

# Backing Up and Compressing Files in Linux

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# Objectives



Archiving Files Using tar

File Compression Using Compression Tools

Archiving Using cpio



```
$ sudo du -sh /etc
```

```
22M /etc
```

```
$ sudo tar -cf etc.tar /etc
```

```
tar: Removing leading `/' from member names
```

```
$ ls -lh etc.tar
```

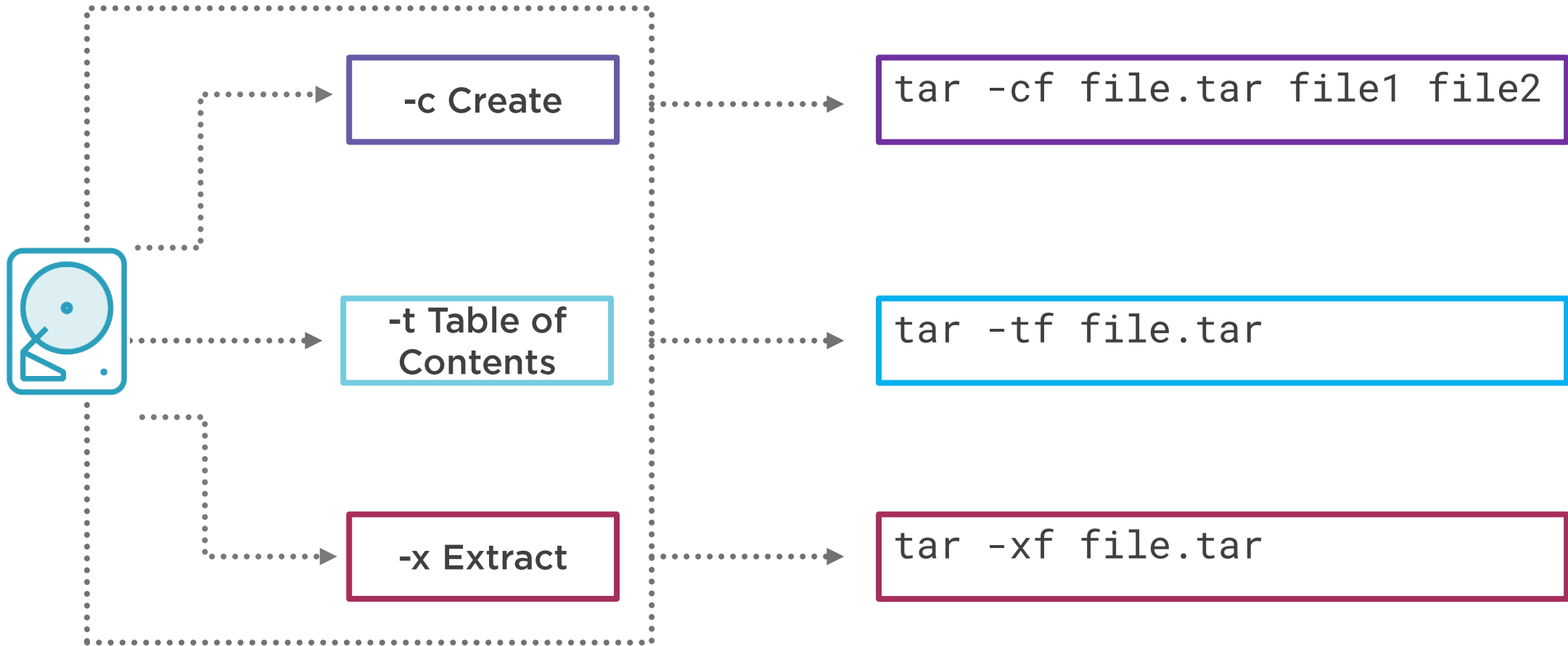
```
-rw-r--r--. 1 root root 21M Jan 18 10:49 etc.tar
```

## Creating TAR Files

The command `tar` can be used to create file archives. Although, **Tape Archives**, they are more commonly used in standard filesystems. By default, a TAR file is not compressed but may appear to be a slightly small size than the original content. This is due to the more efficient use of blocks in the filesystem and not compression



# Tar Operations



# Demo



We will now investigate the basic tar operations





## Various compression utilities exist in Linux

- gzip / gunzip
- bzip2 / bunzip2
- xz -z / xz -d

These can be used independently or with tar

### Creating a zipped archive

- tar -czf (gzip)
- tar -cjf (bzip2)
- tar -cJf (xz)

```
[vagrant@almalinux ~]$ tar -cJf etc.tar.xz /etc 2>/dev/null&  
[1] 5091
```

```
[vagrant@almalinux ~]$ ps  
  PID TTY          TIME CMD  
 2831 pts/0    00:00:00 bash  
 5091 pts/0    00:00:00 tar  
 5092 pts/0    00:00:01 xz  
 5093 pts/0    00:00:00 ps
```

## Compression is Independent

Even when using compression options, the **tar** command is independent of the compression tool that is invoked.



# Demo



## Compression operations from the CLI





# Demo



## Timing Command Operations



# Demo



**Automatic Compression Detection and  
"Less is More"**



# Using CPIO



The command `cpio`, (Copy IO), can be used to create archives. Taking the output from a command to send to an archive to be restored later



# Demo



Learning the "nitty gritty" of the CPIO command in Linux



## Summary



The command `tar` is used to create a single file archive representing one or more files

The commands `gzip`, `bzip2`, `xz` are used to compress files and include options within `tar` to compress whilst archiving

When compressing with `tar` options, the compression tool executes independently

Using `cpio` we take the output of commands to archive and restore using input

A stack of four books is shown against a white background. The books are stacked diagonally from the bottom-left towards the top-right. The top book has a red cover and thick, yellowed pages. The second book has a brown cover and white pages. The third book has a dark brown cover and white pages. The bottom book has a blue cover and white pages. A semi-transparent grey banner with a green vertical line on its left edge is positioned in the upper right, containing the text 'Managing Linux File Systems'.

## Managing Linux File Systems