The open() function shall establish the connection between a file and a file descriptor. It shall create an open file description that refers to a file and a file descriptor that refers to that open file description.

File <<============= Open file description <<============= File descriptor

1. open file description

It connects with file and represents some file status.

fcntl(F\_GETFL/F\_SETFL) : File status flags

1. [Access Modes](http://www.gnu.org/software/libc/manual/html_node/Access-Modes.html#Access-Modes), specify what type of access is allowed to the file: reading, writing, or both. They are set by open and are returned by fcntl, but cannot be changed.
2. [Open-time Flags](http://www.gnu.org/software/libc/manual/html_node/Open_002dtime-Flags.html#Open_002dtime-Flags), control details of what open will do. These flags are not preserved after the open call.
3. [Operating Modes](http://www.gnu.org/software/libc/manual/html_node/Operating-Modes.html#Operating-Modes), affect how operations such as read and write are done. They are set by open, and can be fetched or changed with fcntl.
4. file descriptor

It connects with open file description

fcntl(F\_GETFD/F\_SETFD) : File descriptor flags

Currently, only one such flag is defined: FD\_CLOEXEC, the close-on-exec flag.

1. dup: create a copy of the file descriptor oldfd.

newfd and oldfd refer to the same open file description and thus share file offset and file status flags; for example, if the file offset is modified by using lseek(2) on one of the descriptors, the offset is also changed for the other. The two descriptors do not share file descriptor flags (the close-on-exec flag).

1. Fcntl: performs one of the operations described below on the open file descriptor fd
2. fcntl(F\_GETFL/F\_SETFL) : File status flags
3. fcntl(F\_GETFD/F\_SETFD) : File descriptor flags
4. fcntl(F\_DUPFD/ F\_DUPFD\_CLOEXEC) : Duplicating a file descriptor like dup, but F\_DUPFD\_CLOEXEC additionally set the close-on-exec flag for the duplicate descriptor
5. fcntl(F\_GETLK/F\_SETLK/F\_SETLKW) : Advisory/ Mandatory locking