NAG C Library Function Document

nag_open_file (x04acc)

1 Purpose

nag_open_file (x04acc) opens a file for reading, writing or appending, and returns an associated file identifier.

2 Specification

```
#include <nag.h>
#include <nagx04.h>
```

void nag_open_file (const char ***filename**, Integer **mode**, Nag_FileID ***fileid**,
    NagError ***fail**)

3 Description

nag_open_file (x04acc) opens a file for reading, writing or appending and returns an associated file identifier. This function is intended for use by callers of certain functions in Chapters e04 and f12 which use the file identifier for input or output of data.

4 References

None.

5 Arguments

1: **filename** – const char * *Input*

On entry: the name of the file to be opened. As special cases, an empty string or null pointer may be used to associate FileID with standard input or standard output.

Constraint: must contain a valid filename for the computer system being used.

2: **mode** – Integer *Input*

On entry: specifies whether the file is to be opened for reading, writing or appending.

mode $= 0$

  The file is to be opened for reading.

mode $= 1$

  The file is to be opened for writing.

mode $= 2$

  The file is to be opened for appending.

Constraint: $0 \leq$ **mode** ≤ 2. If **filename** is stdout, **mode** must not be 0.

3: **fileid** – Nag_FileID * *Output*

Note: **fileid** is a NAG defined type (see Section 2.2.1.1 of the Essential Introduction).

On exit: an identifier associated with the file to be read from, written to or appended to. This identifier will typically be passed to other NAG C Library functions.

4:   **fail** – NagError *   *Input/Output*

The NAG error argument (see Section 2.6 of the Essential Introduction).

6   Error Indicators and Warnings

NE_INT

On entry, **mode** = $\langle value \rangle$. Constraint: $0 \le \textbf{mode} \le 2$.

NE_NOT_APPEND_FILE

Cannot open file $\langle value \rangle$ for appending.

NE_NOT_READ_FILE

Cannot open file $\langle value \rangle$ for reading.

NE_NOT_WRITE_FILE

Cannot open file $\langle value \rangle$ for writing.

7   Accuracy

Not applicable.

8   Further Comments

None.

9   Example

This example program illustrates how to open a file for writing, write a line to the file using nag_write_line (x04bac) and close the file using nag_close_file (x04adc). The file is then reopened, the line read back using nag_read_line (x04bbc), and closed again.

9.1   Program Text

```
/* nag_open_file (x04acc) Example Program.
 *
 * Copyright 2005 Numerical Algorithms Group.
 *
 * NAG C Library
 *
 * Mark 8, 2005.
 *
 */

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

int main(void)
{
  Integer mode, exit_status = 0;
  NagError fail;
  Nag_FileID fileid;
  const char *filename;
  char line[100], line2[100];

  INIT_FAIL(fail);
```

```
  Vprintf("nag_open_file (x04acc) Example Program Results\n");
  Vprintf("\n");

  filename = "x04acc_example.txt";
  Vprintf("Attempting to write to and read from file %s:\n", filename);

  /* Open the file for writing */
  mode = 1;
  /* nag_open_file (x04acc).
   * Open unit number for reading, writing or appending, and
   * associate unit with named file
   */
  nag_open_file(filename, mode, &fileid, &fail);
  /* Write a line to the file we opened */
  sprintf(line,"%s", "NAG nag_open_file (x04acc) example program");
  /* nag_write_line (x04bac).
   * Write formatted record to external file
   */
  nag_write_line(fileid, line);
  /* Close the file */
  /* nag_close_file (x04adc).
   * Close file associated with given unit number
   */
  nag_close_file(fileid, &fail);

  /* Open the file for reading */
  mode = 0;
  /* nag_open_file (x04acc), see above. */
  nag_open_file(filename, mode, &fileid, &fail);
  /* Read the line back from the file */
  /* nag_read_line (x04bbc).
   * Read formatted record from external file
   */
  nag_read_line(fileid, line2, 100, &fail);

  if (!strcmp(line, line2))
    printf(" - correctly wrote line \"%s\" to file and read it back.\n",
           line);
  else
    {
      printf(" - failed to write line \"%s\" to file and read it back.\n",
             line);
      exit_status = 1;
    }

  return exit_status;
}
```

9.2   Program Data

None.

9.3   Program Results

```
nag_open_file (x04acc) Example Program Results

Attempting to write to and read from file x04acc_example.txt:
 - correctly wrote line "NAG nag_open_file (x04acc) example program" to file and read it back.
```