

# CHATTR COMMAND

The **chattr** (change attribute) command is a file system utility in Linux that allows users to change the attributes of files and directories in filesystem. This command is particularly useful in a multi-user environment, where it's necessary to restrict modifications to critical files. By using **chattr**, you can make files immutable (undeletable or unmodifiable), restrict them to append-only mode, and apply other specific behaviors that enhance file security.

Here are some common **attributes** you can set with chattr:

- **a**: Append-only. The file can only be opened in append mode for writing.
- **c**: Compressed. The file is automatically compressed.
- **i**: Immutable. The file cannot be modified, deleted, or renamed. This is useful for protecting important files.
- **d**: No dump. The file is excluded from backup operations.
- **e**: Extents. This attribute is used with filesystems that support extents, like ext4.
- **j**: Data journaling. This attribute ensures that the file data is journaled (not just metadata).
- **s**: Secure delete. The file is deleted securely, ensuring that the data is not recoverable.
- **t**: No tail-merging. This attribute is used for filesystems that use tail merging (e.g., ext4).
- **u**: Undeletable. When the file is deleted, its contents are not actually removed, allowing for possible recovery.
- **A**: No atime updates. Access time of the file is not updated (saves on write operations).
- **D**: No data-atime updates. Access time is not updated for files with data changes.
- **S**: Synchronous updates. File updates are written synchronously, making sure that changes are immediately flushed to disk.

At the beginning of a mode string, one of the following operators must appear:

- **‘+’**: Adding selected attributes to the existing attributes of the files.
- **‘-’**: Causes selected attributes to be removed.
- **‘=’**: Causes selected attributes to be the only attributes that the files have.

## Syntax:

**chattr [options] [attributes] [file/directory]**

## Use cases:

- Making the file immutable
- Opening the file only in append mode
- Making directories secured
- Compression

# Immutable Attribute

To set a file as immutable:

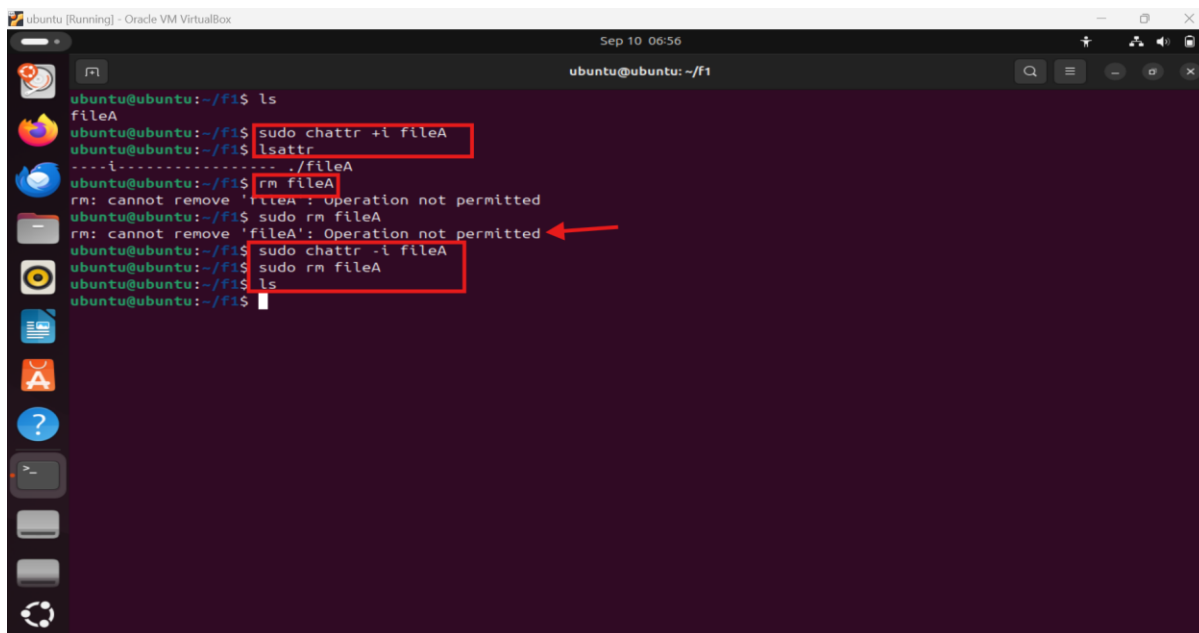
**sudo chattr +i filename**

To remove the immutable attribute :

**sudo chattr -i filename**

To view the attributes of a file:

**lsattr filename**



```
ubuntu [Running] - Oracle VM VirtualBox
Sep 10 06:56
ubuntu@ubuntu: ~/f1
ubuntu@ubuntu:~/f1$ ls
fileA
ubuntu@ubuntu:~/f1$ sudo chattr +i fileA
ubuntu@ubuntu:~/f1$ lsattr
-----i----- ./fileA
ubuntu@ubuntu:~/f1$ rm fileA
rm: cannot remove 'fileA': Operation not permitted
ubuntu@ubuntu:~/f1$ sudo rm fileA
rm: cannot remove 'fileA': Operation not permitted
ubuntu@ubuntu:~/f1$ sudo chattr -i fileA
ubuntu@ubuntu:~/f1$ sudo rm fileA
ubuntu@ubuntu:~/f1$ ls
fileA
ubuntu@ubuntu:~/f1$
```

