NAME

chown, fchown, lchown − change ownership of a file

SYNOPSIS

#include <unistd.h>

int chown(const char ****path*, uid_t** *owner***, gid_t** *group***);**
int fchown(int *fd***, uid_t** *owner***, gid_t** *group***);**
int lchown(const char ****path*, uid_t** *owner***, gid_t** *group***);**

Feature Test Macro Requirements for glibc (see **feature_test_macros**(7)):

fchown(), **lchown**(): _BSD_SOURCE || _XOPEN_SOURCE >= 500

DESCRIPTION

These system calls change the owner and group of a file. The differ only in how the file is specified:

* **chown**() changes the ownership of the file specified by *path*, which is dereferenced if it is a symbolic link.
* **fchown**() changes the ownership of the file referred to by the open file descriptor *fd*.
* **lchown**() is like **chown**(), but does not dereference symbolic links.

Only a privileged process (Linux: one with the **CAP_CHOWN** capability) may change the owner of a file. The owner of a file may change the group of the file to any group of which that owner is a member. A privileged process (Linux: with **CAP_CHOWN**) may change the group arbitrarily.

If the *owner* or *group* is specified as −1, then that ID is not changed.

When the owner or group of an executable file are changed by a non-superuser, the **S_ISUID** and **S_ISGID** mode bits are cleared. POSIX does not specify whether this also should happen when root does the **chown**(); the Linux behavior depends on the kernel version. In case of a non-group-executable file (i.e., one for which the **S_IXGRP** bit is not set) the **S_ISGID** bit indicates mandatory locking, and is not cleared by a **chown**().

RETURN VALUE

On success, zero is returned. On error, −1 is returned, and *errno* is set appropriately.

ERRORS

Depending on the file system, other errors can be returned. The more general errors for **chown**() are listed below.

EACCES
Search permission is denied on a component of the path prefix. (See also **path_resolution**(7).)

EFAULT
path points outside your accessible address space.

ELOOP
Too many symbolic links were encountered in resolving *path*.

ENAMETOOLONG
path is too long.

ENOENT
The file does not exist.

ENOMEM
Insufficient kernel memory was available.

ENOTDIR
A component of the path prefix is not a directory.

EPERM
The calling process did not have the required permissions (see above) to change owner and/or group.

EROFS
The named file resides on a read-only file system.

The general errors for **fchown**() are listed below:

EBADF
The descriptor is not valid.

EIO A low-level I/O error occurred while modifying the inode.

ENOENT
See above.

EPERM
See above.

EROFS
See above.

CONFORMING TO

4.4BSD, SVr4, POSIX.1-2001.

The 4.4BSD version can only be used by the superuser (that is, ordinary users cannot give away files).

NOTES

When a new file is created (by, for example, **open**(2) or **mkdir**(2)), its owner is made the same as the file system user ID of the creating process. The group of the file depends on a range of factors, including the type of file system, the options used to mount the file system, and whether or not the set-group-ID permission bit is enabled on the parent directory. If the file system supports the *−o grpid* (or, synonymously *−o bsdgroups*) and *−o nogrpid* (or, synonymously *−o sysvgroups*) **mount**(8) options, then the rules are as follows:

* If the file system is mounted with *−o grpid*, then the group of a new file is made the same as that of the parent directory.
* If the file system is mounted with *−o nogrpid* and the set-group-ID bit is disabled on the parent directory, then the group of a new file is made the same as the process's file system GID.
* If the file system is mounted with *−o nogrpid* and the set-group-ID bit is enabled on the parent directory, then the group of a new file is made the same as that of the parent directory.

As at Linux 2.6.25, the *−o grpid* and *−o nogrpid* mount options are supported by ext2, ext3, ext4, and XFS. File systems that don't support these mount options follow the *−o nogrpid* rules.

The **chown**() semantics are deliberately violated on NFS file systems which have UID mapping enabled. Additionally, the semantics of all system calls which access the file contents are violated, because **chown**() may cause immediate access revocation on already open files. Client side caching may lead to a delay between the time where ownership have been changed to allow access for a user and the time where the file can actually be accessed by the user on other clients.

In versions of Linux prior to 2.1.81 (and distinct from 2.1.46), **chown**() did not follow symbolic links. Since Linux 2.1.81, **chown**() does follow symbolic links, and there is a new system call **lchown**() that does not follow symbolic links. Since Linux 2.1.86, this new call (that has the same semantics as the old **chown**()) has got the same syscall number, and **chown**() got the newly introduced number.

EXAMPLE

The following program changes the ownership of the file named in its second command-line argument to the value specified in its first command-line argument. The new owner can be specified either as a numeric user ID, or as a username (which is converted to a user ID by using **getpwnam**(3) to perform a lookup in the system password file).

```
#include <pwd.h>
#include <stdio.h>
#include <stdlib.h>
#include <unistd.h>

int
main(int argc, char *argv[])
{
   uid_t uid;
   struct passwd *pwd;
   char *endptr;

   if (argc != 3 || argv[1][0] == '\0') {
      fprintf(stderr, "%s <owner> <file>\n", argv[0]);
      exit(EXIT_FAILURE);
   }

   uid = strtol(argv[1], &endptr, 10);  /* Allow a numeric string */

   if (*endptr != '\0') {         /* Was not pure numeric string */
      pwd = getpwnam(argv[1]);   /* Try getting UID for username */
      if (pwd == NULL) {
         perror("getpwnam");
         exit(EXIT_FAILURE);
      }

      uid = pwd->pw_uid;
   }

   if (chown(argv[2], uid, -1) == -1) {
      perror("chown");
      exit(EXIT_FAILURE);
   } /* if */

   exit(EXIT_SUCCESS);
} /* main */
```

SEE ALSO

chmod(2), **fchownat**(2), **flock**(2), **path_resolution**(7), **symlink**(7)

COLOPHON

This page is part of release 3.22 of the Linux *man-pages* project. A description of the project, and information about reporting bugs, can be found at http://www.kernel.org/doc/man-pages/.