Red Hat Enterprise Linux Release 9.2 Manual Pages on 'chattr.1' command

$ man chattr.1

CHATTR(1)　　　　　　General Commands Manual　　　　　　CHATTR(1)

NAME

　　chattr - change file attributes on a Linux file system

SYNOPSIS

　　chattr [-RVf] [-v version] [-p project] [mode] files...

DESCRIPTION

　　chattr changes the file attributes on a Linux file system.

　　The format of a symbolic mode is +-=[aAcCdDeFijmPsStTux].

　　The operator '+' causes the selected attributes to be added to the ex?

　　isting attributes of the files; '-' causes them to be removed; and '='

　　causes them to be the only attributes that the files have.

　　The letters 'aAcCdDeFijmPsStTux' select the new attributes for the

　　files: append only (a), no atime updates (A), compressed (c), no copy

　　on write (C), no dump (d), synchronous directory updates (D), extent

　　format (e), case-insensitive directory lookups (F), immutable (i), data

　　journaling (j), don't compress (m), project hierarchy (P), secure dele?

　　tion (s), synchronous updates (S), no tail-merging (t), top of direc?

　　tory hierarchy (T), undeletable (u), and direct access for files (x).

　　The following attributes are read-only, and may be listed by lsattr(1)

　　but not modified by chattr: encrypted (E), indexed directory (I), in?

　　line data (N), and verity (V).

　　Not all flags are supported or utilized by all file systems; refer to

　　file system-specific man pages such as btrfs(5), ext4(5), and xfs(5)

for more file system-specific details.

OPTIONS

-R   Recursively change attributes of directories and their contents.

-V   Be verbose with chattr's output and print the program version.

-f   Suppress most error messages.

-v version

Set the file's version/generation number.

-p project

Set the file's project number.

ATTRIBUTES

a   A file with the 'a' attribute set can only be opened in append

mode for writing. Only the superuser or a process possessing

the CAP_LINUX_IMMUTABLE capability can set or clear this attri?

bute.

A   When a file with the 'A' attribute set is accessed, its atime

record is not modified. This avoids a certain amount of disk

I/O for laptop systems.

c   A file with the 'c' attribute set is automatically compressed on

the disk by the kernel. A read from this file returns uncom?

pressed data. A write to this file compresses data before stor?

ing them on the disk. Note: please make sure to read the bugs

and limitations section at the end of this document. (Note: For

btrfs, If the 'c' flag is set, then the 'C' flag cannot be set.

Also conflicts with btrfs mount option 'nodatasum')

C   A file with the 'C' attribute set will not be subject to copy-

on-write updates.   This flag is only supported on file systems

which perform copy-on-write. (Note: For btrfs, the 'C' flag

should be set on new or empty files. If it is set on a file

which already has data blocks, it is undefined when the blocks

assigned to the file will be fully stable. If the 'C' flag is

set on a directory, it will have no effect on the directory, but

new files created in that directory will have the No_COW attri?

bute set. If the 'C' flag is set, then the 'c' flag cannot be

set.)

d   A file with the 'd' attribute set is not a candidate for backup
when the dump(8) program is run.

D   When a directory with the 'D' attribute set is modified, the
changes are written synchronously to the disk; this is equiva?
lent to the 'dirsync' mount option applied to a subset of the
files.

e   The 'e' attribute indicates that the file is using extents for
mapping the blocks on disk. It may not be removed using
chattr(1).

E   A file, directory, or symlink with the 'E' attribute set is en?
crypted by the file system. This attribute may not be set or
cleared using chattr(1), although it can be displayed by
lsattr(1).

F   A directory with the 'F' attribute set indicates that all the
path lookups inside that directory are made in a case-insensi?
tive fashion. This attribute can only be changed in empty di?
rectories on file systems with the casefold feature enabled.

i   A file with the 'i' attribute cannot be modified: it cannot be
deleted or renamed, no link can be created to this file, most of
the file's metadata can not be modified, and the file can not be
opened in write mode. Only the superuser or a process possess?
ing the CAP_LINUX_IMMUTABLE capability can set or clear this at?
tribute.