# Append Attribute

Set the Append-Only Attribute:

```
sudo chattr +a filename
```

Verify the Attribute:

```
Lsattr filename
```

Append the data:

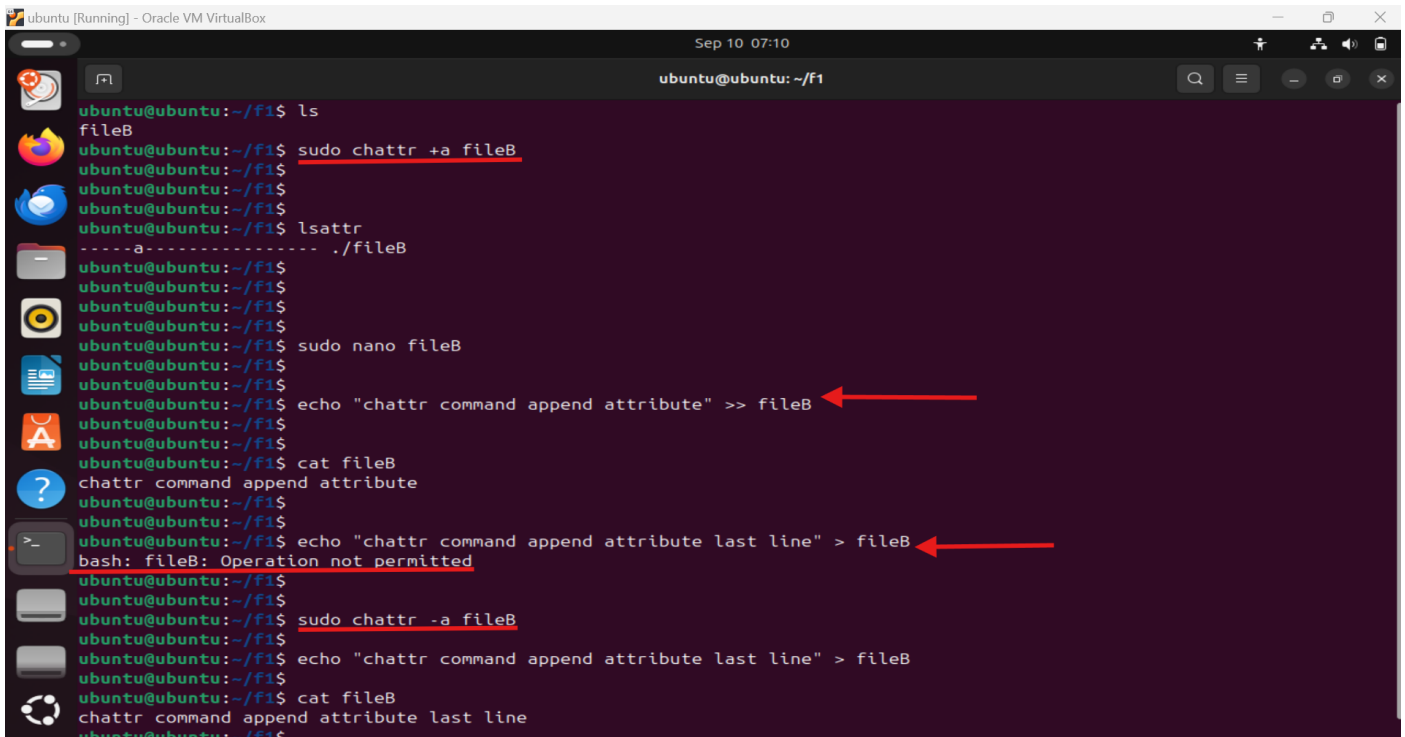
```
echo "chattr command append attribute" >> fileB
```

*#This command will succeeded and will append to the fileB.*

Try modifying :

```
echo "chattr command append attribute lastline" > fileB
```

*# This command will fail because the file is in append-only mode and cannot be modified or overwritten.*



```
ubuntu [Running] - Oracle VM VirtualBox
Sep 10 07:10
ubuntu@ubuntu: ~/f1
ubuntu@ubuntu:~/f1$ ls
fileB
ubuntu@ubuntu:~/f1$ sudo chattr +a fileB
ubuntu@ubuntu:~/f1$
ubuntu@ubuntu:~/f1$
ubuntu@ubuntu:~/f1$ lsattr
-----a----- ./fileB
ubuntu@ubuntu:~/f1$
ubuntu@ubuntu:~/f1$
ubuntu@ubuntu:~/f1$
ubuntu@ubuntu:~/f1$ sudo nano fileB
ubuntu@ubuntu:~/f1$
ubuntu@ubuntu:~/f1$ echo "chattr command append attribute" >> fileB
ubuntu@ubuntu:~/f1$
ubuntu@ubuntu:~/f1$ cat fileB
chattr command append attribute
ubuntu@ubuntu:~/f1$
ubuntu@ubuntu:~/f1$ echo "chattr command append attribute last line" > fileB
bash: fileB: Operation not permitted
ubuntu@ubuntu:~/f1$
ubuntu@ubuntu:~/f1$ sudo chattr -a fileB
ubuntu@ubuntu:~/f1$
ubuntu@ubuntu:~/f1$ echo "chattr command append attribute last line" > fileB
ubuntu@ubuntu:~/f1$
ubuntu@ubuntu:~/f1$ cat fileB
chattr command append attribute last line
ubuntu@ubuntu:~/f1$
```