NAG Library Function Document

nag_enum_value_to_name (x04nbc)

1 Purpose

nag_enum_value_to_name (x04nbc) returns the name of the NAG enumeration member given the
enumeration member’s value.

2 Specification

#include <nag.h>
#include <nagx04.h>
const char * nag_enum_value_to_name (int enum_value)

3 Description

nag_enum_value_to_name (x04nbc) takes an integer argument, which must be the value of a NAG
enumeration member and returns a string which is the name of that member (e.g., “Nag_ColMajor”,
“Nag_LogNormal”, etc.). If the input value does not correspond to a NAG enumeration member then
the function returns 0.

The reverse process of converting from enumeration member name to enumeration member value is also
available using nag_enum_name_to_value (x04nac).

Converting enumeration members to and from name and value may be of use when saving a set of
problem arguments to file or reading problem arguments from a file for use in an application. In the case
of saving problem arguments, any enumeration members to be saved should be saved using their names
to be subsequently read as strings. nag_enum_value_to_name (x04nbc) can be used to get enumeration
member names for writing.

4 References

None.

5 Arguments

1: enum_value – int
   Input
   On entry: the value of a NAG enumeration member.

6 Error Indicators and Warnings

If the value 0 is returned then the input value is not recognized as a valid NAG enumeration member
value.

7 Accuracy

Not applicable.

8 Parallelism and Performance

Not applicable.
9 Further Comments

None.

10 Example

This example takes a set of NAG enumeration members and checks that the value used has a name that matches the member name.

10.1 Program Text

/* nag_enum_value_to_name (x04nbc) Example Program. */
* Copyright 2014 Numerical Algorithms Group.
* Mark 8, 2005.
*/

#include <stdio.h>
#include <nag.h>
#include <nag_stdlib.h>
#include <nag_string.h>
#include <nagx04.h>

int main(void)
{
    /* Scalars */
    Integer exit_status = 0;
    Nag_OrderType order;
    Nag_TransType trans;
    Nag_DiagType unitdiag;
    Nag_MatrixType matrix;
    /* Pointers */
    const char *str_order, *str_trans, *str_matrix, *str_unitdiag;
    const char *status;

    printf("nag_enum_value_to_name (x04nbc) Example Program Results\n\n");

    /* Set some Nag types using enum member names */
    order = Nag_ColMajor;
    trans = Nag_Trans;
    matrix = Nag_GeneralMatrix;
    unitdiag = Nag_NonUnitDiag;

    /* Convert the values held by these typed variables to strings */

    /* nag_enum_value_to_name (x04nbc). */
    /* Converts NAG enum member value to its name */
    str_order = nag_enum_value_to_name(order);
    str_trans = nag_enum_value_to_name(trans);
    str_matrix = nag_enum_value_to_name(matrix);
    str_unitdiag = nag_enum_value_to_name(unitdiag);

    /* Check strings match member names and print. */
    printf("Member name String returned Status\n");
    printf("----------------- ----------------- ------\n");
    status = "OK";
    if (strcmp(str_order, "Nag_ColMajor"))
    {
        status = "Error";
        exit_status++;
    }
    printf("%-17s %-17s %-6s\n", "Nag_ColMajor", str_order, status);
    status = "OK";
    if (strcmp(str_trans, "Nag_Trans"))
    {
        status = "Error";
        exit_status++;
    }
    printf("%-17s %-17s %-6s\n", "Nag_Trans", str_trans, status);

    return exit_status;
}

*/

x04nbc.2 Mark 25
NAG Library Manual
{  
  status = "Error";
  exit_status++;
}
printf("%-17s %-17s %-6s\n", "Nag_Trans", str_trans, status);

status = "OK";
if (strcmp(str_matrix, "Nag_GeneralMatrix") )
{  
  status = "Error";
  exit_status++;
}
printf("%-17s %-17s %-6s\n", "Nag_GeneralMatrix", str_matrix, status);

status = "OK";
if (strcmp(str_unitdiag, "Nag_NonUnitDiag") )
{  
  status = "Error";
  exit_status++;
}
printf("%-17s %-17s %-6s\n", "Nag_NonUnitDiag", str_unitdiag, status);
return exit_status;
}

10.2 Program Data

None.

10.3 Program Results

nag_enum_value_to_name (x04nbc) Example Program Results

<table>
<thead>
<tr>
<th>Member name</th>
<th>String returned</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nag_ColMajor</td>
<td>Nag_ColMajor</td>
<td>OK</td>
</tr>
<tr>
<td>Nag_Trans</td>
<td>Nag_Trans</td>
<td>OK</td>
</tr>
<tr>
<td>Nag_GeneralMatrix</td>
<td>Nag_GeneralMatrix</td>
<td>OK</td>
</tr>
<tr>
<td>Nag_NonUnitDiag</td>
<td>Nag_NonUnitDiag</td>
<td>OK</td>
</tr>
</tbody>
</table>