

NAME

`ls` - list contents of directory

SYNOPSIS

`ls [-ltasdrucif] name ...`

DESCRIPTION

For each directory argument, `ls` lists the contents of the directory; for each file argument, `ls` repeats its name and any other information requested. The output is sorted alphabetically by default. When no argument is given, the current directory is listed. When several arguments are given, the arguments are first sorted appropriately, but file arguments appear before directories and their contents. There are several options:

- l List in long format, giving mode, number of links, owner, group, size in bytes, and time of last modification for each file. (See below.) If the file is a special file the size field will instead contain the major and minor device numbers.
- t Sort by time modified (latest first) instead of by name, as is normal.
- a List all entries; usually those beginning with `.` are suppressed.
- s Give size in blocks, including indirect blocks, for each entry.
- d If argument is a directory, list only its name, not its contents (mostly used with `-l` to get status on directory).
- r Reverse the order of sort to get reverse alphabetic or oldest first as appropriate.
- u Use time of last access instead of last modification for sorting (`-t`) or printing (`-l`).
- c Use time of last modification to inode (mode, etc.) instead of last modification to file for sorting (`-t`) or printing (`-l`).
- i Print i-number in first column of the report for each file listed.
- f Force each argument to be interpreted as a directory and list the name found in each slot. This option turns off `-l`, `-t`, `-s`, and `-r`, and turns on `-a`; the order is the order in which entries appear in the directory.

The mode printed under the `-l` option contains 11 characters which are interpreted as follows:
The first character is:

- d** if the entry is a directory;
- b** if the entry is a block-type special file;
- c** if the entry is a character-type special file;
- m** if the entry is a multiplexed character file;
- n** if the entry is a multiplexed block file;
- if the entry is a plain file.

The next 9 characters are interpreted as three sets of three bits each. The first set refers to owner permissions; the next to permissions to others in the same user-group; and the last to all others. Within each set the three characters indicate permission respectively to read, to write, or to execute the file as a program. For a directory, 'execute' permission is interpreted to mean permission to search the directory for a specified file. The permissions are indicated as follows:

- r** if the file is readable;
- w** if the file is writable;
- x** if the file is executable;
- if the indicated permission is not granted.

The group-execute permission character is given as `s` if the file has set-group-ID mode and group-execute permission; likewise the user-execute permission character is given

as s if the file has set-user-ID mode and user-execute permission. If the set-user-ID bit or set-group-ID bit is set but the file does not have the appropriate execute permission, a ? will appear where the s normally would be seen.

Similarly, the other-execute permission character may be replaced by a t if the save-text and other-execute bits are both set. If only the save-text bit is set a ? will appear instead.

FILES

/etc/passwd and /etc/group to get user and group ID's for ls -l.