I   The 'I' attribute is used by the htree code to indicate that a
directory is being indexed using hashed trees. It may not be
set or cleared using chattr(1), although it can be displayed by
lsattr(1).

j   A file with the 'j' attribute has all of its data written to the
ext3 or ext4 journal before being written to the file itself, if
the file system is mounted with the "data=ordered" or
"data=writeback" options and the file system has a journal.
When the file system is mounted with the "data=journal" option

all file data is already journalled and this attribute has no effect.   Only the superuser or a process possessing the CAP_SYS_RESOURCE capability can set or clear this attribute.

m   A file with the 'm' attribute is excluded from compression on file systems that support per-file compression.

N   A file with the 'N' attribute set indicates that the file has data stored inline, within the inode itself. It may not be set or cleared using chattr(1), although it can be displayed by lsattr(1).

P   A directory with the 'P' attribute set will enforce a hierarchi? cal structure for project id's. This means that files and di? rectories created in the directory will inherit the project id of the directory, rename operations are constrained so when a file or directory is moved into another directory, that the project ids must match. In addition, a hard link to file can only be created when the project id for the file and the desti? nation directory match.

s   When a file with the 's' attribute set is deleted, its blocks are zeroed and written back to the disk. Note: please make sure to read the bugs and limitations section at the end of this doc? ument.

S   When a file with the 'S' attribute set is modified, the changes are written synchronously to the disk; this is equivalent to the 'sync' mount option applied to a subset of the files.

t   A file with the 't' attribute will not have a partial block fragment at the end of the file merged with other files (for those file systems which support tail-merging). This is neces? sary for applications such as LILO which read the file system directly, and which don't understand tail-merged files.   Note: As of this writing, the ext2, ext3, and ext4 file systems do not support tail-merging.

T   A directory with the 'T' attribute will be deemed to be the top of directory hierarchies for the purposes of the Orlov block al?

locator. This is a hint to the block allocator used by ext3 and
ext4 that the subdirectories under this directory are not re?
lated, and thus should be spread apart for allocation purposes.
For example it is a very good idea to set the 'T' attribute on
the /home directory, so that /home/john and /home/mary are
placed into separate block groups. For directories where this
attribute is not set, the Orlov block allocator will try to
group subdirectories closer together where possible.

u   When a file with the 'u' attribute set is deleted, its contents
are saved. This allows the user to ask for its undeletion.
Note: please make sure to read the bugs and limitations section
at the end of this document.

x   The 'x' attribute can be set on a directory or file. If the at?
tribute is set on an existing directory, it will be inherited by
all files and subdirectories that are subsequently created in
the directory. If an existing directory has contained some
files and subdirectories, modifying the attribute on the parent
directory doesn't change the attributes on these files and sub?
directories.

V   A file with the 'V' attribute set has fs-verity enabled.   It
cannot be written to, and the file system will automatically
verify all data read from it against a cryptographic hash that
covers the entire file's contents, e.g. via a Merkle tree. This
makes it possible to efficiently authenticate the file.   This
attribute may not be set or cleared using chattr(1), although it
can be displayed by lsattr(1).

AUTHOR

chattr was written by Remy Card <Remy.Card@linux.org>. It is currently
being maintained by Theodore Ts'o <tytso@alum.mit.edu>.

BUGS AND LIMITATIONS

The 'c', 's',   and 'u' attributes are not honored by the ext2, ext3,
and ext4 file systems as implemented in the current mainline Linux ker?
nels.   Setting 'a' and 'i' attributes will not affect the ability to

write to already existing file descriptors.

The 'j' option is only useful for ext3 and ext4 file systems.

The 'D' option is only useful on Linux kernel 2.5.19 and later.

AVAILABILITY

chattr is part of the e2fsprogs package and is available from

http://e2fsprogs.sourceforge.net.

SEE ALSO

lsattr(1), btrfs(5), ext4(5), xfs(5).

E2fsprogs version 1.46.5   December 2021   CHATTR(1)