* have the same value, **ifail** $= 124$ is returned.

option : *instance identifier*
Returns the value of a single instance of *option*.

optstr is case insensitive and *option* and *instance identifier* may consist of one or more tokens separated by white space.

See the documentation of the individual Chapter G22 routines for details of valid values for *option* and *instance identifier*.

3: **ivalue** – Integer *Output*

On exit: if **optype** $= 1$, *option* identifies an integer-valued parameter and **ivalue** holds its current value.

4: **rvalue** – Real (Kind=nag_wp) *Output*

On exit: if **optype** $= 2$, *option* identifies a real-valued parameter and **rvalue** holds its current value.

5: **cvalue** – Character(*) *Output*

Note: the string returned in **cvalue** will never exceed 40 characters in length.

On exit: if **optype** $= 3$, *option* identifies a character-valued parameter and **cvalue** holds its current value.

6: **optype** – Integer *Output*

On exit: indicates whether *option* is an integer, real or character-valued optional parameter and hence which of **ivalue**, **rvalue** or **cvalue** holds the current value.

optype $= 1$
option is an integer-valued optional parameter; its current value has been returned in **ivalue**.

optype $= 2$
option is a real-valued optional parameter; its current value has been returned in **rvalue**.

optype $= 3$
option is a character-valued optional parameter; its current value has been returned in **cvalue**.

7: **ifail** – Integer *Input/Output*

On entry: **ifail** must be set to 0, -1 or 1. If you are unfamiliar with this argument you should refer to Section 3.4 in How to Use the NAG Library and its Documentation for details.

For environments where it might be inappropriate to halt program execution when an error is detected, the value -1 or 1 is recommended. If the output of error messages is undesirable, then the value 1 is recommended. Otherwise, if you are not familiar with this argument, the recommended value is 0. **When the value -1 or 1 is used it is essential to test the value of ifail on exit.**

On exit: **ifail** $= 0$ unless the routine detects an error or a warning has been flagged (see Section 6).

6 Error Indicators and Warnings

If on entry **ifail** $= 0$ or -1, explanatory error messages are output on the current error message unit (as defined by **x04aaf**).

Errors or warnings detected by the routine:

ifail $= 11$

handle has not been initialized or is corrupt.

ifail $= 12$

handle is not a G22 handle.

ifail $= 21$

On entry, *option* was not recognized: **optstr** $= \langle value \rangle$.

ifail $= 22$

On entry, *option* is not readable: **optstr** $= \langle value \rangle$.

ifail $= 51$

On entry, *option* is a character optional parameter, but **cvalue** is too short to hold the stored value. The minimum number of characters to store the value is returned in **ivalue**. The value returned in **cvalue** will be truncated.

ifail $= 121$

Invalid *instance identifier* for *option*.
On entry, **optstr** $= \langle value \rangle$.

ifail $= 122$

Numeric *instance identifier* is out of range.
On entry, $instance\ identifier = \langle value \rangle$
Constraint: $\langle value \rangle \leq instance\ identifier$ and $instance\ identifier \leq \langle value \rangle$.

ifail $= 123$

On entry, *option* cannot have an associated *instance identifier*. The supplied *instance identifier* was ignored.
optstr $= \langle value \rangle$.

ifail $= 124$

option has multiple instances. Information from the first instance has been returned.

ifail $= -99$

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

See Section 3.9 in How to Use the NAG Library and its Documentation for further information.

ifail $= -399$

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

See Section 3.8 in How to Use the NAG Library and its Documentation for further information.

ifail $= -999$

Dynamic memory allocation failed.

See Section 3.7 in How to Use the NAG Library and its Documentation for further information.

7 Accuracy

Not applicable.

8 Parallelism and Performance

g22znf is not threaded in any implementation.

9 Further Comments

When **optstr** is set to **identify**, the following return values are possible:

Model Formula
G22 handle was returned by **g22yaf** in **hform**.

Data Matrix Description
G22 handle was returned by **g22ybf** in **hddesc**.

Design Matrix Description
G22 handle was returned by **g22ycf** in **hxdesc**.

10 Example

See the example for **g22yaf**.