

NAME

`ioctl` – control device

SYNOPSIS

```
#include <sys/ioctl.h>
```

```
int ioctl(int fd, unsigned long request, ...);
```

DESCRIPTION

The **ioctl()** system call manipulates the underlying device parameters of special files. In particular, many operating characteristics of character special files (e.g., terminals) may be controlled with **ioctl()** requests. The argument *fd* must be an open file descriptor.

The second argument is a device-dependent request code. The third argument is an untyped pointer to memory. It's traditionally **char ****argp* (from the days before **void *** was valid C), and will be so named for this discussion.

An **ioctl()** *request* has encoded in it whether the argument is an *in* parameter or *out* parameter, and the size of the argument *argp* in bytes. Macros and defines used in specifying an **ioctl()** *request* are located in the file `<sys/ioctl.h>`.

RETURN VALUE

Usually, on success zero is returned. A few **ioctl()** requests use the return value as an output parameter and return a nonnegative value on success. On error, `-1` is returned, and *errno* is set appropriately.

ERRORS

EBADF *fd* is not a valid file descriptor.

EFAULT *argp* references an inaccessible memory area.

EINVAL *request* or *argp* is not valid.

ENOTTY *fd* is not associated with a character special device.

ENOTTY The specified request does not apply to the kind of object that the file descriptor *fd* references.

CONFORMING TO

No single standard. Arguments, returns, and semantics of **ioctl()** vary according to the device driver in question (the call is used as a catch-all for operations that don't cleanly fit the UNIX stream I/O model). See **ioctl_list(2)** for a list of many of the known **ioctl()** calls. The **ioctl()** system call appeared in Version 7 AT&T UNIX.

NOTES

In order to use this call, one needs an open file descriptor. Often the **open(2)** call has unwanted side effects, that can be avoided under Linux by giving it the **O_NONBLOCK** flag.

SEE ALSO

execve(2), **fcntl(2)**, **ioctl_console(2)**, **ioctl_fat(2)**, **ioctl_ficlonerange(2)**, **ioctl_fideduperange(2)**, **ioctl_getfsmmap(2)**, **ioctl_iflags(2)**, **ioctl_list(2)**, **ioctl_ns(2)**, **ioctl_tty(2)**, **ioctl_userfaultfd(2)**, **open(2)**, **sd(4)**, **tty(4)**

COLOPHON

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