Open() and Close()

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open()

Function Description

- int open(const char *_pathname_, int _flags_);

- int open(const char *_pathname_, int _flags_, mode_t _mode_);

- The function opens the file specified by _pathname_.

- If the specified file does not exist, it may be created by **open()**.

- _flags:_ **O_CREAT**.

- The return value of **open()** is a nonnegative file descriptor(int).

mode - File Access Mode

- **O_RDONLY**: read-only

- **O_WRONLY**: write-only

- **O_RDWR**: read/write

- The file access mode are not represented by individual bits so the logical operation between the modes are illegal.

flags - **Partial Flag List and Descriptions**

- **O_APPEND:** open file in append mode
- **O_CREAT:** if not exist then create
- **O_ASYNC:** enable signal driven I/O
- **O_CLOEXEC:** enable the close-on-exec flag for the new file descriptor, essential in some multithreaded programs
- **O_DIRECT:** minimize cache effects
- **O_DIRECTORY:** if *pathname* not a directory, fail the opening
- **O_EXCL**: ensure the creation of the file
- **O_NOATIME**: when the file is read, do not update the last access time
- **O_TMPFILE**: create an unnamed temporary regular file.
- **O_TRUNC**: if the file exists and is a regular file and the access mode is **O_RDWR** or **O_WRONLY** it will be truncated

RETURN VALUE

- **open()** returns the new **file descriptor**, or -1 if an error occurred (in which case, **errno** is set appropriately).

File Descriptor (FD, or fildes)

- A **file descriptor** is a unique identifier for a **file** or
  other **input/output resource**, such as a pipe or network socket.

Integer value	Name	\<unistd.h\> symbolic constant	\<stdio.h\> file stream
0	Standard input	STDIN_FILENO	stdin
1	Standard output	STDOUT_FILENO	stdout
2	Standard error	STDERR_FILENO	stderr

Errno - Partial Error List and Descriptions

- #include <errno.h>

- **EACCES** The requested access to the file is not allowed, or search permission is denied for one of the directories in the path prefix of pathname, or the file did not exist yet and write access to the parent directory is not allowed

- **EEXIST** pathname already exists and O_CREAT and O_EXCL were used.

- **EINVAL** Invalid value in flags.

- For more errors:

  $ man open

close()

Function Description

- int close(int *fd*)

- *fd*: file descriptor, returned by **open()**

- Return value: 0 on success; -1 on error

Errno

- **EBADF**: the argument is not a valid file descriptor

- **EINTR**: the close() function was interrupted by a signal

- **EIO**: an I/O error occurred while reading or writing to the file system

Reference

- https://en.wikipedia.org/wiki/File_descriptor

- $ man open

- $ man close

- $ man errno

Thanks